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READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria and Sugar; Light, Roentgen, Radium, X Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society; Paris, France; Berlin, Prussia, Germany; Vienna, Austria, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "Reviews," etc. Original Articles are indicated by the letter (O).

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SOME SURGICAL DEVELOPMENTS IN WOUND TREATMENT DURING THE WAR.

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It might have been thought that the experience gained in civil practice would be directly applicable to war wounds, but this holds good only to a limited extent. Virtually all war wounds, with the exception of some bullet wounds, are not only septic but virulently septic; this is due to the contamination of the skin and clothing, as well as the fragments of shell and other foreign bodies driven into the tissues, by the germ saturated soil of the highly cultivated lands of France and Belgium.

At the present time the following distinct methods of wound treatment are being employed, and some of these have several or even numerous modifications:

1. Asepsis.
2. The treatment of septic wounds on general principles: free incision, removal of foreign bodies, thorough irrigation with or without antiseptics, and free drainage.
3. Antiseptics as introduced by Lister, and its modifications.
 - (a) The use of alcohol alone, no water or watery solution coming near the wound.
 - (b) The use of various more or less poisonous antiseptics, such as carbolic acid, mercury perchloride, mercury biniodide, iodine, potassium permanganate, eusol, flavine, chloramine-T, brilliant green, etc.
 - (c) The Carrel-Dakin treatment, the continuous use of a solution of sodium hypochlorite.
 - (d) Antiseptic pastes, such as treatment by bipp, introduced by Professor Rutherford Morison, or its modification by the use of other pastes
4. Physiological treatment, introduced by Sir Almroth Wright, who uses a hypertonic salt solution. Arising out of the latter, but distinct from it, the salt pack, introduced by Colonel Gray.
5. Surgical treatment—complete excision of the wound, including all contaminated parts and foreign bodies.
6. Bacteriological treatment, introduced by Dr. Donaldson and Major J. Leonard Joyce—that is, the introduction of a beneficent organism to kill the malignant germs.

A true perspective of the subject can probably best be obtained by one, possessing the necessary technical knowledge, who can remember the pre-antiseptic days and who has watched and taken part in the various developments of the scientific treatment of wounds. With an open mind he can appreciate the advantages and disadvantages of the various theories and methods and their practical application.

In the pre-antiseptic days surgery had little better to offer than the safe piloting of a patient through the inflammation which was almost certain to ensue on any wound, or to remove an injured limb in anticipation of the severe constitutional symptoms certain to follow an opened joint or a severe compound fracture.

I have always felt profoundly thankful that it fell to my lot to commence surgical work during the pre-antiseptic days, and as a post graduate to become a pupil and humble follower of that great genius who transformed surgery from an art to a science.

In the consideration of the germ theory of putrefaction

as applied to infected wounds and their treatment, there are, however, other possibilities to be considered beyond the attempt to kill the micro-organisms by poisonous substances that also do harm to the living cells of the host.

We all have, fortunately, the faculty in a greater or less degree of being able to destroy bacteria when they have entered the body, but some individuals have it in greater degree than others; they are less prone to catch infectious ailments, and their wounds heal kindly under simple treatment. It follows from Metchnikoff's observations on phagocytosis that if the cells are in a vigorous state, as they are in a person in good health, he will be able to offer battle to our tiny but formidable adversaries with every probability of success; but the opposite holds also, and if the system is lowered by intemperate living, by excess of any kind, by overwork, want of exercise, insanitary surroundings, impure air, want of proper food, or in any other way, then the bacteria will find a suitable soil in which to grow, as the living cells are killed in the attempt. When the dead cells accumulate to a perceptible degree we speak of them as pus, which itself then becomes a source of trouble, and must be got rid of before recovery can occur. If only a few germs gain access to a wound, as in an ordinary clean bullet wound, or as even may be the case in a clean surgical operation, Nature should be quite capable of dealing with them; whereas, if large numbers are admitted, as, for instance, in the case of a portion of shell being driven through the dirty clothing and then through unpurified skin before it comes to lodge inside a limb, unaided Nature is powerless, and unless the surgeon intervenes, loss of limb or life is extremely probable.

TREATMENT ON GENERAL PRINCIPLES.

The foregoing explanations render it easy to realize why aseptic surgery has in a great measure replaced antiseptic surgery in the civil practice of the modern surgeon, and why antiseptic surgery in some form or other is necessary for the treatment of war wounds.

Aseptic surgery—that is, surgery carried out under the strictest and most rigid conditions of cleanliness—avoids the use of poisonous antiseptics such as carbolic acid and the mercury preparations, which it has been clearly proved damage the tissues and kill the living cells, which will themselves destroy any germs that might be accidentally introduced. For many years before the war I had carried out the principles of rigid aseptic surgery, and the satisfactory results obtained absolutely convinced me that the use of strong poisonous antiseptics was not only unnecessary but injurious in ordinary work.

When the war opened, my experience first in one of the London war hospitals, later at the front in France, and afterwards in Egypt and at the Dardanelles, confirmed my previous impressions that carbolic acid and other poisonous antiseptics were to be avoided, even in the treatment of septic war wounds.

When at the Dardanelles the wounded were brought off to the hospital ships within a few hours of being wounded, and I there had the opportunity of operating on a number of abdominal cases—among others such as gastric, intestinal, liver, and other visceral wounds—in all such cases aseptic treatment was employed and with great success, the use of strong antiseptics in the peritoneal cavity being, I consider, absolutely contraindicated.

We, however, soon realized that with the exception of a few through-and-through wounds, all other gunshot injuries, especially shell wounds, were virulently septic, and required rigorous treatment by free incision and removal of bits of clothing and other foreign bodies, and

by thorough irrigation with salt water or plain boiled water, or some mild antiseptic such as a weak permanganate solution, repeated as often as practicable, and free drainage. This led to the prevention of gas gangrene (at first a terrible scourge) and to good surgical results; it was the means of saving many lives or limbs that otherwise must have been lost.

The more efficient methods of treatment which enable wounds to be purified and closed at an early stage had not then been introduced. Nevertheless, by the means I have related, and which we may speak of as treatment on general principles, we were able to attain very fair results, and to put a stop to the practice of amputating in nearly all cases of gas gangrene.

When with the Mediterranean Expeditionary Force, I had the advantage of spending some little time on two hospital ships with Dr. Dakin, and of trying his solution on wounds before it had been generally adopted. I was then convinced that the hypochlorite solution, since known by his name, was the most efficient antiseptic hitherto employed, for while it was an active bactericide it apparently did not seriously damage the tissue cells. The great difficulty was that in dealing with very large numbers of wounded, with limited staffs of surgeons and nurses and with inadequate accommodation, it was physically impossible to irrigate the wounds as frequently as we knew to be desirable. The hospital ships, of course, afforded only temporary accommodation for the wounded, which were transported as speedily as possible to the base hospitals in Egypt, Malta, and elsewhere, where more elaborate treatment could be carried out.

ANTISEPSIS.

Antiseptic surgery, introduced by Lister, but since modified and improved in many ways, aims at killing the germs already introduced into wounds, but the perfect antiseptic, which, while fatal to germ life, is not injurious to the living cells in the wound, has yet to be discovered.

The strong poisonous antiseptics, such as carbolic acid, mercury perchloride and biniodide, are now only used externally, to purify the skin, and they have in the hands of modern surgeons been replaced as a rule by milder non-toxic drugs, which are better bactericides and less injurious to the living cells in the wounds, from which help is sought in the healing processes.

My first experience of an antiseptic operation, long before Lister introduced his system, was in 1875, in Glasgow, and the case was one of amputation of the thigh for senile gangrene. After steeping the hands and instruments in spirit, the limb as well as the wound were washed in pure whisky and dressed with lint soaked in the same spirit. No drainage was employed. The wound healed by first intention, and the patient, a man of over 70, made a good recovery.

Where other means are not available, alcohol used in this way is most efficient, and as it is generally available in nearly every household, a surgeon need never be powerless for want of an antiseptic in the most out-of-the-way place. I have frequently used it successfully.

Two recently introduced antiseptics—flavine and brilliant green—we owe to work at the Middlesex Research Laboratory. Flavine used in a strength of 1 in 1,000 has been extensively advertised both in the lay and in the medical press, but it has not realized in practice all that has been claimed for it. It may be used to irrigate recent wounds or as a pack in large infected wounds, or it may be employed by means of Carrel's tubes instead of Dakin's fluid. Some surgeons speak well of it. It is non-poisonous and non-irritating, but it stains everything a brilliant yellow. Although, as a rule, it tends to clean dirty wounds, in some cases it appears to retard healing by destroying the new epithelium at the wound margin and retarding the growth of granulation tissue, thus necessitating a change of dressing in the later stages of the case. The pathologists of various hospitals have reported that it is not an efficient bactericide, and in no cases is it safe to attempt the closure of wounds by suture after treatment by flavine, as is done in the Carrel-Dakin treatment.

Brilliant green is used in the same way as flavine, and has been especially useful in staining wounds as a preliminary to excision. It is spoken well of by many surgeons who have employed it in the treatment of war wounds. I saw it used extensively when with the Mediterranean Expeditionary Force.

Eusol is one of the most efficient antiseptics the surgeon can employ, and is closely allied to Dakin's fluid; it is easily prepared, keeps well in ordinary bottles, and is non-poisonous. This chlorine preparation, unlike Dakin's fluid, is stable, and therefore available in situations where there is no chemist at hand to give a regular daily supply of freshly made lotion.

Chloramine-T is also an extremely useful antiseptic, coming under the same class as eusol and Dakin's fluid.

The ordinary antiseptic methods leave very much to be desired; as although, by free incision, removal of foreign bodies, thorough irrigation with some antiseptic and free drainage, virulent sepsis and gas gangrene can as a rule be effectually treated, the patient is left in many cases with enormous granulating wounds that take many weeks or even months to heal, leaving him a wreck constitutionally, and with enormous disfiguring and disabling scars, leading to deformity and rendering him unfit for military or other work.

Carrel-Dakin Treatment.

This modification of antiseptic treatment has been a real surgical advance, for in the course of a few days (from 5 to 14), if properly carried out, it usually renders septic wounds sterile, and enables them to be completely closed by sutures, thus doing away with the long-continued discharges of an ordinary granulating wound, and saving the patient from a wearisome and painful illness, ending in deterioration of health and deformities due to huge scars.

After meeting Dr. Dakin at the Dardanelles, and using his fluid successfully in numerous gunshot wounds, I met Dr. Carrel in France, and had the opportunity of seeing the Carrel-Dakin treatment carried out in recent wounds as well as in cases already very septic. When carried out as the authors suggest it is most successful; but I am bound to confess that in many hospitals where I have seen what professed to be the Carrel-Dakin treatment, it was anything but successful, as the fluid was not carefully or freshly prepared, the surgeons did not carry out the after-dressings personally, and the aid of a pathologist was not obtained.

In the French hospitals the solution is carefully tested by skilled chemists, the operative technique and the after-dressings are carried out by the surgeon himself with as much care as in any aseptic operation, and the discharges are regularly examined by a skilled pathologist. So soon as the wound fluids are sterile or are found to contain only one or two germs in several microscopic fields, the wound can be completely closed from end to end by sutures and it heals like a primary operation wound.

The multiple irrigation tubes, perforated along their whole length, 4 mm. calibre and 30 cm. long, are inserted into the depths and recesses of wounds, and enable the nurse to flush the wound with a little of the solution every two hours by means of a clip on a tube leading from a glass reservoir suspended over the patient. In this way the wound is kept constantly bathed with the Dakin solution and the pathogenic germs are destroyed and prevented from developing.

The appearance of the patients thus treated is very striking, they have a clear complexion, are free from pain, have no rise of temperature, have a good appetite, and, with few exceptions, even the most extensive and foul wounds become sweet and clean and can be completely closed by suture within a fortnight or even earlier in some cases. A great disadvantage is the difficulty of carrying out this treatment during transport, which has given a very wrong impression to surgeons working in England, as the cases often arrive in a very foul condition and compare unfavourably with those treated by salt packs or by "bipp."

Antiseptic Pastes.

The antiseptic paste called "bipp" from the initials of its components—bismuth, iodoform, and paraffin—was introduced by Professor Rutherford Morison, and as a primary or secondary dressing in gunshot injuries has proved to be most effective. Cases treated with it can be transported safely without fear of becoming septic from want of dressing during the journey, and in this respect it has advantage over the Carrel-Dakin treatment.

Mr. Rutherford Morison's statement with regard to the treatment in his hands may be read in his article published in the BRITISH MEDICAL JOURNAL for October 20th, 1917. Bipp, I find, can be used in cases treated by the Carrel-Dakin method for a few days, and when the wound is not

yet absolutely sterile the use of the paste enables it to be safely closed by suture, thus saving time and trouble to the patient and attendants. Captain Hey prefers a paste without bismuth or iodoform but containing brilliant green, boric acid, french chalk, and liquid paraffin, which he uses with great confidence after excision of the infected part as a primary measure, or after the Carrel-Dakin treatment as a secondary procedure. His results closely resemble those obtained by the use of bipp.

PHYSIOLOGICAL METHOD.

Sir Almroth Wright is an opponent of antiseptic surgery, and suggested the use of hypertonic saline solution—the so-called “physiological treatment,” which, he claims, draws out from the tissues of the wounds an abundant fluid containing cells, which attack and destroy the germs of disease; and that these, together with bits of dead tissues and dead cells, are carried away by the free outpouring of fluid. A dressing wet with the hypertonic saline solution must be left in the wound or the wound must be kept constantly irrigated with the fluid. The chief merit of this treatment lies in the fact that it helped to break the spell which had bound surgeons to antiseptics in the treatment of wounds essentially septic.

Out of this method Colonel H. M. W. Gray evolved the “salt-pack” treatment to promote a so-called lymphagogue action, thus obviating the need for drainage or continuous irrigation. The great merits of the salt pack lie in the ease with which it can be applied, and in the fact that it can be left *in situ* for several days without renewal, thus saving the patient the distress and pain of frequent dressings; that it accomplishes all the changes which Sir Almroth Wright insists upon as being necessary for the successful cleansing of a wound from infection, and that its effects are not interfered with by the transport of the patient.

Although the bacterial flora of the wounds treated by the salt pack are numerous and the discharges are offensive, the wounds do well as a rule, become clean, are speedily covered by healthy granulations, and heal rapidly; moreover, wounds treated by salt packs are extraordinarily free from secondary hæmorrhage.

The process is simple in the extreme. After opening up and purifying the wound as far as possible, the salt packs are placed in it, and over all an absorbent dressing; as the dressing does not need renewing for some days, the saving of time to the attendants is very considerable.

Hitherto the good results have been attributed in some obscure way to the salt acting more or less on the physiological lines suggested by Wright, but all who have witnessed the employment of salt packs have felt that some other explanation is necessary. This I shall have to refer to later in considering the pathological treatment of wounds.

THE SURGICAL METHOD.

In gunshot injuries, besides the introduction of pathogenic organisms, there is in every case actual destruction of tissue by the force of entry of the projectile; there is necessarily, therefore, a varying amount of dead or devitalized tissue present. It is in this that the organisms elaborate the poisons, and it is from this source that the toxins enter the system. If the dead tissues can be removed the source of the poison is taken away. The strong antiseptics, which aim at killing the germs in the wound, only effect their purpose partially and slowly; not only do they fail to remove the dead tissue which is the breeding ground, but they produce more by their destructive effect on the living cells. Even under the continuous application of the Carrel-Dakin method, from five to fourteen or more days are required before the wound is rendered sterile.

The physiological method, which relies on the living cells throwing off the dead tissues and destroying the pathogenic organisms, is long and uncertain in its action; moreover, while dead tissues remain, they are a source of danger and capable of again lighting up fresh mischief. Hence, the tendency of surgery now is at as early a stage as possible to excise the whole of the infected area—or, in other words, the dead and damaged tissues. But in doing this it inflicts a fresh injury, often very extensive, and one liable to re-infection.

Captain Wilson H. Hey says that the case for complete excision should begin and end all discussions on the wounds of war; without it good antiseptics and pastes are

almost useless. He stains the whole of the wound with brilliant green, and, if possible, excises the wound without allowing the knife to enter the wound cavity; the wound is pasted and primarily sutured in some cases, but in others, especially where a complete primary operation cannot be done, every trace of stained tissue is excised, the wound is dried throughout with spirit, and the paste rubbed into the tissues, and with all thoroughness into every recess. When all is going well the dressings are not disturbed for two or three days, and if the suture counts average only 0.2 to 2.0 per field the wound may be sutured on the third to the fifth day. Where progress is unfavourable the wound is repasted, or further operative measures may be required under anaesthesia; in some cases hot fomentations are used, and suturing is only performed at a later stage.

It will be seen that this method, which is only available if the case is seen early, and involves a more or less severe operation, not only saves much time in the healing of the wound, but also saves the patient from the dangers of sepsis and secures a more or less linear scar. This treatment should only be carried out by a skilled surgeon, otherwise material deformity may be inflicted if the wound be extensive.

BACTERIOLOGICAL TREATMENT.

The bacteriological treatment of wounds is the result of very interesting work carried out at the Reading War Hospital by Dr. Robert Donaldson and Major J. Leonard Joyce, F.R.C.S., in septic wounds of all kinds arriving from the front at various periods after the injury has been inflicted.

Major Joyce, who is a strong advocate of the salt-pack treatment, noticed that under this treatment the wounds that were doing well emitted a powerful and offensive odour, and those not doing well were devoid of smell.

The observers found in the offensive discharges of the cases that did well an oval sporing bacillus which was absent from the cases not doing well, and they ultimately isolated it in pure culture. This organism, when introduced into a fresh meat-broth tube and incubated at 37° C. anaerobically, in two or three days emitted the characteristic wound odour and the meat began to blacken and diminish in volume, indicating active proteolysis. This at once suggested the part possibly played by the bacillus in wounds—namely, that it did in the dead wound tissues what it appeared to do in the glass tube—that is, it digested them.

As the organism was found to be non pathogenic to animals and as the fluid in which it was grown contained no elements toxic to animals, it was considered safe, after thorough irrigation and purification, to introduce it into wounds that were not doing well under salt packs; with the result that the characteristic odour soon developed, the temperature came down, the patients became comfortable, and in a few days the wounds became clean, devoid of sloughs and covered with healthy granulations.

The question then arose as to the part played by the salt, and it was found that the wounds containing the anaerobic germs (now called the Reading bacillus) did as well when sphagnum moss replaced the salt; in fact the idea that the salt has any specific value is exploded.

Thus a point has been reached in which can be recommended a treatment which involves the simplest technique, the simplest and cheapest of dressings (for salt or sphagnum moss can easily be obtained) and the least disturbance to the patient. It does away with the need for frequent dressings and the mental and physical sufferings entailed thereby.

In order to ensure success, however, it is necessary that the organism or its spores be present, and although it frequently is, it cannot be depended on to be present. Hence in such cases the wound ought to be sown with the organism at the time of packing. In fact, it reminds one of the old adage, “Set a thief to catch a thief.”

In treating wounds by this method it is important to lay them freely open, every pocket being dealt with, all foreign bodies removed, and any grossly damaged tissue taken away. The wound must then be irrigated with sterile water or saline solution, and the pure culture of the Reading bacillus introduced by means of a pipette. The packing of salt or sphagnum moss moistened with sterile water is then introduced into the wound so as to bring it into contact with every part, over this several layers of

plain moist gauze are laid, and over all a thick layer of cotton-wool, after which the whole is bandaged firmly. A splint is an additional advantage.

If all is going well, as shown by the general condition, the pack is left in for about seven days (about the third day the characteristic odour will develop), when it can be removed and the granulating wound irrigated with warm normal saline or eusol solution, after which a healthy wound only requires treatment, and either by the Carrel-Dakin method or by the use of antiseptic paste it can soon be closed by suture.

SELECTION OF METHOD.

With all these methods of wound treatment to choose from I may be asked which I prefer.

In cases seen at the front the first duty of the surgeon in all shell wounds is to lay the wound fully open, including every pocket, to remove all foreign bodies and bits of clothing as well as loose particles of bone and dead or damaged tissue, to arrest bleeding, and to irrigate the wound thoroughly with some antiseptic such as eusol or Dakin's fluid, or hypertonic saline or alcohol—in fact, to treat the case on the general principles well known as suitable for poisoned wounds; this, followed by free drainage, was the method carried out with more or less success in the early months or first year of the war.

Now, although this led to saving of life and to abolishing violent sepsis and gas gangrene, it left large wounds to heal by a long process of granulation, and led to exhaustion of vital powers and to deformity caused by large scars. Now, however, we have several methods to choose from to shorten the treatment subsequent to the first necessary operation.

(a) The Carrel Dakin treatment, with closure of the wound in from a week to a fortnight, is, if the case can be got shortly to a good hospital and kept there, the ideal method, and it has certainly given excellent results, but it is not good for cases that have to be transferred by sea and rail.

(b) If the patient has to be transferred—as, indeed, have the greater number of cases—after cleansing the wound and drying it with alcohol, the bipp treatment with closure of the wound affords an excellent method; this is especially the case if the wound has been completely excised, when either bipp or the paste recommended by Captain Hey can be used.

(c) The salt-pack treatment used by Colonel Gray is excellent both for transport and subsequent treatment, to be followed in about a week or more by the Carrel-Dakin or bipp methods.

(d) For the care of septic suppurating wounds arriving constantly at the base hospitals both in France and in England, the pathological method followed out at Reading of grafting the purified wound with the Reading bacillus under packs of sphagnum moss is both simple and effective, and the experience there is that secondary haemorrhage has never occurred under this treatment.

The modern treatment of gunshot wounds gives ample scope for the skill of both surgeon and nurse, and is attaining a state of perfection that could hardly have been expected by those who saw the dreadful prevalence of gas gangrene and its treatment by amputation in the early stages of the war.

Whatever the other services engaged in the war may or may not have done, I think we can without hesitation say that the medical services and the nursing service have both "made good," to use a term coined on the other side of the Atlantic.

When the war started we had a small Army Medical Service to meet the needs of our "contemptible little army," to use the Hun expression. The administrative work that this small service has accomplished under the genius of our present Director-General, Sir Alfred Keogh, has been phenomenal, and can only be appreciated by those who know the difficulties that have had to be met; but I venture to think that it will figure largely in the history of the war.

The way in which the civil branch of the profession has taken up its work as part of the medical service of the army is not the least wonderful record of a great sacrifice. The leading physicians and surgeons giving up their consulting practices have, the former, thrown themselves into the prevention of disease as well as its treatment, and the

latter have undertaken the treatment of the legitimate risks of war—wounds and casualties. From their ranks have also been drawn the army consulting physicians and surgeons to act and advise wherever the British army is on active service.

Not only this, but all the towns and villages of the empire, whether in the colonies or at home, have spared so many of their doctors and surgeons that the civil population has had to make no little sacrifice in order that the numerous war hospitals and hospital ships almost all over the civilized world might be staffed with physicians, surgeons, anaesthetists, and specialists of all kinds, who have performed their many duties with the same skill and care that they previously gave to their private patients.

The work of the nursing service is beyond all praise; they have been the ministering angels ever ready and always present to give help and comfort to the sick and wounded. Wherever they move they carry with them the gleam of the ideal—the symbols of love, mercy, patience, and sacrifice. I have seen many of them in the thick of the work, when the wounded were coming straight from the battlefield and where the sad sights were enough to blanch the stoutest hearts, never flinching, but steadily pursuing their beneficent duties. Not a few of them have given their lives to the cause—some have been killed by the shells of the enemy, others have died from disease contracted when on duty, others have been drowned when serving on hospital ships, and one at least has suffered martyrdom, but still their numbers increase and still more are wanted.

THE TREATMENT OF GONOCOCCAL ARTHRITIS BY SENSITIZED GONOCOCCAL VACCINE.

BY

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SENSITIZED VACCINES were first employed by Besredka in 1902. He prepared vaccines of this type for prophylactic use against cholera, plague, and typhoid fever, sterilizing by heat either before or after sensitizing with the specific serum. He claimed that active immunity was produced almost immediately and with little local reaction or constitutional disturbance.

Later, Broughton-Alcock employed sensitized living vaccines in the treatment of infections of the staphylococcal, gonococcal, and streptococcal types. He obtained his specific serums for the purpose of sensitizing the cultures by first administering to the patient an ordinary vaccine of the infecting micro-organism, and using the serum of the patient thus infected to sensitize the living vaccine.

In 1913 Lieut.-Colonel Gordon, R.A.M.C., published a paper in the *Lancet* on "Sensitized vaccine in acute bacterial infection," in which he gave the results obtained in a series of cases. He showed that in the treatment of all types of infection by *Streptococcus pyogenes* (among these he includes streptococcal septicaemia and post-puerperal streptococcal endometritis), out of nineteen cases treated twelve showed great improvement after administration of the vaccine. He admits disappointment at the results obtained after employing sensitized staphylococcal vaccines. However, the results in the streptococcal infections above mentioned suggested that it might be useful to try the administration of sensitized gonococcal vaccine in the joint infections which, as a rule, improve very slowly or not at all with the ordinary method of treatment.

The sensitized gonococcal vaccine was prepared in the following manner:

The first case treated was a patient whose knee-joint was affected. The swollen joint was aspirated and fluid removed which was markedly purulent.

A pure growth of gonococcus was obtained from this blood agar. This was subcultivated on blood agar at intervals of two days until a good growth resulted. Then a series of blood agar slopes were inoculated and incubated for twenty-four hours.

An emulsion of the growths on these slopes was made. 15 c.cm. of sterile saline solution (normal saline being used) was removed from each slope by means of a platinum loop, each loopful being washed off into the saline solution by agitation. The tube was then closed by a rubber cap and shaken vigorously by hand for ten minutes.

After this the amount of turbidity was noted and an approximate count made of the total number of gonococci (in millions) contained in the test tube. This was noted. Then 15 c.cm. of antigenococcus serum (B. W. and Co.) were added and the whole vigorously shaken to ensure thorough mixing of serum and bacterial emulsion.

The mixture was then incubated for twenty-four hours at 37° C. The tube was removed from the incubator after this and inserted in a test-tube rack (to retain it in a vertical position); this was then placed in a refrigerator for twenty-four hours. By this time the gonococci had formed a deposit at the bottom of the test tube.

The supernatant fluid was removed by hand pipette and 15 c.cm. of sterile saline solution added to the deposit. The whole was then well shaken, after which the tube was returned to the test-tube rack and replaced in the refrigerator for a further period of twenty-four hours.

After this the same procedure was followed, and the supernatant fluid was again removed and replaced with 15 c.cm. of sterile saline solution and the whole shaken and returned once more to the ice chest for twenty-four hours.

At the end of this time the supernatant fluid was again removed, leaving only the deposit, and 15 c.cm. of sterile saline solution were again added. To this was now added 1 c.cm. of a 10 per cent. solution of carbolic acid. The tube was well shaken and placed in the refrigerator for three or four days, during which period it was well shaken twice daily.

At the end of this time the bacterial emulsion was tested for sterility, and if sterile was ready for use. Having already noted the total number of gonococci present when the emulsion was first made, it only remained to divide this number by the figure 16 to obtain the strength of the vaccine in millions per cubic centimetre.

The first case treated was given this autogenous sensitized vaccine. The improvement in his condition encouraged me to continue the method, because he had previously been treated first with stock vaccine consisting of mixed gonococci and staphylococci, and subsequently with an autogenous gonococcal vaccine without apparent benefit, whereas when the sensitized vaccine was given a decided improvement in his condition was noted. However, the strain died, and as our numbers here are rather large to permit us to prepare an autogenous vaccine for each individual case, it was decided to employ a stock sensitized gonococcal vaccine prepared from several strains of the micro-organism.

Fresh strains of gonococci obtained from various urethral discharges were subcultivated several times, and then forty-eight hours cultures employed.

Four strains of gonococci were used in the preparation of the vaccine, and as a forty-eight hours' growth of gonococci does not emulsify so readily as a twenty-four hours' growth, the emulsion was made in the tube of sterile saline, the tube closed by a rubber cap, and then placed in a mechanical shaker, where it was kept vigorously shaken for one hour. At the end of this time the tube was taken out of the shaker, and the approximate strength of the emulsion in millions of gonococci noted.

The procedure then continued on the same lines as in the preparation of the autogenous sensitized vaccine just described—namely, addition of antigenococcus serum incubation for twenty-four hours, washing twice with saline, etc.

The advantage of using a sensitized vaccine in contradistinction to an ordinary vaccine is that one can push the dosage and still get practically no local or general reaction. Occasionally the patient will complain of the affected joint or joints being more tender to the touch within a period of several hours after the administration.

In dealing with the question of dosage a routine was tentatively drawn up as follows:

1st day ...	...	25 million of gonococci
2nd day ...	...	50 " "
3rd day ...	...	100 " "
5th day ...	...	150 " "
7th day ...	...	200 " "
9th day ...	...	250 " "
12th day ...	...	300 " "
15th day ...	...	350 " "
18th day ...	...	400 " "
22nd day ...	...	450 " "
26th day ...	...	500 " "
30th day ...	...	550 " "

Then an increase of 50 million every fifth day.

In the first series of cases this dosage was adopted.

CASE I.

This patient had a watery gleet on admission. There was marked swelling of the left knee, which was acutely painful. Temperature varied from 100° F. to 102° F. The joint was aspirated on three occasions and fluid removed.

He was given a stock mixed vaccine of gonococci and staphylococci without any improvement. This was followed by an autogenous gonococcal vaccine, during the administration of which the patient remained the same. A sensitized gonococcal

vaccine was prepared from this strain and administered according to the above-mentioned routine. He had the course up to the eighteenth day, when the dose was 400 million of gonococci. After the third dose the pain was easier, and the temperature came down to normal, at which, with an occasional rise, it remained practically all the time the patient was in this hospital. He could lie comfortably while at rest, but movement of the affected leg continued painful. He had been emaciated, but began to put on flesh rapidly.

After the administration of the vaccine on the eighteenth day he was transferred to England, where his temperature for six days was between 99° F. and 100° F., after which it remained normal. Pain on movement continued for three weeks, and swelling for four weeks, when the left knee showed half an inch greater circumference than the right.

CASE I.

Admitted February 24th, 1917, with purulent urethral discharge, and pain and marked swelling of the right knee. Vaccine treatment was commenced on the following day. The pain became easier and the swelling began to diminish on February 27th. The pain had disappeared on March 17th and the swelling on March 24th. The result was that the joints became quite freely movable and he was able to walk perfectly. The temperature on admission was 101.6° F. It fell to 100° on the fourth, was normal on the twentieth day, and so remained.

CASE III.

Admitted January 26th, 1917, with purulent urethral discharge and pain and swelling in finger and wrist joints of both hands. The vaccine was commenced on the following day. Swelling began to diminish on February 7th and had completely disappeared on March 18th. Pain became easier on February 16th and had completely gone on February 20th. The result was that the movements of hands and fingers were quite good. The temperature was normal on admission and remained so afterwards.

CASE IV.

Admitted on January 25th, 1917, with gleet and stiff and painful neck. X-ray examination on January 14th showed thickness of spinous process and also of body of second cervical vertebra. The diagnosis of gonococcal infection having been made, the vaccine treatment was begun on February 16th. On February 19th pain was easier, on March 5th movements of the neck were quite good, and on March 17th all trace of pain and limitation of movement had gone. The temperature was normal throughout.

CASE V.

Admitted February 1st, 1917, with purulent urethral discharge and some swelling and pain of the knee-joint. Vaccine treatment was commenced on the following day. The pain became easier on February 12th and had completely gone on March 1st. Swelling began to diminish on February 13th and had disappeared on March 1st. The result was that the joint was perfectly well. There was a slight rise of temperature for the first few days.

CASE VI.

Admitted February 1st, 1917, with swollen and painful right elbow, but no urethral discharge, though he had had gonorrhoea on January 19th, 1917. Vaccine was begun on February 2nd; three days later the pain was easier and the swelling began to go down. On February 10th pain had entirely gone. On February 16th the swelling had disappeared, and a week later extension and flexion of the forearm were almost complete. Temperature was normal throughout.

CASE VII.

Admitted January 1st, 1917, with gleet and some swelling of both knees and both ankles. Patient was much attenuated. Vaccine was begun next day. On January 14th the pain became easier. On January 16th the swelling began to go down, and next day both pain and swelling disappeared. The patient was then evacuated to England, as he was still very much wasted, and his legs were very weak. His temperature was normal throughout.

CASE VIII.

Admitted January 14th, 1917, with purulent urethral discharge. On January 26th some swelling and pain appeared in the left ankle. Vaccine was begun on February 6th. On February 9th the pain became easier, and the swelling began to go down. On February 12th the pain and swelling had gone. The result was complete recovery of the joint. The temperature was normal throughout.

CASE IX.

Admitted January 22nd with right epididymitis and some swelling and pain of the right knee. Vaccine was begun the same day. On January 30th the swelling began to go down. On February 10th the pain became easier, disappearing two days later. The swelling had gone by February 15th. The result was complete recovery of the joint. The temperature was normal throughout.

CASE X.

Admitted February 20th, 1917, with purulent urethral discharge, and some swelling and pain of the left knee. Vaccine was begun on that day. The swelling began to go down on February 28th, and the pain improved on March 11th; by March 26th both pain and swelling had gone. In the result the patient was still weak but able to walk, and the joint was freely movable. The temperature was normal throughout.

As regards local treatment of the joint every patient had rest and application of Scott's dressing.

The above-mentioned cases gave encouragement to continue with the sensitized vaccine, but it was thought desirable to try the administration of bigger doses.

On that account the following routine was adopted in the cases reported below:

1st day ...	...	100 million of gonococci.
5th day ...	...	200 " "
9th day ...	...	400 " "
13th day ...	...	600 " "
17th day ...	...	800 " "
21st day ...	...	1,000 " "
25th day ...	...	1,200 " "

And increasing 200 million every fourth day up to a maximum of 2,000 million.

CASE XI.

Admitted May 16th, 1917, with gleet, some swelling and pain of left wrist, and slight swelling of left shoulder with marked stiffness and restricted movement. Vaccine was begun the same day, and on May 23rd the pain became easier and the swelling began to subside. On June 6th the pain and swelling had gone. The result was that movements at the wrist were quite normal, and only slight restriction of movement remained at the shoulder. The temperature was normal throughout. In this case the local treatment was by ionization.

CASE XII.

Admitted April 14th, 1917, with purulent urethral discharge. On July 3rd some swelling and pain appeared in the left knee. Vaccine was begun next day. The pain became easier on July 13th, and the swelling began to subside on the 14th. The pain and swelling had gone on August 6th. In the result the knee was practically normal, though movement was somewhat restricted. The temperature was normal throughout.

CASE XIII.

Admitted June 11th, 1917, with purulent urethral discharge, and some swelling of the left knee. Vaccine was begun on July 11th, and the pain was easier two days later. The right knee developed slight swelling and pain on July 16th. By July 18th the left knee was greatly improved. On July 28th the right knee was free from pain. Two days later the left knee was better and all other joints were normal. Finally on August 18th all movements were normal.

CASE XIV.

Admitted June 15th, 1917, with purulent urethral discharge, well-marked arthritis of the left elbow with fluid, early arthritis of the right elbow, and pains in the right leg. Temperature 102° F. Vaccine was begun the same day. The pain was less on June 21st, and the swelling less on June 27th. The pain disappeared on July 10th, and the swelling on July 14th. A week later movements in the arms were normal.

CASE XV.

Admitted June 30th, 1917, with purulent urethral discharge, swelling and tenderness of left ankle and knee. Temperature 99.4°. Vaccine was begun at once; on the following day the right ankle was swollen. On July 14th both pain and swelling had diminished, and the ankles and knee were greatly improved on July 16th. By August 1st the pain had left the affected joints, the left knee was practically normal, the right knee normal, but the left ankle still slightly swollen. This patient showed marked reaction to the vaccine when he received a dosage of 1,200 million, after which he had transient pains in all his joints.

CASE XVI.

Admitted July 8th, 1917, with purulent urethral discharge and both knees swollen and painful. Temperature 99.6°. Vaccine was begun the same day, and the pain and swelling abated on July 13th. On July 18th the right knee was greatly improved; the left knee slightly improved. The next day there was slight pain in the right ankle, and on July 23rd the fingers of the left hand swelled. The right ankle was free from pain on July 24th. On August 15th the knee movements were practically normal, and on August 23rd the hand was better and the left ankle almost well.

CASE XVII.

Admitted July 23rd, 1917, with gleet, and swelling and pain of left knee, but no fever. Vaccine was begun the same day. The pain and swelling were less on July 28th. The knee was greatly improved on July 31st, and the pain had gone on August 16th. By August 20th the knee was practically normal in its movements.

The last six cases were all treated locally with Scott's dressing, lead and opium fomentations, and ionization.

From a consideration of these seventeen cases I feel justified in recommending the administration of sensitized gonococcal vaccine as a line of treatment worthy of trial in cases of acute and subacute gonococcal infection of joints.

The first case, as already stated, was given an auto-genous sensitized gonococcal vaccine, the micro-organism being grown from the fluid aspirated from the knee. All the other cases were treated with sensitized gonococcal

vaccine prepared from four strains of gonococci, all of which were obtained from urethral discharges. None of these strains was autogenous for any of the cases treated.

I have the impression that recently-obtained strains are best for this purpose, and endeavour has been made to avoid using gonococci which have been subcultivated for more than four months, the strains being discarded at the end of that period and younger ones employed. Four strains of gonococci have always been employed in the preparation of the stock vaccine.

In the matter of dosage the second routine has the advantage of being less troublesome for both patient and medical officer, and the results are quite as good as with the first routine; the second is to be recommended, though probably one might give even bigger doses with safety.

Only a few of the cases treated have shown any reaction after administration. Case xv showed the most marked reaction, and one or two of the others had a slight increase of pain in the affected joint or joints, which generally disappeared after a few hours.

I have to acknowledge my indebtedness to Captain C. Lundie, R.A.M.C., and Captain W. J. Ronan, R.A.M.C., for giving the vaccine an extended trial in their cases and for so kindly supplying me with the clinical notes. I must also thank Captain Billington, R.A.M.C., for his helpful suggestions when I began this work.

A NOTE ON MUSCLE NERVE TESTING DURING OPERATION.

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THE following is a brief account of the method adopted for the electrical testing of a peripheral nerve at the time of operation at the Military Orthopaedic Hospital, Shepherd's Bush.

It is necessary, in the first place, to emphasize the extreme importance of testing the excitability of the nerve in many cases, and that it is therefore essential that the surgeon should be prepared to do so in every case. If, on cutting down on the nerve, a complete anatomical division is found, with an end bulb on the proximal end and perhaps an inch or more of separation, there is no need to test the electrical conductivity of the nerve.

But very often this is not the case. The exposed nerve may show a thickened area with no anatomical division, and the question arises whether or no there is physiological conduction through this. It may be thought that a complete investigation of the case beforehand should suffice for diagnosis, but it happens sometimes that the notes of cases are not complete, and that the surgeon may not be fully familiar with the case. In any case, a diagnostic method as easily applied and as valuable as is that under discussion should always be made use of.

It is quite simple to test the conductivity of the nerve, and the result, coupled with a consideration of the history, will give a clear indication whether the lesion is recovering or not.

The relative rapidity of return of voluntary power and of faradic excitability (as ordinarily tested) after injury is not constant; sometimes the one and sometimes the other returns first. If the exposed nerve is stimulated faradio response in the muscles always precedes, in my experience, the return of voluntary power. It occurs so often that it may be regarded as a constant factor.

Illustrative Case.

Pte. H. Gunshot wound through neck, August, 1916.

There was a lesion of the fifth and sixth cervical nerves, with paralysis of the deltoid, biceps, and supinator longus muscles. The scars of entrance and exit were in the root of the neck.

The case was treated with the arm in abduction for five months, in order to relax the deltoid and biceps. As there was no evidence of recovery, exploration was decided upon. The fifth and sixth cervical nerves were explored in the posterior triangle, together with the upper trunk and its anterior and posterior divisions. Some scar tissue was dissected off during this exposure, and the nerves were stimulated. Faradic excitability was evidenced by contraction of the biceps, deltoid,

and supinator longus muscles, and the wound was closed. Two months later faradic response and voluntary power were regained in the paralysed muscles. The recovery was neither hastened nor retarded by the operation, in all probability, but the response to the test rendered further exposure unnecessary, and made the prognosis as to recovery favourable.

Testing is sometimes of use in another way when operating on cases in which there is much scar tissue and the anatomical relations of parts are disarranged. Any nerve or branch can be stimulated and defined with certainty by noticing the muscle or muscle groups which contract on such stimulation.

The Apparatus.

The apparatus required consists of (1) a faradic coil and metronome, and (2) electrodes and connecting cords which can be sterilized by boiling.

The only essential of the coil is that it shall yield a sufficiently weak current. The coil we use yields a current so weak that it can only just be appreciated when both electrodes are placed on the tongue. If the current is strong, the overflow to the muscles other than those which are being tested causes general contractions, and renders accurate observation impossible. This difficulty is commonly met with.

The metronome interrupter is the simplest method to adopt in testing. The metal probe is held in contact with the nerve, and at each beat of the metronome the electrical circuit is made or broken. The testing electrode has not to be moved, and an accurate observation is easily made.

The testing electrode, a long metal probe with a terminal at the end for the attachment of the connecting wires, is far simpler than the type sometimes employed, consisting of two platinum wires insulated in a glass handle. These dipolar electrodes are easily broken—for example, in boiling—and, moreover, great care has to be exercised that both points, which are close together, are making contact with the nerve at the same time. The metal probe electrode is absolutely simple, cannot get out of order, and there is no difficulty in being sure that it is making contact with the nerve.

The cords and connexions are all sterilizable by boiling. There is no need, therefore, to wrap them in towels and so waste time during the operation, and there is no risk of infecting the wound. The connecting cords can lie on the sterilized towels by which the field of operation is shut off without risk.

The secondary electrode necessary to complete the circuit is attached to any convenient part well clear of the site of operation. In testing the nerves of the arm, for example, it is attached to the foot.

Method of Application.

The nerve is isolated and the field of operation rendered dry by swabbing. A glass rod is passed under the nerve and the metal probe is placed in contact with the nerve. The core is fully withdrawn, one cell actuates the battery, and one layer of secondary is used (the studs for these adjustments are clearly marked on the coil), and the metronome is started. A normal nerve will be stimulated by this weak current, and the muscles supplied by it will contract at each beat of the metronome. If there is no contraction the current is strengthened by pushing in the core, and if further strength of stimulus is necessary by using two layers. Any current stronger than this is unnecessary, and will simply cause contractions in the surrounding normal muscles by leakage along the nerve sheath.

With the equipment advised and a nurse or assistant told off to work the metronome and turn on and off as directed, the testing takes only a minute or two.

As a point of interest and as showing how weak a stimulus is used the following fact may be noted: In stimulating the median nerve exposed in the arm, the muscles put into action vary according to the exact part of the circumference of the nerve which is stimulated. Thus the pronator radii teres or the flexors of the wrist, or the long flexors of the thumb and index finger can be made to react as practically pure and uncomplicated actions.

Incomplete Lesion.

In dealing with incomplete or partial division of a peripheral nerve it is sometimes necessary to suture part

of the nerve and to leave other fibres intact. An exact estimate of the extent of the paralysis is of value. Incomplete lesions are not uncommon in the cords of the brachial plexus, and are frequent in the sciatic.

Pte. J.; simple fracture of femur at the junction of the middle and lower thirds, complicated by complete paralysis of the muscles supplied by the external popliteal nerve and weakness of those supplied by the internal popliteal.

On exploration it was found that the lesion was situated at the entrance to the popliteal space and that the sciatic was not divided but existed as one trunk.

Faradic stimulation both at and above this point yielded no contraction in the external popliteal supply. By dissection the external popliteal element was freed and found to be totally divided, whilst a marked thickening of the sheath, in which were embedded fragments of bone, caused a thickened lump in the internal. This was all dissected off, and the nerve was again stimulated. As it responded it was proved that no damage had been done to the conducting power of the nerve during this extensive cleaning of the sheath.

Complete Lesions without Anatomical Division.

In such a case as the following the absence of faradic response, together with the length of history, indicated the necessity for excision and suture.

Pte. G.; gunshot wound of forearm, lower third, with paralysis of ulnar, intrinsic of the hand, and loss of sensation in the ulnar area. Exploration four months after the injury.

The ulnar nerve was exposed and found in anatomical continuity, but with a small hard nodule, the size of a pea, in the substance of the nerve. No faradic response was obtained by stimulation of the nerve trunk above the lesion. The nodule, which occupied the entire thickness of the ulna, was excised and end-to-end suture performed. Macroscopically there was no evidence of nerve fibres in the excised nodule.

EYE CHANGES IN TRENCH NEPHRITIS.

BY

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DURING the spring of 1917 I had the opportunity, while on duty at Malta, of examining a series of cases of trench nephritis, or what is probably the more correct term, war nephritis. They were seventy or eighty in number, and all came in the same convoy from the Macedonian front. They were chiefly young active soldiers between 20 and 30, though they were a few older men among them. The history was generally the usual one of fairly severe exposure and strain, though not necessarily in the front line. Nearly all the cases presented the disease in a severely acute form, and on their admission were mostly seriously ill. At that time the fundi of a large number were examined, either by myself or by my colleague, Dr. Moffett. We found almost invariably marked retinal congestion, with large pulsating veins. There were no signs then, however, of any patches of exudation or nerve involvement. Some weeks later, however, on the examination of one or two patients who had complained of eye symptoms, we found present the more definite changes of nerve swelling, accompanied by patches of retinal exudation. We then decided to examine the whole series again, and by degrees this was done, with the following result. To make the points clear the cases may roughly be classified at the time of this examination (somewhere about three months from the onset of their illness) into three groups, A, B, and C.

Group A numbered about 21. They were all convalescent, presenting practically no symptoms except slight anaemia and debility. The urine was free from albumin, except for a very slight trace in a few. In only four of this class were retinal changes found, and they were slight in amount—a few small spots of exudation, a small punctate haemorrhage, a slight haziness of the disc edges, or a little oedema along the course of the veins.

Group B—a series of 20 cases who had not done so well as the others. Albumin was generally present, though in small quantity. There was breathlessness and slight oedema often. Of these cases, 8 showed minor retinal changes, with small exudation spots. One, however, showed much more marked changes, pointing to a fairly severe neuro-retinitis.

Group C, 13 in number, were severe cases in which the disease was still marked. They were suffering from

general symptoms, severe oedema with often a large quantity of albumin in the urine and sometimes blood. Of these 13, 4 showed very definite retinal changes and 4 changes of a slighter nature.

As far as could be ascertained, there were no signs of any other complicating disease, with the exception that several cases showed malarial infection. In none was there any history of previous kidney attacks. In 9 of the cases presenting the more severe retinal changes a Wassermann test was done, and in all of the 9 the result was negative.

Some points in regard to the fundus changes are:

1. That while the spots of exudation were generally in the usual situations—that is, near the disc and in the macular area—in no case was seen the typical silvery star-like figure of the chronic cases as figured in the textbooks.

2. Haemorrhage was not common. Those seen were of the small punctate variety, and not of the striate or flame-like character.

3. The optic disc was often affected, the changes varying from a definite swelling to slight wooliness and indistinct edges.

4. Small areas of oedema were noticed, especially along the course of the veins.

5. An important point was that in several of the series I was able to trace the gradual absorption of some of the smaller patches of exudation, and the healing process was very interesting to watch.

Summary.

To sum up the matter, I would say:

1. That in this disease the retina is very liable to be involved, although gross changes are not evident in the early stages, and latterly changes which had been present may have become absorbed.

2. That the pathology is probably an acute congestion resulting from some specific toxin, that the exudation which ensues is partly lymphoid and partly cellular in nature, and that this deposit probably clears up in the great majority of cases, without leaving any permanent results.

3. That the retinal changes do not affect the prognosis, except in so far that the severer these changes the severer the cases, in many instances, though by no means necessarily so.

4. That the condition is one which is probably allied to the acute retinitis of pregnancy, scarlatina, and acute uraemia, and should not be confounded with the retinitis of chronic kidney inflammation with its permanent changes in the retinal circulation vessels and tissues.

I have to thank my colleague, Dr. Elizabeth Moffett, for her help and assistance, and also the C.O. of Valletta Military Hospital, Lieut.-Colonel Slaughter, R.A.M.C., for his kind permission to publish these notes.

SYCOSIS AND OTHER CHRONIC STAPHYLOCOCCAL INFECTIONS OF THE SKIN, AND THEIR PREVENTION.

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At the present time considerable numbers of able-bodied men become invalided on account of chronic staphylococcal infections of the skin. These infections include:

(1) Sycosis menti, and similar affections of other hairy parts, namely, the upper lip, the eyebrows, the eyelashes, the scalp, and the pubes and axillae; (2) chronic furunculosis; (3) chronic eczematized impetigo of the trunk and extremities.

The majority, probably all, of these cases could be avoided were the initial skin complaint correctly diagnosed and efficiently treated.

These staphylococcal infections may be all included under one term—impetigo of Boeckhart; and an important fact not generally recognized is that they always, or nearly always, arise as a secondary complication of another form of impetigo—impetigo contagiosa of Tilbury Fox—an affection which is comparatively easy to cure.

The distinctions between the two groups of impetigo—first clearly demonstrated by Sabouraud in 1900—are not

even yet sufficiently known, probably because they are not pointed out, or not pointed out sufficiently clearly, in textbooks devoted to diseases of the skin. The distinctive characters of these two kinds of impetigo may be summarized as follows:

Impetigo Contagiosa of Tilbury Fox.

This is a highly contagious skin complaint due to the *Streptococcus pyogenes*. The characteristic lesions are the amber-coloured stuck-on crusts, which are formed by the dried-up serum of vesicles or blisters. In other words, the lesion resulting from streptococcal invasion of the surface of the skin is a superficial blister, which contains clear serum, which so rapidly dries into a crust that the early vesicle is usually unobserved. If, however, we remove the crust with forceps, we see a superficial erosion, with an overhanging fringe of the horny layer of the epidermis, which has exactly the appearance of, and indeed is, the floor of a broken blister.

This streptococcal impetigo contagiosa is of very common occurrence among children of the poor in the form of a crusted eruption upon the face or scalp. It is seen sometimes, too, as an epidemic among public school boys as what is known as "serum pox." It not infrequently attacks the chin and cheeks of male adults as a result of infection while being shaved. It occurs also on the limbs and trunk as a complication of scabies. In soldiers it is seen particularly in these two latter forms, on the head and cheeks or upper lip, as a result of a visit to the barber, and on the limbs and trunk and sometimes the face, in association with scabies.

It is from these two generally easily cured forms of impetigo contagiosa that arise most of the incurable staphylococcal infections—sycosis, furunculosis, and chronic impetigo—which may be grouped together as impetigo of Boeckhart.

Impetigo of Boeckhart.

This is a staphylococcal infection of the hair follicles which results in the formation of perifollicular pustules. The pustules may be small and closely set on some hairy region, as in sycosis menti, or they may be larger, and scattered over the trunk and limbs, as in furunculosis. In contrast with the superficial vesicular lesion of impetigo contagiosa, that of impetigo of Boeckhart is a deeply seated pustule. The streptococcal invasion leads to a superficial serous exudation; the staphylococcal infection to an exudation of polymuclear leucocytes or pus cells, deeply in the tissues round a hair follicle.

Treatment of Streptococcal Impetigo.

In spite of the often formidable appearance of a streptococcal impetigo and of its tendency to spread rapidly, it is, on account of its superficial character, generally very easily cured by appropriate treatment. The staphylococcal impetigo, on the other hand, because of the deeply seated infection, is much more difficult to deal with, and many cases of long standing seem to be practically incurable. Herein, then, lies the importance of the early diagnosis and cure of impetigo contagiosa, since, as has already been said, nearly all, if not all, cases of incurable, or difficultly curable staphylococcal infections of the skin arise as a complication of uncured impetigo contagiosa. The usual sequence of events in these circumstances is as follows: A man gets a simple impetigo contagiosa of the chin and cheeks—superficial, amber-coloured, stuck-on crusts, which rapidly increase in number and extent. The eruption is perhaps diagnosed as eczema, or it is correctly diagnosed but not treated in exactly the right way, and as a consequence the eruption persists, and the vesicles and the crusted erosions become secondarily invaded by staphylococcus. The staphylococcus, once established, invades the hair follicles, and little follicular papules and pustules begin to appear. Soon the whole beard region becomes involved, so that every hair follicle is the site of a papulopustule, though the discharge from the conglomerated papulopustules often dries as a crust, which covers the chin and masks the follicular nature of the eruption. The condition is then that of sycosis menti, a most obstinate affection to deal with. The man remains under treatment in hospital for months, sometimes years, and has treatments by ointments, by vaccines, and by x rays. But the sycosis remains uncured.

In many instances the sycosis does not remain limited to the beard region, but attacks also the eyebrows and eyelids, the scalp and the upper lip, the pubes and the axillae, and a furunculosis of other parts of the skin, of the neck, or the trunk or the limbs may be added to his other affliction.

In the second type of case the man has scabies complicated by turbid vesicles on the hands and feet, and crusted patches on the limbs and trunk. On the buttocks there is often a more severe type of impetigo contagiosa—that is, ecthyma, in which the crusted erosion is converted into a shallow ulcer with inflamed base, and with or without a dirty-brown crust.

Most of these cases of impetigo complicating scabies yield in the early stage to the three hot-water and soft soap baths, and the three sulphur ointment applications of the treatment for the scabies. But cases not treated early and thoroughly may develop later a generalized eruption of boils—that is, a chronic furunculosis, or they may be converted by scratching into eczematized impetigo, with eczema-like, infiltrated, itchy, crusted areas on the limbs and trunk, which often resist all treatment.

The Treatment of the Initial Impetigo Contagiosa.

The whole secret of success in the treatment of the initial impetigo contagiosa is to remove first of all every trace of crust and every overhanging blister margin. This is best and simplest done by prolonged and frequent mopping with hot water. The patient is made to mop off the crusts by bathing the affected parts for half an hour two or three times daily. At the same time all crusts must be carefully wiped off with wool or picked off with forceps. Immediately after the bathing the eroded surfaces are mopped with lotio hydrarg. perchlor. 1 in 6,000, or with lotio cupri sulphatis 1 in 8,000; then an ointment (ung. hydrarg. ammon. chlor., gr. x ad 3j) is smeared on, to remain until the next mopping. When the impetigo complicates scabies and involves the limbs and trunk, it may be necessary to continue the hot baths beyond the three prescribed for the scabies treatment, and to substitute ung. acid. bor. for the ung. sulphuris after the third sulphur ointment application. Obstinate patches of ecthyma are best treated by complete removal of the crusts by repeated mopping with hot water, followed by careful and thorough application to the shallow ulcer of argent. nitratis gr. xv, spirit. aetheris nitrici 3j.

The Treatment of Staphylococcal Infections of the Skin.

This is a much more difficult theme. The once much-vaunted treatment by vaccines has not proved the panacea it was proclaimed. In quite early cases of staphylococcal infection it is, however, worth a trial, for here it does sometimes seem to give remarkably good results. But, while even in early infections its results are uncertain, in long-standing chronic sycoses and furunculosis it lamentably fails, and often does harm. The x-ray treatment of sycosis has given equally disappointing results. It is always possible, by complete depilation, with x rays, to produce what at first appears to be a cure, but almost invariably the disease relapses so soon as the hair grows again. We are generally compelled, therefore, to resort to the older methods of treating sycosis, and in cases where the infection is limited to the upper lip, to the "imperial," or to a part of the chin, cures may be eventually brought about by repeated depilation with forceps and applications of antiseptic ointments. The patient is taught to extract with forceps as many hairs as possible daily for weeks or months, and daily he rubs in an antiseptic ointment, such as ung. hydrarg. oleat. 5 per cent. or ung. iodox. But when the whole scalp, as is sometimes the case, or other extensive areas are involved, this treatment is impracticable. For very limited areas, as the eyebrows and upper lip, or imperial, an often completely effectual remedy is the application once or twice weekly of pure carbolic acid, carefully dabbed on with a match stick or very small swab of absorbent wool.

In the treatment of furunculosis, vaccines of staphylococcus may be given in doses of 50 to 150 million weekly. Larger doses are better avoided, as they often lead to over-stimulation and an exacerbation or spread of the infection.

Much may be done to prevent fresh infections by

constant change of linen; by frequent baths (baths of copper sulphate 3ss to 20 gallons); by antiseptic lotions mopped over the whole area involved (lot. hydrarg. biniodidi 1 in 10,000); and by individual attention to each boil. The earliest lesions should be painted over with a drop of pure carbolic acid. Larger boils may be fomented, but they may generally be made to dry up rapidly by the following method: Into the central point of the boil a pointed match stick which has been dipped in pure carbolic is gently inserted. This smarts at first, but the carbolic acid soon numbs the pain. The match stick is again dipped into the carbolic and put more deeply into the boil. It will then be found that an opening has been made and that the pus can be gently squeezed out. A small wad of absorbent wool is now tightly wound round the ends of a fine forceps and dipped into pure carbolic. The carbolic-soaked wad is then used to thoroughly mop out the cavity of the boil, and finally some pure carbolic is painted over the surface of the boil and a piece of dry wool put over it. In twenty-four hours the boil will have almost subsided, and in a day or two it will have disappeared. By diligently attacking every fresh boil in this way we may succeed eventually in stamping out the infection, but disappointment sometimes follows by a recrudescence of crops of boils at a later period.

The treatment of chronic eczematized impetigo of the limbs and trunk, which is so often a sequel of scabies complicated by impetigo contagiosa and not properly treated in the beginning, is even more unsatisfactory than that of a mere furunculosis; for the scratching induced by the itching not only keeps going the eczema, but leads to fresh crops of follicular pustules and boils. Sometimes these chronic eczematoid impetigos yield to an ointment of pyrogallie acid gr. j in ung. zinci oxidi 3j, or to applications of small doses of x rays. But more often they persist in spite of the treatment, to the despair of the medical officer.

The early recognition and right treatment of the streptococcal impetigos—impetigo contagiosa of Tilbury Fox—is, then, the only sure method for the elimination of these obstinate and often incurable staphylococcal infections which arise as a sequel to the initial and more easily overcome streptococcal infection.

THE TREATMENT OF PSORIASIS BY X-RAYS AND CHLORINE IONIZATION.

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CONSIDERING the obstinate, rebellious nature and the chronic and recurrent course of psoriasis, its depressing effect and the despair of the patient are not at all surprising. Nor is his lack of patience, perseverance, and co-operation in carrying out a prolonged, tedious, and disagreeable course of treatment astonishing.

Arsenic is found to be the most valuable and the most constant in its effects. It is the favourite drug given internally in increasing doses for a long period. Its prolonged administration is, however, attended by remote ill effects and dangers, such as gastro-intestinal and nervous disturbances, general pigmentation of the skin, keratosis of the skin (especially the palms and soles), callosities, warts, horny formations, and even cancer. Chrysarobin is the most powerful and generally used local remedy. It stains both the garments and the skin and excites dermatitis of the surrounding skin and severe conjunctivitis if the eyes are touched. It is, besides, a very disagreeable application which necessitates confinement to bed or to the house, and necessarily interferes with the patient's occupation.

In the following case the rapid involution of the eruption, the painless, clean, and agreeable nature of the treatment, which does not interfere with the patient's occupation, and takes up only a few minutes to half an hour a week, and its freedom from remote ill effects and dangers when properly applied, are worthy of attention.

A boy, aged 15 years, of otherwise good general health, in the summer of 1914 presented a dry, scaly, papular eruption on the palms, back of the hands, and webs of the fingers—more on the left side. There was no itching. There was some thickening of the skin of the left palm. With the advent of winter the

eruption was said to have faded away gradually, but the skin of the left palm remained thick, and showed a tendency to scale.

In the spring of 1915 the eruption gradually reappeared in a worse form on both hands. The patches were sharply defined, slightly elevated, thickened, and infiltrated. The dry, scaly, and imbricated papular eruption was growing peripherally. There was marked keratosis of the skin of the left palm. The scales were whitish and greyish. There were no vesicles or pustules. The dryness was very marked even in the fissures of the affected skin. There was no pain, itching, or other subjective symptom. Ointments, intestinal antiseptics, and aperients were given without any benefit. No arsenic was given. X rays were applied in September, 1915, with marked benefit. Four mild doses were given at weekly intervals. There was a retrogression of the eruption after the first application of the rays. The lesions yielded quickly to each exposure, and eventually disappeared after the fourth dose, but the skin remained somewhat thick and hard.

The eruption recurred in the spring of 1916. It came on gradually, as in the previous year, almost on the same sites, and was of the same character. Keratosis of the skin of the left palm was well marked. The patches gradually disappeared again after three small doses of x rays, given at weekly intervals in August, 1916. A week after the last treatment there was no trace of the eruption, and only a slight pigmentation was left, but the skin of the left hand was not quite soft and normal. Another mild dose of x rays was given about a month after the third dose. The condition of the skin improved after this, but it was not quite normal, and treatment was discontinued. No arsenic or internal medicine was given, nor was anything applied locally.

A similar recurrence of the eruption gradually set in in April, 1917, almost on the same sites, and of the same character. The patches on the right hand were larger and the keratosis of the skin of the left palm was more marked. No x rays were applied this time. On June 11th chlorine ionization was given to both the hands. Within a week the hyperaemia and scale formation became much less, and the skin was softer and more supple. Some of the fissures healed. The second treatment was given on June 17th. Within the next week all the fissures healed, the scaling was very slight and the skin was much softer. The third treatment was given on July 1st. Within a week the scaling entirely disappeared, and all inflammatory symptoms subsided. Healthy skin was forming in place of the portions that had peeled off. The skin of the left palm was nearly normal. By July 8th there was no trace of the eruption. No pigmentation occurred as under x-ray treatment. The skin of the left palm though quite soft was yet a bit thicker than normal. The fourth and last treatment was given on this date.

In this case the lesions were on the palms and back of the hands, which usually escape. There were no patches anywhere else. Keratosis of the skin of the left palm was not due to arsenic, as it was not taken at any time. Another unusual feature was the recurrence in warm weather. Usually the eruption improves markedly in warm weather and gets worse in cold. The beneficial effect of sunlight, the advantages of a permanent transfer to a warm climate, its less common occurrence in warm climates and in exposed parts, have been recognized, and point to seasonal influence as a powerful and important etiological factor.

Autointoxication due to poisons manufactured by the body as the result of defective metabolism, altered gland secretion, or absorption from the alimentary canal owing to defective digestive processes, appears to be the immediate and primary causative factor. The part played by the nervous system seems to be secondary, as does that of pathogenic organisms, to the toxæmia, which poisons and damages the epidermic cells and prepares the "soil" for successful parasitic invasion, as evidenced by the grafting of other lesions on patches of psoriasis.

Chlorine ionization is, I believe, more efficient than x rays. It is quick, and has the great advantage that the sittings can be continued as long as it is necessary without any ill effects whatever, whereas the application of x rays must necessarily be limited. The dose of x rays should be just sufficient to stimulate but not to injure or destroy the skin. Therefore x-ray treatment has to be stopped before the involution of the eruption in many cases.

In the local treatment of psoriasis and other diseases the electro-ionic method offers facilities which no other except x ray treatment affords. It allows us to introduce into each cell, impermeable to most remedies, a whole series of ions and to obtain different actions to the desired degree and depth. Ointments, liniments, and lotions act only superficially, and only an infinitesimal fraction can penetrate even into the deeper strata of the epidermis. The skin and the surface of wounds are, with the ordinary means of application, impermeable to powerful alteratives, strong antiseptics and coagulators of albumin, which

electrolysis readily introduces to whatever depth one wishes, through the skin and deeper tissues to joints even, and in sufficient quantity to produce the desired effect of stimulation, paralysis of function, or death of tissues.

Local ionic treatment could, with advantage, replace general treatment in many conditions. Medicines introduced into the stomach or subcutaneously enter the circulation, are added to the ions of the organism, and are eliminated after transient action; whereas by electrolytic introduction the ions are substituted for the ions of the organism and are not introduced into the circulation, but into the plasma of the cells which retain the ions for a long time and ensure efficient and lasting action on the tissues, which, moreover, get flooded with blood determined to the part by the vasomotor paralysis induced over the whole surface of introduction, lasting for several days. This action could be kept up by weekly sittings.

In x rays we have a more powerful weapon, which must, however, be wielded with greater care. The action of x rays is doubtless purely local, but as to its precise character there is still much to be learnt. The rays modify the electrical equilibrium of the tissue molecules, bring about chemical changes in the cells, and affect the vascular system. In small doses x rays produce at first a passing active hyperaemia, and then a lasting passive hyperaemia, stimulating the nutrition of the tissues, and causing the absorption of inflammatory products. They restore healthy metabolism and exert an antitoxic effect. In large doses their action is destructive. This disintegrating action is usually limited to certain elements of the skin, and is to be carefully avoided, except in a few special cases.

No other treatment can compare with these two most valuable and powerful methods, properly applied, for efficiency, rapidity, perfection of results, and absence of pain, where local treatment is indicated in any morbid condition. Moreover, their application is clean, agreeable, convenient, and cheaper in the long run.

ACIDOSIS AS A POSSIBLE CAUSE OF CERTAIN SYMPTOMS IN DIPHTHERIA.

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If severe cases of diphtheria do not receive antitoxin before the third or fourth day of disease death may occur on the fifth to seventh day from an overwhelming toxæmia with signs of heart failure. In a large number of late cases temporary improvement follows rapidly on administration of serum, the throat cleans, the patient is able to take a fair amount of food, and appears to be convalescent. About the tenth to twelfth day the complexion assumes a slightly dusky pallor, food is refused, and vomiting occurs. The vomit at first consists of food, but later becomes like coffee grounds. The patient vomits five or six times a day whether food or drink is given by the mouth or not. The heart's action becomes weaker and the pulse more feeble by slow degrees, until by the third day of vomiting the pulse is imperceptible at the wrist, the extremities become pale and cold, the urine is greatly diminished in quantity, the face assumes an earthy pallor, the liver may be enlarged, sometimes severe epigastric pain is present, occasionally, in older patients, a fear of impending death is present; the consciousness is maintained to the end, which is preceded by a short convulsion.

In nine years' experience in a large fever hospital I have never seen a case recover in which this condition is established, except one treated in the way to be described. These cases are described in the textbooks as suffering from late heart failure, but, from careful observation, the failure of heart, circulation, and kidneys appears to follow the onset of vomiting. The numerous cases which show feeble heart and circulation after diphtheria usually recover if vomiting is absent, except those which die from acute intoxication in the first few days.

All drugs have proved useless to check the vomiting. The administration of adrenalin, pituitrin, and salines by rectum or subcutaneously, and the stoppage of all food by

mouth slightly prolongs life, but does not stop the vomiting nor preserve the patient.

As certain cases present some features resembling the symptoms described as acidosis due to delayed chloroform poisoning,¹ a trial of the effect of the administration of 30 to 35 grams of sodium bicarbonate a day in 2 per cent. solution, by rectum and subcutaneously, was made on a patient showing this condition. This patient stopped vomiting within twenty-four hours, and after a prolonged convalescence recovered. Encouraged by this result, a daily analysis was made of the total urine of seven of the more serious cases for evidence of acidosis. Examination of total acidity, total N, total NH_3N , relation of NH_3N to total N, the quantity of acetone and oxybutyric acid, was made daily. Of these cases, five recovered without vomiting, two died with vomiting symptoms. In these last two cases there is, unfortunately, a gap in the records between their first admission and the onset of vomiting. The first five cases excreted daily acetone varying from 0.040 gram to 0.622 gram, and oxybutyric acid from nil to 1.1 grams. $\frac{\text{NH}_3(\text{N}) \times 100}{\text{Total N}}$ varied from 7 to 15 per cent.

The acetone bodies diminished within three days after serum to a mere trace, and $\frac{\text{NH}_3(\text{N}) \times 100}{\text{Total N}}$ to below normal.

The disappearance of acetone bodies took place in spite of the fact that the patients were only having milk; and, in fact, the case showing the highest proportion of these bodies had been having a considerable amount of carbohydrate food in addition before admission, so that their presence was apparently not due to mere starvation. The complete figures for the two vomiting cases are given below.

CASE VI.—The patient, aged 6, was admitted on the third day of disease; antidiphtherial serum, 16,000 units, given. On the tenth day vomiting occurred five times. On the eleventh day the patient was given 36 grams of sodium bicarbonate; there was no vomiting. The following day 16 grams of sodium bicarbonate were given; no vomiting. Death took place on the fourteenth day.

Analysis.

Day of Disease.	Total Urine.	Acidity.*	Total Acetone.	Total Oxybutyric Acid.	Total N.	Total NH_3N .	$\frac{\text{NH}_3\text{N}}{\text{N}}$
3-4	c.cm. 525	60	gram 0.026	gram Nil	gram 2.2	gram 0.21	10%
10-11	250	11	0.028	Nil	2.15	0.01	0.5%
11-12	772	22	0.254	Trace	2.5	0.029	1.9%
12-13	630	22	0.283	Trace	2.7	0.052	2%

* Equivalent to c.cm. N/10 acid per 100 c.cm. urine.

CASE VII.—The patient, aged 7, was admitted on the fourth day of disease; the case was a severe one. Antidiphtherial serum, 20,000 units, was given. Vomiting occurred three times on the ninth day, and also on the tenth; on this day 22 grams of sodium bicarbonate were given. No vomiting took place on the eleventh day; a further dose of sodium bicarbonate, 36 grams, was administered. Death occurred on the thirteenth day.

Analysis.

Day of Disease.	Total Urine.	Acidity.	Total Acetone.	Total Oxybutyric Acid.	Total N.	Total NH_3N .	$\frac{\text{NH}_3\text{N}}{\text{N}}$
9-10	c cm. 510	198	gram 0.51	gram 0.33	gram 3.2	gram 0.45	14%
10-11	360	37	0.41	0	3.3	0.21	7%
11-12	330	37	—	—	—	0.3	—

In Case VI acetone appeared to be washed out of the tissues by the increased urine. In Case VII this was not evident. From all these analyses there is no greater indication of acidosis than is present in many pyrexial conditions, except in the failure of a large amount of soda to render the urine alkaline. In fact, in Case VI the acidity was actually increased by 36 grams of soda. Cushny² notes that 12 to 15 grams is sufficient to render an adult's urine alkaline. It is probable that most of the soda is fixed by the proteins of the tissues. The small increase in acetone (from diacetic acid) only accounts for a negligible

amount. Considering that a diabetic may excrete up to 10 grams daily⁴ of acetone bodies without symptoms, these acids cannot account for the symptoms in diphtheria.

No lactic acid was found in the urine, and in Case VII the Cl as NaCl diminished from 4.5 grams to 2.05 grams between the tenth and eleventh days. The administration of the alkaline liquid rendered the patients oedematous, a condition not seen in those dying naturally with these symptoms, so apparently some of the fluid administered is poured out into the tissues. In each case the soda diminished or stopped the vomiting. The vomit remained as clear fluid and did not become like coffee grounds, and only contained 0.07 per cent. total acids (as HCl) to phenolphthalein.

If there is a real acidosis it might account for the symptoms, as Crile³ states that acidosis exhausts the adrenals, and the prostration, weakness of the circulation, and vomiting resemble the symptoms caused by adrenal failure in Addison's disease.

These investigations, extending over a year, are published with reluctance, as being very incomplete, but they cannot be completed as I am proceeding on military service, but on the original hypothesis prophylactic measures have been adopted which have given most encouraging results in the prevention of these symptoms. Every severe case coming under treatment late during the past eleven months has been treated at once with 10 to 15 grams of sodium bicarbonate a day for several days in divided doses by the mouth, in addition, of course, to full doses of antitoxin.

The number of cases admitted was 290; 52 were severe late cases (third day or after), and of these 11 died from all causes, including 5 within forty-eight hours of admission, and 3 from bronchopneumonia following laryngeal diphtheria; this leaves only 3 deaths from heart failure. Not one of the whole 290 cases had any vomiting, and many unexpected complete recoveries have taken place. The mixture given is—

Sodium bicarbonate	...	...	2 grams
Potassium bicarbonate	...	...	0.5 gram
Magnesium carbonate	...	...	0.5 "
Aq.	...	...	ad 30 c.cm.

Every four hours.

It appears to alter the toxic pallor to a more healthy tint, and increases the urinary secretion and diminishes the albuminuria.

Conclusions.

1. Some of the symptoms in vomiting cases of diphtheria may be due to a previous acidosis causing adrenal exhaustion.
2. These symptoms are not prevented by antitoxin if the patient does not receive it by the third or fourth day of disease.
3. The administration of large amounts of alkali to cases showing these symptoms diminishes or stops vomiting, but does not usually save the patient. The administration of 10 to 15 grams of alkali daily for several days from the earliest possible moment, with full doses of antitoxin, appears to prevent the onset of these symptoms.

Analysis.—Methods used: Acidity, neutralization in presence of neutral potassium oxalate and phenolphthalein. NH_3 , formalin method. Total N, Kjeldahl's method. Acetone and oxybutyric acid, Shaffer and Mariott. NaCl, by Volhard's method.

REFERENCES.

- ¹ Beesley, BRITISH MEDICAL JOURNAL, 1905, vol. i, p. 1142.
- ² Cushny's *Pharmacology*, p. 532.
- ³ Crile, BRITISH MEDICAL JOURNAL, October 28th, 1915, p. 590.
- ⁴ Van Noorden, *Metabolism and Pract. Med.*, vol. iii, p. 593.

SEVERAL leading physicians of Rio de Janeiro have taken steps for the establishment of model sanatoriums in different regions of Brazil. The first is to be erected among the Itatia hills near the capital.

SURGEON-GENERAL BRAISTED, of the United States navy, in a recent report to Secretary Daniels, states that typhoid fever and other infectious diseases have been practically extinguished in the service by modern methods of prevention. Notwithstanding the vast increase in the personnel since the entry of America into the war fewer than ten cases of enteric have been reported in that period. The only diseases that cause any trouble at present are those due to infection through the respiratory passages, especially mumps and measles; and in all these the death-rate is very low.

A SIMPLE METHOD OF MECHANICAL FIXATION FOR FRACTURE OF LONG BONES.

By JOSEPH E. ADAMS, M.S.LOND., F.R.C.S.ENG.,
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The methods commonly employed in the operative treatment of fractures are all more or less laborious, and although the results amply justify the necessary expenditure of time and trouble, it appears to me that the methods of carpentry as exemplified by the use of plates, bolts, and screws, require modification in their application to a surgical problem.

The use of a bone graft may be more strictly surgical, but it is certainly laborious even with electrical saws and similar apparatus at the surgeon's disposal. Simplicity in all operative procedures is greatly to be desired, for, when the technique of an operation is easy, the risks of failure are correspondingly diminished. In the case of broken bones it is also most desirable to have a method of fixation applicable to compound as well as simple fractures, and it is the former which in reality present the more difficult problem. Bone grafting in the presence of sepsis is always doomed to failure, and the use of screws is condemned because they carry infection before them into the substance of the bone, they become loose, and they may soon fail to hold a plate in position. It is generally held also that whilst metal plates applied to fractures tend to delay bony union, their function is fulfilled if they hold the fragments in good anatomical apposition during the healing process. It is urged, on the other hand, that the bone graft promotes bony growth, and therefore hastens union. To my mind, the explanation lies in the fact that the graft is used as a wedge to press bony surfaces together, whereas the plate tends to press itself against the bone, and bone to bone is obviously essential for rapid union.

The bone clip of which I give an illustration is designed to partially encircle the fragments and to press them together and thus favour rapid healing of the breach in bone tissue. It is made of tempered spring steel and the upper half of Fig. 1 shows its application in the case of

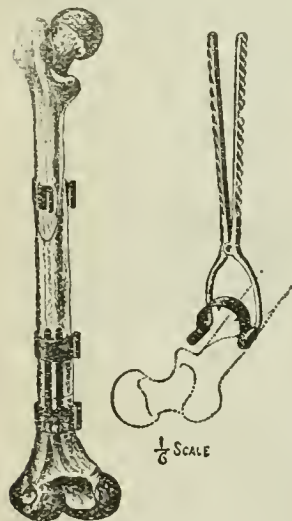


FIG. 1.

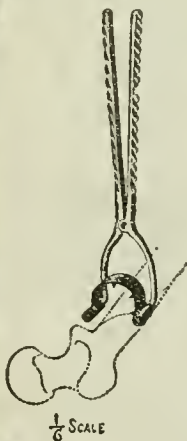


FIG. 2.

an oblique fracture, drawn from an actual specimen. In the lower half of the diagram is seen a clip with a metal flange, designed for the treatment of a strictly transverse fracture, secured by means of a second clip. These clips exercise continuous elastic pressure on the fragments of bone within their grasp and the size selected must be proportionate to the size of the bone operated upon. It is not intended that more than two-thirds of the circumference of the bone should be grasped by the clip. The strength of the spring is quite sufficient to counteract laterally acting forces tending to displace the fragments, and the teeth by which the bone is gripped will resist a force acting in its long axis. All that is necessary after the clip is in position, therefore, is sufficient immobilization by splintage to avoid violent movement and no extension need be applied to the limb. A transverse fracture, as I have found from recent experience, can sometimes be quite well secured by a single clip of the ordinary dimensions, or by one which is made especially wide. It is to be admitted that in the case of a true transverse fracture one does not get the ideal pressing together of the raw surfaces of bone, but this merely indicates the need for longer immobilization of the limb before union can be expected. As a matter of fact the fractures which call for mechanical fixation are rarely absolutely transverse.

The technique of this method of operating is extremely simple, and the only special instruments required in addition to the clip and the introducer are two pairs of Lane's curved bone retractors.

The steps of the operation are as follows: A linear incision is made down to the seat of injury, the long fragments are identified, and the way in which they require to be fitted so as to obtain perfect apposition is noted. In oblique fractures forcible extension with rotation of one or other fragment is usually satisfactory, but with jagged and irregular bone surfaces protrusion of the ends through the wound and then dovetailing them into position by manipulation is the better plan. The muscles are first retracted by Lane's instruments and pushed out of the way, and then the curved portion is passed over the bone between it and its separated periosteum, this separation being largely the result of the fracture rather than purposely carried out by the surgeon. In this way four retractors are placed in position, one on each aspect of each main fragment, in the same way as a tyre lever is passed between a tyre and the rim of a motor wheel; the two pairs can be pushed away from one another along the bone until a sufficient subperiosteal space is exposed for the application of the clip. The bone ends must then be got into perfect apposition and the clip lifted from the instrument table by passing the prongs of the introducer through the small loops at its ends. Nothing which will be introduced into the wound need be touched even by the gloved hand, and the introducer is made of considerable length so that the clip is easily lifted and opened without coming near the surgeon's hand. The next step consists in passing the open clip round the bone at the seat of fracture and adjusting it until it holds the fragments in a firm grip; it is important not to dislodge the introducer until the best position has been obtained, and then a tap with one of the retractors on the side of this will readily disengage the prongs from the loops of the clip, whose spikes give it a firm hold on the partially encircled bone. The strength of this method of fixation can immediately be tested by moving the limb, and the security of the joint will at once become apparent. The spikes or teeth obviate the need for any screws or nails to affix the clip to the bone, and they leave a small space between the metal and the osseous tissue, so that pressure necrosis is hardly to be feared. Even in the femur of a young child they do not tend to bury themselves in the bone, and thus bring the clip into complete apposition with the bony surface. This is an important point, which has a bearing on the removal of the clip, if this should be called for at a later date.

The accompanying diagram shows the operation completed as far as the bone is concerned.

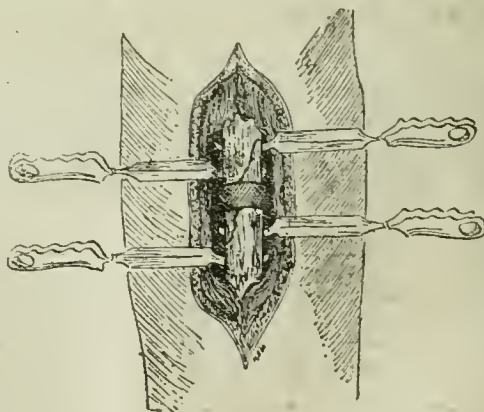


FIG. 3.

Since I first described this method of operating on fractures I have gained further experience of its value and am convinced of its suitability in a large number of compound fractures and even gunshot wounds, provided that the treatment is adopted at the outset. I have recently operated on about six cases of simple fracture of the femur at the East London Hospital for Children, and the results have been most gratifying, for in all but one perfect results, functional and anatomical, were obtained in about four weeks, with no shortening. In the exceptional case I have to admit that suppuration occurred, and this has delayed union by a few weeks, and has, up to the date of

writing, caused difficulty in securing movement at the knee-joint, but it has not affected the satisfactory alignment of the femur, and the experience gained by what I admit to be due to some error of technique has emboldened me to extend the use of the clip to the treatment of compound fractures. I may add that this case was a T-shaped fracture at the lower end of the femur, which is a type notoriously difficult of treatment. By frequent examination of these cases I have found that the presence of suppuration appears to double the time for firm union to take place, and in this particular case the bone was solidly united at the end of four weeks, whereas in all the others no rocking at the site of fracture could be obtained a fortnight after operation. Naturally the amount of callus formed in compound fractures is excessive and the healing that one obtains is of the "third degree," comparable to that seen in a septic wound of soft tissues. In the process of healing by first intention of a superficial wound the amount of granulation tissue is limited to the line of the scar, but this result is only secured by accurate apposition of the edges of the wound, which, by suture, are actually pressed together, and I claim that by the use of such elastic pressure as is provided by my bone clip a similar result is achieved, and healing of the fracture occurs by first intention by proliferation of bone cells and not by ossification of callus. It is well known that where there is perfect apposition of the fractured surfaces there is little or no callus formation, but it appears to me that we have been too long content with secondary union of bone, and that in all probability the period of healing in a fracture can be very materially reduced in many cases by operative treatment.

While admitting that these clips naturally fit best over bones with a circular contour, such as the femur, I have found them of considerable service in fractures of the tibia and have used them for difficult oblique fractures which could not be reduced by manipulation. In a recent compound fracture of the tibia, which failed to unite after several weeks' treatment by splintage and the use of a Steinmann's pin to secure extension of the lower fragment, the clip was successfully applied, and was removed at the end of about four weeks, when solid union had been secured, and the small granulating wound which had been present healed rapidly. As to the removal of these clips, I have devised no special instrument for the purpose, but I have had the introducer made in two pieces, so that each prong can be inserted in one of the loops and the instrument locked in a similar way to that in which mid-wifery forceps are applied. As a matter of experience, however, it is difficult to find these loops without opening up the wound considerably, and I have found that the point of one of the Lane retractors can be used as a lever to lift up the spring and dislodge it from the bone. Except in the case of compound fractures, of course, their removal will seldom be required.

In considering their applicability to the treatment of compound fractures, I wish to lay emphasis on the fact that no screws are required, and therefore there is no penetration of even the cortex of the bone, and very little stripping up of the periosteum is needed to secure a sufficient area of bone for the adjustment of the clip. When once they are placed in good position they grip surprisingly firmly by their small teeth; they act automatically in the case of oblique fractures in securing firm contact of the bony surfaces and withstanding displacement of the fractured ends. As I have already mentioned, the introducer should not be removed until perfect apposition and security have been obtained. I have recently employed one of the flanged clips in the case of a transverse fracture of the femur in a child, the flange being secured to the upper fragment with a clip having no teeth, and have been agreeably surprised by the firm hold obtained, seeing that the operation was not done until three weeks after the injury, when there was already some union in bad position with an inch overlap.

The most important, and unfortunately the commonest, type of compound fracture with which one has to deal at the present time is that due to gunshot wound, and I am convinced that these clips are worthy of trial in cases of this type, selected with due reference to the accessibility of the bone ends, if applied within a short time of the receipt of the wound. They are not open to the same objections as Lane's plates, in that they are not likely to carry infection before them and produce extensive osteitis. In my

experience, they are calculated to hasten the repair of the fractured surfaces even in the presence of infection, and I do not think that the treatment of the wound by Carrel's or similar methods would in any way militate against their efficiency as an internal splint. That such an internal splintage for the treatment of gunshot wounds of the femur and the bones of the upper extremity is desirable must be obvious to any one who has had to do with the compound fractures of the present war with their tendency to angular deformity, their shortening, and the disability of adjacent joints due at the same time to the necessity for prolonged splintage and the imperfection of every kind of external splint. It is idle to deny that these splints all possess drawbacks, and the simple explanation of their inefficiency is that we do not obtain sufficiently rapid union of the bone, but if care is exercised in the selection of cases and such clips are applied at the first dressing under anaesthesia, I believe our end results can be improved. Oblique fractures are obviously most amenable to this method of fixation, but I do not think the existence of comminution is any bar to success, and this type of fracture is much more common than the transverse. When there is a considerable gap in the bone some form of external extension apparatus is clearly required if the normal length of the limb is to be retained, and clips are not suitable. In compound fractures they should be removed as soon as the bone is solid enough, for otherwise they might be the cause of a persistent sinus.

The necessary apparatus has been made for me by Messrs. Lewis and Sons, Westmoreland Street, W.I., and one introducer suffices for all sizes of clips, since the prongs can be separated from contact up to three inches. The clips are made of spring steel in diameters ranging from half an inch to one and a half inches with quarter-inch increments. Those suitable for oblique fractures are provided with teeth turned over from the edge by which they grip the cortex of the bone, but I have found that in the case of the flanged clip for transverse fractures the flange is best held in contact with the bone by a clip without teeth so that it rests close against the bony cortex, after passing over the steel flanges. It is desirable always to use the smallest clips which will embrace the bone so as to secure the maximum degree of elastic pressure, and, at present, they are made of the lightest steel which will stand the necessary strain. It is desirable to open the clips with the introducer slowly and gently since with all their tempering they are apt to be slightly brittle.

Owing to difficulty in producing skiagrams satisfactorily at the present time, I regret that I am unable to illustrate this article with examples of cases operated upon, but I hope to do so at a later date. One of the satisfactory features of the operation is that in a straightforward case of simple fracture it can all be done easily in half an hour. In applying them to compound fractures where the bony surfaces lie already exposed in the wound the necessary steps would only add a few minutes to the length of the operative procedure.

REFERENCE.

¹ *Lancet*, May 12th, 1917, p. 725.

ACCORDING to a statement recently made by the New York State Department of Health, during the first nine months of 1917 motor cars caused 775 deaths in that State, being more than the number due to typhoid and scarlet fever taken together. In September such accidents were responsible for 155 deaths, more than the combined mortality from murder and suicide. The number of deaths caused by motor cars exceeds the number for the corresponding period of any previous year.

SWITZERLAND is believed to be one of the countries most afflicted with cancer. The Association Suisse pour la Lutte contre le Cancer has undertaken to collect statistical and clinical notes as to the most frequent localizations of the disease. Cancer of the breast, the increase of which is particularly notable, has been chosen as the first subject for investigation. The inquiry will be directed to the influence of lactation, inflammatory affections, and the pre-existence of mastitis, fibro-adenoma, and cysts, and of operation on prognosis in general and the formation of metastases in particular. Other points are the value of x-ray, radio-active, and other methods of treatment. All practitioners in Switzerland are invited to supply information as to cases treated by them from 1911 to the end of 1915. A special appeal for help in the inquiry is made to the surgical staff of hospitals and to pathological institutes.

Lectures

ON

THE ANATOMICAL AND PHYSIOLOGICAL PRINCIPLES UNDERLYING THE TREATMENT OF INJURIES TO MUSCLES, BONES, AND JOINTS.

GIVEN AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND, NOVEMBER-DECEMBER, 1917.

BY

PROFESSOR ARTHUR KEITH, M.D., F.R.S.,
CONSERVATOR OF THE MUSEUM.

V. THE BEARINGS OF MARSHALL HALL'S DISCOVERIES ON ORTHOPAEDIC PRACTICE.

WHEN Marshall Hall first announced his discovery of reflex action, at a November meeting of the Zoological Society of London in 1832, he was a man of 42, a consulting physician with a considerable practice in London. He was born of a Saxon Midland stock—with an infusion of that hybrid strain which reached England through Normandy. His father was a cotton spinner and bleacher near Nottingham, the first in England to use chlorine for bleaching cotton. Marshall, at the age of 15, was apprenticed to a chemist or druggist in Newark, but in 1809, four years later, he became a medical student at Edinburgh, where he spent five years, three as a student and two as a resident in the Infirmary. After two years as a physician in Bridgewater and eight in Nottingham, he settled in London in 1826.

In the course of experiments on the circulation in capillaries he made a chance observation which directed his attention to the nature of the functions of the spinal cord. He had cut off the tail of a salamander, and happening to touch its skin observed that there was a quick movement in response. That response Marshall's predecessors had often seen happen, but it immediately excited his attention because it was taught in his time that a muscle could be stimulated to action in three ways only—either by touching or stimulating it directly, or by stimulating the nerve, or by a volitional stimulus from the brain. He knew that the movement he had evoked in the salamander's tail was due to none of these three causes; there must be a fourth way of calling muscles into action, and, as was his wont with exceptional cases, he followed up the clue. He destroyed the part of the spinal cord which lay in the detached tail, and found, on touching the skin, no movement could be elicited by touching the skin. He thus was led to suspect that in the spinal cord there resides a power, or mechanism, for the production of such movements as he had witnessed in the salamander's tail. To test his guess he took a snake and cut its spinal cord across, just behind the head, thus separating the brain, the recognized centre of muscular machinery, from the body. The snake remained perfectly still until he touched it, or a puff of wind struck it, or until the table was struck on which it lay, and then the snake moved and kept moving until he wrapped it in cotton-wool and thus brought it to a standstill by protecting it from all external stimuli; so soon as it was brought to a standstill and its skin was protected all movements ceased. He then cut off the head of a turtle, and found that on touching the nose, which he knew from Bell's teaching to be a respiratory area, the floor of the mouth executed the respiratory movements which occur in one phase of breathing in turtles, but that when he destroyed the medulla oblongata, he could no longer elicit the respiratory act. He concluded that when the nose was stimulated by touch, a message was carried to the medulla by the fifth nerve, and therein a centre excited another message which was reflected along the motor nerves which control the muscles of the mouth and throat. He pictured in his mind an arc of nerves, and recognized that a stimulus was necessary to produce the reflected or reflex muscular act.

He then exposed the spinal cord of the headless turtle; he touched the spinal cord with a needle: the limbs were thrown into movements; messages, he concluded, must have been excited which had passed up and down the cord and been reflected to the muscles of the limbs. He touched the posterior roots of a fore and then of a hind limb: the

limbs were thrown into movements; he exposed and touched nerves exposed in the trunk: movements of the limbs and body followed. He touched the skin of the trunk and of the limbs, and with each prick found that the movements evoked by stimulation of the skin were more vigorous than those which followed stimulation of nerves, the nerve roots, or even the cord itself; evidently the skin was the chief end-station for evoking such movements. He noted, in the headless turtle, that the sphincter of the anus retained its normal tonic power and function, but when he destroyed the hinder part of the spinal cord all tone and contraction disappeared from the sphincter. The power or mechanism which regulated the tone or function of a sphincter was clearly resident in the spinal cord. On pricking the headless turtle he could evoke movements in the limbs; it was also clear that in the spinal cord there was resident a mechanism which could time and regulate the contraction of muscles. And lastly and for our present purpose he made a most important observation—when he removed the spinal cord from the headless turtle the limbs became limp, all tone and degree of contraction disappeared from the muscles of the limbs. That passive contracture of muscles which can work such dire deformities in diseased joints was, on Marshall Hall's showing, to be traced to a disordered function of the spinal cord. The spinal cord regulated the balance of the limb muscles and determined the posture of joints.

Marshall Hall was elected a Fellow of the Royal Society in 1832, and on June 20th, 1833, he read to it his paper "On the reflex function of the medulla oblongata and medulla spinalis," in which he demonstrated the existence in these parts of "a principle of action not hitherto distinguished with sufficient precision." We have to remember that in 1833 knowledge of the finer structure of the central nervous system was crude and imperfect; yet he pictured an arc system, and grasped the full bearing of his discovery on the realm of medicine and biology. He had an instinct for signpost facts and critical experiments. He saw that the reflex function of the cord and medulla could be exalted—by opium in the frog and strychnine in the mammal; that the manifestations of tetanus and hydrophobia received a rational explanation for the first time. Asthma and epilepsy he also wished to bring within the scope of his reflex law. The excitomotor or reflex function of the spinal cord he found to be more easily excited in the young than in the old; if a teat touched the lips or a finger pressed the palm of a newly born child, it was grasped by lips or fingers. The anencephalic human fetus he regarded as a purely reflex mechanism. He observed how all the entrances and passages at the front end of the body, all the muscles and operations connected with the entrance of food and breath, were presided over and manipulated by his systems of reflex arcs. The action of the canals and muscles at the hinder end of the body were regulated by a similar system; defaecation, micturition, parturition were reflexly controlled acts. He found he could elicit such acts by stimulating the mucous linings of these canals; tenesmus, stranguary, renal and biliary colic, the localized contractions of the belly wall, and the manifestation of sympathetic pains which accompanied diseases or disorders of the intestinal tract were all brought by him within the scope of his new law. He found that reflexes could be set up by stimulation of the dura mater, plexus, and peritoneum; the muscular disturbances which may attend the eruption of teeth or the presence of worms in the rectum could be explained on his newly discovered system of reflex arcs. His conclusions, which most concern us now, relate to the muscles of the limbs; they, too, were controlled by the action of stimuli speeding along his postulated system of reflex arcs. Stimuli which arose in the moving limb were carried to the spinal cord by "incident" or excitator nerves, and were there "reflected" along the outgoing or motor nerves to the muscles. Each contact of the foot with the ground he supposed to call forth a new series of movements. At first he believed that the "tone" of muscles was also a true reflex manifestation, but later he regarded the tone of muscles as a function of the cord, manifested independently of the arrival of peripheral stimuli.

Marshall Hall as a physician desired to be Nature's servant—a sincere and outspoken servant if not a very humble one. "I am persuaded," he said, "that a knowledge of the healthy body action is the only foundation for

practical medicine and the only remedy for quackery." "A mere practical man is a quack" was one of his aphorisms, yet there never was a man so misconstrued as Marshall Hall was by his contemporaries. The blame is not to be saddled altogether on them, for he had an unconscious art of rousing antagonism, jealousy, and mistrust. We can hardly wonder that John Hilton preferred to think of nerve trunks than of spinal centres as the functional elements which presided over the muscular system of the body. Neither he nor the line of surgeons which followed him perceived that Marshall Hall had given a new basis for the diagnosis of all disordered actions of muscles, and a sure principle in which a rational means of treatment could be based for the recovery of deformed and disabled limbs. Nay, I would go further. The full bearings of Marshall Hall's discoveries, and particularly the significance of the further investigations made by those who have so brilliantly explored the field which he had opened, have not yet been fully utilized by modern orthopaedic surgeons. Marshall Hall made it impossible for us to think any longer in the terms of single muscles, bones, and joints. All of them in the living state are combined into a functional whole by the spinal cord and its system of reflex arcs.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

STERILIZATION OF THE THROAT AFTER DIPHTHERIA AND IN CARRIER CASES.

The detention of diphtheria carriers and of convalescents who continue to harbour the bacillus is irksome to those isolated, and must in the aggregate involve a considerable expenditure of money both in civil and military practice. In the *BRITISH MEDICAL JOURNAL* of March 11th, 1916 (p. 374), Dr. W. S. Thacker reported on the effect of painting the tonsils and nasopharynx with strong solutions of silver nitrate, his work being restricted, I gather, to carriers. He used a 50 per cent. solution, and two applications procured sterility in every case. A 90 per cent. solution was employed for the staff, and one painting then sufficed, the throat being cocaineized beforehand. Used in these strengths the solution has been known to cause severe spasm of the glottis, when it has happened to reach the rima.

At the beginning of August, 1917, we began to use silver nitrate on patients in the Plaistow Hospital positive to the culture test after an acute attack of diphtheria, when otherwise nearly fit to go home. As most of our patients are children, we decided to try the effect of weaker solutions. The first painting was done with a 1 in 8 (12.5 per cent.) solution. Where this did not secure sterility a second painting was done with a 1 in 4 (25 per cent. solution). In four cases this proved insufficient and further painting was needed. These were all children with enlarged tonsils and adenoids. Three of them struggled, so that the solution could not be effectively used. In these cases the throat was thereafter painted under ethyl chloride as a general anaesthetic.

Throat cultures were taken on the third and fifth days after the application. The first culture was positive in three cases only. These were children with large irregular tonsils and masses of adenoids. In fact, it was only in cases of this type that there was any trouble in obtaining sterility, a consequence, no doubt, of difficulty in reaching every depression and irregularity. The cases treated yielded on culture the three types of Klebs-Loeffler bacilli, alone or mixed. Our results do not show that any one of these types is more persistent than the others.

Procedure.

The child was rolled in a blanket so that it could not get its arms free, and laid across the bed with its head in the operator's lap. This position prevented any excess of the solution running down the throat. A strip of cotton-wool wound round long sinus forceps was used for the application with 30 to 40 minims of the solution. The tongue was depressed and the tonsils and posterior pharyngeal wall swabbed somewhat firmly with the silver nitrate. It was found advisable to keep the patient without food for two to three hours beforehand. The only

case in which laryngeal spasm occurred was a girl who had had a meal shortly before the throat was painted. Of the first forty cases treated twenty-eight were sterilized by one application, eight cases by two paintings, and the remaining four cases needed further treatment as described above.

Conclusions.—Of cases with positive cultures after an acute attack of diphtheria 70 per cent. were rendered sterile by one application of a 12.5 solution of silver nitrate. A further 20 per cent. were sterilized by a second painting with a 25 per cent. solution. The remaining 10 per cent. were more resistant but could nevertheless be sterilized with silver nitrate in solutions not stronger than 25 per cent. with a little patience.

On the whole Dr. Thacker's method of sterilization marks a greatly needed advance on the preventive side, and it is to be hoped that its adoption in other contagious diseases than diphtheria will prove useful. In practice its efficacy plainly depends on the thoroughness with which the silver nitrate solution is applied over the entire surface of the mucous membrane.

M. ESTHER HARDING, M.B., B.S.,
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VINCENT'S ANGINA.

HAVING recently taken swabs from numerous cases of Vincent's angina, and having read various short articles on the prevalence of the condition both amongst our overseas troops and amongst the home service units, we are surprised to find no mention of the condition of the gums in this infection. In several cases the throat has cleared up in eight to ten days, while the organisms have easily been demonstrable in pus around the teeth; and, vice versa, in more than one case the patient has come up for a sore throat (? Vincent's angina), and we have found the organism in periodontal pus in great quantity whenever a swab from the tonsil has been indeterminate.

There seems to be no doubt that it is of the highest importance to look for pyorrhoea or other dental trouble in every case of sore throat, as a diagnosis may often be made in cases where nothing is obtained in direct tonsillar smears.

Moreover, no patient who has been under treatment for Vincent's angina should be discharged until it is shown that swabs from around the teeth are negative. We have swabbed several cases of pyorrhoea and several normal throats, and although fusiform bacilli and spirillar forms are occasionally seen, we are satisfied that Vincent's angina can be readily diagnosed from direct smears of the gums and throat, and that no other condition ordinarily met with presents the same microscopic picture.

A. J. EAGLETON,
Captain R.A.M.C.(T.C.).
J. D. MERCER,
Captain R.A.M.C.(T.C.).
F. E. HUDSON,
Captain att'd. R.A.M.C.
(Dental Surgeon).

Military Hospital, Sutton Vengy.

WOUND INFECTION.

EVEN at the risk of the accusation of repetition I consider it my duty, in present circumstances, to draw further attention to the excellent results which may be obtained in desperate compound comminuted fractures and other grave septic wounds by the prompt administration of ether, application of a tourniquet, deliberate exposure, and obliteration of pockets and sinuses by large incisions, complete removal of foreign bodies (including dequided infected fragments of bone), thorough tunnel gravity drainage, efficient haemostasis, frequent irrigation with hot peroxide lotion (60 to 120 c.cm. to litre), followed immediately by hot carbolic lotion (15 c.cm. to litre), hot mercury perchloride (1 in 2,000) fomentations (wrung dry before application), and absolute rest on a suitable splint until the wound is healed, with extension when necessary. To this should be added, whenever possible, permanent outdoor treatment, which is infinitely preferable to any indoor "primrose sunlight" illusion, and a liberal allowance of wine, stout, or beer with meals.

As far as my personal experience is concerned I have yet to find the equal of the above combination of surgical principles with what, in my opinion, are the best of all

antiseptics, so long as the latter are not used in a strength to destroy friend and foe alike; and their action is considerably enhanced by heat (fomentation) to the part and complete rest to the limb.

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DISLOCATION OF BOTH HIPs WITHOUT FRACTURE OF PELVIS.

J. G., a miner, aged 42, when in a stooping position was knocked down by a fall of stone. When examined it was found that his left leg was flexed, adducted, and internally rotated, and the right leg flexed, abducted, and externally rotated. Both dislocations were easily reduced under an anaesthetic. Stimson in his book says that thirty cases have been reported. Usually the dislocation is not the same on both sides.

Durham.

ARTHUR PAIN, M.R.C.S., L.R.C.P.

Reports of Societies.

ELECTRO-PHYSIOLOGICAL PHENOMENA.

A MEETING of the Electro-Therapeutical Section of the Royal Society of Medicine was held on December 21st, 1917, when Mr. A. E. BAINES read a paper on *The Interpretation of Certain Electro-Physiological Phenomena*. Replying to Professor Bayliss's criticism¹ of a book partly written by him, he explained that certain statements said to embrace the chief errors underlying the thesis were made by Dr. Bowman of Manchester and not by him. Other essential points in the criticism were that the currents led off from various points of the body by metallic electrodes were due to the inequality of the electrodes and to difference in the activity of the skin glands; that nerve leaks were merely places at which the skin was moist; and that the di-electric bearing his name did not appear to be different from some kinds of medicinal paraffin.

In refutation Mr. Baines stated that in taking a hand-to-hand galvanometric deflection the sign of current was always changed when the hands were crossed, showing that difference of polarity was in the hands and not in the electrode; that unless both hands were used the contact of skin and metal did not exhibit electrical action, and that as the thumbs were electrically, as well as anatomically, in opposition to the fingers of the same hand no current would pass if the electrodes were placed between the first and second and third and fourth fingers of the same hand, but that a current passed when the thumb made contact and established a potential difference by reason of its higher and opposite electrification. He also referred to the experiments of Dr. C. N. Longridge, published in the *BRITISH MEDICAL JOURNAL* of May 20th, 1916, and instanced the fact that whereas in neurasthenia, where the hands were moist and the deflection small and of uncertain sign, there was always a large and rapid excursion of the light from a dry hot skin in local pyrexia. Upon the question of paraffin, he claimed that the use of a rock oil was clearly indicated by an electro-pathological study of local pyrexia. Clerk-Maxwell and Sir Oliver Lodge had told him, he said, that light is an electro-magnetic disturbance of the ether and optics a branch of electricity. Progressing from the red to the violet end of the spectrum, there must be a rapid increase in the potential of light, and a discharge of electricity of ever-increasing intensity. In the early days of experimentation with a mineral oil of correct viscosity there had been many failures, and he had found that when exposed to direct sunlight or ultra-violet rays there was a distinct falling off in its therapeutic value. His process was designed to remedy that defect, and since the oil had been standardized there had been no failures that could not be ascribed to faulty diagnosis. If objection were taken to the process on the ground that it was secret, he said that the paraffin prescribed by the medical profession for constipation had always been refined by secret processes.

¹ *BRITISH MEDICAL JOURNAL*, March 24th, 1917, p. 387.

Rebiefus.

ON WRITING WITH THE LEFT HAND.

THE author of this treatise aims at providing a practical method of left-hand writing for the use of the mutilated, the subjects of cramp or paralysis, and the left-handed. The work is of interest at this moment when so many men, as a result of the war, have lost the right hand. Professor D'Urso enters at some length upon a discussion of the rationale of the process of handwriting, especially as regards the direction of the writing with reference to the position of the body and of the pen. He gives some ingenious diagrams, which he maintains are based upon sound physiological and geometrical grounds. A scheme for the right hand having been constructed, he proceeds to show what must of necessity be the scheme for left-hand writing, if the one limb be regarded as the counterpart of the other. He shows also that the direction of the writing with reference to the axis of the body is varied according to the obliquity of the letters. The practical outcome of the discourse is as follows.

In learning to write with the left hand the pupil should commence by writing the various letters on a blackboard with chalk, standing. He should commence with letters 8 cm. in height, then form letters of 4 cm. and finally those of 2 cm. The larger letters will be written from the shoulder and elbow, the wrist and fingers being almost immobile. He should then proceed to write on paper, the paper being placed on a horizontal table. He should commence with letters 4 mm. in height, and then follow with letters of 2 mm. At first a pencil should be used, and, after some proficiency is obtained, a pen. The exercises are no other than those that are to be found in any English child's copybook. The "hand" adopted is *la scrittura corsiva*, or running hand, the letters of which are inclined at an angle of 45 degrees. Little attempt should be made to distinguish the heavy down stroke from the lighter up stroke. The paper should be smooth and ruled in faint lines. At first the pupil may trace over already pencilled letters. The pupil should not go over his writing twice nor retouch letters after they are made. The paper should be fixed in position by means of a paper weight. The light should fall from the right-hand side. The nib used must be fine and flexible, and with a median point. The pen-holder should be slender and light. The writing should be as light as possible. It is a common error to grip the pen too firmly, and to press too heavily on the paper. The pen should be lifted from the paper as seldom as possible. The writing must never be hurried, nor persisted in for longer than one hour at a time.

The pen is held in the left hand precisely as it is held in the right—that is, between the index finger and the thumb. The pen should rest upon the base of the index and be in a line with the forearm. It will be noticed that while the finer movements of the pen are controlled in the right hand by the index finger, in the left they are rather influenced by the thumb.

The most important feature in the author's method is position. The writer must sit square to the table, bolt upright, with his chest to the table's edge. He must resist the inevitable tendency to lean to the right. The whole of the forearm should rest on the table, the elbow being at the edge of the table. The paper should be so turned that the lines to be written on are vertical, as viewed by the writer, and not horizontal; that is to say, the lines should be at right angles to the edge of the table; the top of the page will therefore be on the right-hand side of the pupil and the bottom on his left. The left-handed man, in fact, should write vertically from above downwards, and not horizontally from left to right, as is the practice when the right hand is used. The pen is held at right angles to the lines. The paper, it is needless to say, is flat on the table, but the writing is at right angles to the edge of the table and not parallel with it. Any one who attempts left-hand writing will experience at once the convenience of writing vertically.

FREDERICK TREVES.

¹ *La Scrittura con la sinistra. Metodo ad uso dei mutilati, dei malati di crampo, dei paralizzati, dei mancini, ecc.* By Professor Nicola D'Urso. Rome. 1917. La Federazione Nazionale. (Lire 1.50.)

ACIDOSIS.

The conception of acidosis, which may be defined as the depletion of the blood and other tissues of the body in fixed bases, actually dates from 1850, but has only become generally recognized by medical practitioners comparatively recently and almost exclusively in one manifestation—namely, carbohydrate acidosis as seen in diabetes.² The blood plasma is kept uniformly alkaline by the intake of fixed bases in the food, the elimination of CO₂ by the lungs and of acid by the kidneys, and by the neutralization of acids in the body by ammonia. In well-marked acidosis the carbonates of the blood become depleted, CO₂ accumulates in the tissues, and although oxygen is carried by the arterial blood the tissues are unable to make use of it, there is no cyanosis, the venous blood is arterial in colour, and, as death occurs before there is any significant change in the reaction of the blood, acidæmia is an unfortunate term. Acetone bodies in the urine appear in carbohydrate acidosis only.

The recognition of other forms of acidosis is an important advance. They occur in renal disease, in advanced hepatic cirrhosis, in cholera, and in food poisoning in children. Acidosis does not occur in parenchymatous nephritis or in the early stages of the chronic interstitial or the arterio-sclerotic forms, but it appears in the later course of granular kidney, becoming prominent in uræmia, and is present in the uræmia of acute nephritis. In the renal form of acidosis there are no abnormal acids or excess of ammonia in the urine, but the amount of inorganic phosphates in the blood is increased and convulsions appear to be connected with the deficiency of calcium in the blood. Dr. SELLARDS has specially studied the acidosis of cholera and points out that it is intermediate between the carbohydrate and renal forms, as there is an increase of ammonia but no acetone bodies in the urine. The injection of massive doses of sodium bicarbonate during the collapse of cholera prevents the subsequent appearance of uræmia. It is of interest to note that there is no evidence that the hypothetical opposite condition of "alkalosis" occurs spontaneously in man or in animals, though after parathyroidectomy "alkalosis" appears before the onset of tetany, and benefit results from the administration of acids. This monograph conveys a broad view of acidosis, and in a very compact form contains a great deal of information which will be new to most medical practitioners.

ELECTRO DIAGNOSIS IN WAR.

In the greatly extended field of neurology due to the war electrical testing by its precise, almost mathematically exact, results greatly adds to the accuracy of diagnosis and prognosis; thus, in a doubtful case the partial reaction of degeneration points to compression or some other curable lesion of the nerve, whereas the complete reaction of degeneration shows that the continuity of the nerve has been severed; again, the report of the electrical reactions may decide whether or not there is an organic lesion underlying functional manifestations. The editors of the Collection Horizon have therefore been well advised to include in it a volume on electro-diagnosis,³ giving an up-to-date account of the applications, results, and limitations of the subject. The authors, Professor ZIMMERN and M. PÉROL, after a description of methods, illustrated by forty-four figures, devote a chapter to the abnormal reactions among which that of degeneration naturally receives the fullest attention. The diagnosis of motor paralysis and sensory disturbances is then discussed; in muscular atrophy secondary to arthritis the electrical reactions are exclusively in the direction of quantitative modifications of irritability, and the reaction of degeneration never occurs; so in atrophy about the shoulder-joint after injury the reaction of degeneration points to neuritis or compression of the circumflex nerve, or to radiculitis. The altered reactions in ischaemic paralysis, though sometimes referred to anaemia, are, the authors consider, more logically explained as due to neuritic and muscular changes, or to

compression of the nerve filaments by fibrous tissue. An interesting account of voltaic vertigo as a vestibular test is accompanied by explanatory figures. Like the other volumes of this series, this can be recommended for its practical utility.

GUNSHOT FRACTURES OF THE ORBIT.

M. FÉLIX LAGRANGE has contributed a volume on gunshot fractures of the orbit⁴ to the Collection Horizon. After a comprehensive historical survey of the subject and a description of the anatomy and functions of the orbit, he analyses the 609 cases on which his monograph is founded. Sight was destroyed in 34.5 per cent. of his cases, due to such lesions as detached retina, chorio-retinitis, atrophy of the optic nerve, haemorrhage into the vitreous, retrobulbar neuritis, cataract, or dislocation of the lens. He found that 18 per cent. of the cases were complicated with lesions of the maxillary antrum and 5 per cent. with injury of the frontal sinus. He calls attention to the fact that these lesions of the eye may occur when neither the projectile nor detached bony fragments have touched the globe. Partial rupture of the sclera, which, according to the theory of the "equator of depression," might be expected, does not occur. If the eyeball is struck by a large fragment of metal it is crushed and entirely destroyed; where the fragment is small it may penetrate the globe. Scleral rupture in the intercalary region rarely or never occurs. As to the treatment of sympathetic ophthalmia, the author is on the side of those who favour enucleation, but makes, of course, certain exceptions. M. Lagrange lays down the following principles in the treatment of gunshot wounds of the orbital region: (1) The eyelids must be replaced in their proper position and as far as possible in their normal form. (2) The conjunctival cul-de-sacs must be restored so that they may be capable of holding the artificial eye. (3) The external form of the orbit must be re-established as nearly as possible by filling up the osseous gaps. For this purpose metallic plates, or preferably fatty or cartilaginous grafts, are employed. The grafts are taken from the patient, either from the buttock when adipose tissue only is required, or from the costal cartilage when cartilage is wanted in addition. The treatise deals in a comprehensive way with a somewhat limited branch of war surgery, which perhaps has not received all the attention it deserves.

THE GENTLE ART OF GROWING OLD.

The later years of life are too often beset with major or minor troubles of which youth knows nothing, but with all its drawbacks and deprivations, old folks as a rule desire to cling to life so long as they can enjoy it.

How to make the most of one's life and at the same time to prolong it as far as possible should be the study of all persons of both sexes. To point out the road by which a healthy old age may be reached has been the task of many writers from Cicero downwards. A small work from the pen of Dr. BODLEY SCOTT⁵ has recently appeared in which the subject is discussed in terms at once graceful, sympathetic, and informative. The writer, who has already given evidence in a previous work of careful study of the conditions that are favourable to longevity, is able to pass most of them in review from the standpoint of personal experience.

The idea that life must pursue a downhill course after the period of maturity is passed, and that disease and decay must needs follow, is altogether repudiated. Although growth may have ceased, the fruit of experience is ripening, and can be maintained in good condition for the benefit of others, if only the physical organism can be protected from those risks of injury or degeneration to which all persons of advanced age are liable. In the earlier chapters the mental, rather than the physical, conditions are discussed, over which the individual has more or less control. A large proportion of the errors of conduct which lead to an unlovable old age are easily to be avoided, if certain habits are recognized and corrected in time.

² *The Principles of Acidosis, and Clinical Methods for its Study.* By Andrew Watson Sellards, Associate in Harvard Medical School, Department of Tropical Medicine. Cambridge: Harvard University Press 1917. (Demy 8vo, pp. vi + 117. 1 dollar.)

³ *Electrodiagnostic du guerre.* Par A. Zimmern, Professor Agrégé, et P. Pérol. (Collection Horizon.) Paris: Masson et Cie. 1917. (8vo, 155 pages; 44 figures. Fr. 4.)

⁴ *Les fractures de l'orbite par projectiles de guerre.* By M. Félix Lagrange. Paris: Masson et Cie. 1917. (Pp. 214, with 85 illustrations. Fr. 4.)

⁵ *The Road to a Healthy Old Age.* By T. Bodley Scott, M.R.C.S. Eng., L.R.C.P. Ed. London: T. Fisher Unwin, Limited. 1917. (Cp. 8vo, pp. 190. 4s. 6d. net.)

The question of food enters largely into the scheme of physical well-being, and the possession of sound digestive and assimilative power is a prime factor in the attainment of a healthy old age. Errors of quantity as well as of quality of food are apt to be cumulative in their effects, and only manifest themselves when irreparable mischief has been done. In spite of such errors in early life there may be good health at maturity, but as years advance more rational methods have to be adopted. By comparison with the life periods of certain animals, the writer concludes that human life should be prolonged to ninety years. In the later chapters the causes of premature senility are closely examined, especially with reference to cardiac and vascular degeneration.

We can cordially commend this work to readers of advancing years, whether medical or lay. To the former it presents an old subject in a new way, and to the latter will convey some very wholesome material for thought.

THE CAUSATION OF SEX IN MAN.

SOME thirty years ago Dr. E. RUMLEY DAWSON began to study the vexed question of the causation of sex in man. At the end of the year 1900 he propounded an original and simple theory of the subject. He holds that the sex of the child depends solely upon which ovary supplies the ovum fertilized. If the ovum comes from the right ovary, the child is a boy; if from the left, a girl. The father has no influence in determining the sex of the future child, nor have any of the countless old and new recipes for the production of a child of a specified sex. This theory has all the attraction of extreme simplicity, and in the second edition of his book⁶ on the subject Dr. Dawson has collected a great deal of evidence to prove its correctness, both from his own experience and from gynaecological literature. He also devotes a chapter to rebutting the evidence brought forward by various writers to disprove his theory.

Another chapter is given to a second theory of the author's, designed to make possible the prediction of the sex of coming children in multiparae. The second theory is this, that the ovaries ovulate alternately, and it is supported again by a considerable body of evidence. Dr. Dawson claims 97 per cent. of successes in his predictions of the sex of unborn children. Naturally there are limitations in the making of such forecasts, and these are duly pointed out by the author. As a corollary the production of children of either sex as desired should, again within limits, be possible in the case of multiparae; again, Dr. Dawson claims that he has been successful here in many instances.

It is clear that Dr. Dawson's theories are ambitious, for they offer solutions of problems attacked by medical men and biologists again and again, at any rate since the time of Hippocrates. But are his solutions correct? This question is merely one of fact, and the answer will depend only upon the evidence afforded by the collection of observations. Thus valuable evidence for or against his view that the right ovary produces male ova and the left female could be collected at Caesarean operations; the sex of the child could be compared with the site of the ovarian corpus luteum. Similar evidence could be collected in the *post-mortem* room. Dr. Dawson's book is well written and its subject matter is clearly arranged. Its topic is one of such general interest that it is highly desirable that Dr. Dawson's theories should be submitted to the test of clinical observation, as has been partially indicated above. Their truth or error can be proved in no other way.

LUCIANI'S "PHYSIOLOGY."

THE fourth instalment of the English version of Professor LUCIANI'S *Human Physiology*⁷ is devoted to the sense organs, and includes a full account of the sensibility of the viscera, with adequate recognition of the advances made by Head and other British workers. In the concluding chapter, on the psycho-physical phenomena of consciousness and sleep, a comparison is drawn between

the conscious and unconscious mental processes which are not sharply separated but merge into each other in the nascent or twilight consciousness. The late F. W. Myers's opinion that "an inspiration of genius is in truth a subliminal uprush," or the penetration of the psychical diaphragm between consciousness and subconsciousness by the workings of the subconscious mind, is supported by an interesting account of the mental process attending the discovery of the Fuchsian functions by Henri Poincaré, the great mathematician, whose death French science had recently to lament. As has been said in previous reviews, Luciani's book has the lucidity, literary charm, and philosophical outlook that characterized Sir Michael Foster's textbook in the eighties and nineties. The English is so good that the reader is never reminded that it is a translation, and so perhaps is inclined to forget his debt to Miss Welby and Dr. Gordon Holmes; the general get-up is worthy of the traditions of the publishers.

NOTES ON BOOKS.

MR. ARNOLD J. TOYNBEE, one-time Fellow of Balliol, has prepared a volume entitled *The German Terror in France*,⁸ which is a continuation of his volume with a similar title on Belgium. Both books are compilations from official documents illustrated by photographs and excellent sketch maps. In his new volume the facts are classified under the four regions overrun by the Germans, and arranged chronologically. The book is only intended to be a general summary and to serve as a guide to the official documents in the Bryce report and in the reports of the French, Belgian, and German Governments. The book is, of course, very much condensed because, as Mr. Toynbee says, for those who read the tales there comes a point where imagination rebels or is blurred by mere repetition. Beyond the parrot cry "It is war," the Germans have made no reply except to say that their object was to confer the benefits of their civilization on the French and Belgians. They do not call it civilization, but *Kultur*, which is perhaps as well, for the latter word means no more than the way a nation understands the organization of a community. The German bases his *Kultur* on war, and considers rape, murder, mutilation, and arson legitimate methods of warfare and appropriate means of convincing other nations of his intellectual superiority. The stage of mentality reached by his subjects may be judged by the Kaiser's Christmas assurance to them that 1917 has proved that they have "in the Lord of Creation above an unconditional and avowed ally."

The Annals of Medical History, a beautifully got up periodical, recalling the *Burlington or Connoisseur* in its typography and illustrations, deserves a generous welcome from all, and they are an increasing band, interested in the history of medicine. The editor, Dr. F. R. Packard, and the publisher, Paul B. Hoeber, who were recently associated in the artistic reprint of MacMichael's *Gold-headed Cane*, are supported by twelve associate editors, of whom one, Sir William Osler, is on this side of the Atlantic. Appearing quarterly, the *Annals* contain original articles, reviews, notes and queries, and is free from any advertisements; these attractions, and the knowledge that it is the only periodical in English exclusively devoted to medical historical literature, should ensure it a large subscription list at six dollars a year. The first number, dated April, 1917, but reaching us several months later, opens with a scholarly article on the scientific position of Girolamo Fracastoro by Dr. and Mrs. C. Singer of Oxford. This is followed by Dr. F. H. Garrison on the Greek cult of the dead and the Chthonian deities in ancient medicine. In a sympathetic account of Voltaire's relation to medicine Dr. Pearce Bailey of New York does honour to a great and far-sighted reformer to whom medicine owes no trivial debt. Dr. C. W. Barr gives an interesting study of Burke and Hare and the psychology of murder, with Forbes's portrait of Robert Knox reproduced from the *Students' Magazine*. Dr. C. D. Spivak writes on Hebrew prayers for the sick, and quotes the briefest prayer on record, by Moses, consisting in the original of five short words. "Laryngology and otology in colonial times" is the title of an article by Dr. S. A. Friedberg, based on a manuscript of the eighteenth century. Then come the editorial, a short but interesting note on the legend of the mandragora, and lastly, reviews of books. The subscription price for the *Annals*, which appear

⁶ *The Causation of Sex in Man*. By E. Rumley Dawson, L.R.C.P., M.R.C.S. Second edition. London: H. K. Lewis. 1917. (Demy 8vo, pp. xiv + 226; 22 figures. 7s. 6d. net.)

⁷ *Human Physiology*. By Professor Luigi Luciani. Translated by Frances A. Welby. Edited by Gordon Holmes, M.D. Vol. iv: The Sense Organs. London: Macmillan and Co. 1917. (Pp. 519; 216 figures. 21s.)

⁸ *The German Terror in France*. By Arnold J. Toynbee. London: Hodder and Stoughton. 1917. (Demy 8vo, pp. xv + 212; 52 illustrations, 6 maps. 1s. net.)

quarterly in April, July, October, and December, is 6 dollars yearly and 2 dollars for single numbers, and should be sent to the publisher, Paul B. Hoeber, 67-69, East 59th Street, New York, N.Y., U.S.A.

The *Medical Directory*⁹ for 1918 makes its appearance punctually and contains the matter which has rendered it for very many years so useful to the medical profession. It is, in fact, an indispensable work of reference for all concerned with medical administration, whether military or civil, and we could wish that a copy was to be found in the office of the principal medical officer of all the military forces at home and abroad. The number of names it contains shows an increase of 152 as compared with the issue for 1917, and of 459 since 1915. As compared with ten years ago the increase is 3,126. The number of names in the London part of the *Directory* is exactly the same as in 1917; in the rest of England there is a decline of 96, and in Wales an increase of 2. In Scotland there is an increase of 148 and in Ireland of 129; abroad there is an increase of 31. We give these figures for what they are worth, but they are open to an obvious fallacy, as is indicated by the fact that a decrease of 62 is shown in the number of names in the list of the services. The figures afford no sure indication of the number of practitioners actually in practice at the addresses given, for so many withdrawn for military service still appear, as is proper, under their home address.

⁹ The *Medical Directory*, 1918. Seventy-fourth annual issue. London: J. and A. Churchill. (Roy. 8vo, pp. 1958. 15s. 6d. at home; 18s. 6d. abroad.)

THE EFFECT OF LIQUOR CONTROL UPON ALCOHOLISM IN WOMEN.

In the *JOURNAL* of May 19th, 1917, page 651, we gave a summary of an address by Lord D'Abernon on public health and the control of the liquor traffic. He has now supplemented this by a further address given to the Royal Institute of Public Health, on December 19th, dealing with the effect of the regulation of the liquor traffic on alcoholism in women. The importance of this subject may be judged from the fact that the number of women now in industrial life and in non-sheltered occupations common to men, exceeds by nearly a million and a half the number so employed before the war. Moreover, this increase in the number of women workers has been associated with a large rise in the average wage of female labour, so that the annual spending power of women is now estimated to exceed by something like two hundred million pounds that which they had before the war, without taking into account the allowances made to the wives and dependants of soldiers and sailors. This profound change of circumstances has led, as might be expected, to a larger use of public-houses on the part of women. But the anticipation based on previous experience that alcoholic excess would be greatly encouraged among women has been falsified. While the number of women exposed to alcoholic temptation and possessing the means to gratify the inclination has enormously increased, statistical and other evidence indicates that insobriety among women, both in public and in the home, has since 1914 decreased to a level far below anything recorded during the last fifty years. While the number of women employed increased during the first three years of the war by more than 40 per cent., female convictions for drunkenness decreased by 73 per cent.

That the decline in insobriety is not confined to public drunkenness is shown by a corresponding decline in sickness and mortality from alcoholism, and from other conditions generally recognized as due to excessive drinking. Comparative statistics for delirium tremens are only available for a few of the larger towns, but in Liverpool, for instance, the number of female cases of this disease have fallen by more than 80 per cent. below the figure for 1914. The tendency of the movement as a whole is clearly visible in the figures of mortality from alcoholism and alcoholic diseases in England and Wales recently given by the Registrar-General. These show a decline of more than 50 per cent. since 1914. It would thus appear that the reduction in the hours for the sale of alcohol in licensed houses has not driven drink into the home, and this view is supported by the recent decline in suicide among women, and in the cases of suffocation of infants under one year

of age, as well as in female mortality in London from cirrhosis of the liver.

Lord D'Abernon next discussed the influence of the various restrictive and other measures affecting the liquor traffic upon the recent decline in excessive drinking. The restrictive measures of the Liquor Control Board have now been in force for over two years, and their effect was fully discussed by Lord D'Abernon in his previous address. As regards constructive measures to increase opportunities for non-alcoholic refreshment, he speaks in terms of warm appreciation of the good work done by the Canteens Committee of the Board in supplying canteens and messrooms in national factories and controlled establishments and in the neighbourhood of docks; and he is convinced that the system will before long be generally adopted throughout the industry of the country.

Turning to the restrictions of the Food Controller upon the output and release from bond of alcoholic liquors, he notes that these are clearly of a temporary kind intended to meet new food conditions due to the war. Their precise effect upon sobriety is difficult to measure; in so far as they have driven up prices, their influence may be considered beneficial; they also encourage retailers to dilute spirits to the new level, and promote the brewing of weaker beers. On the other hand, the drastic cutting down of supplies causes uncertainty as to the likelihood of obtaining liquor with periods of "rush" drinking; and it might be added that "whisky queues," and the like, are, to say the least, an unedifying waste of public time. Viewed solely from the point of view of temperance and efficiency, Lord D'Abernon regards these alternations of plethora and famine as clearly undesirable, and a considerable set-off to the good effect of higher prices. The emergency restrictions upon output are thus on quite a different footing from the restrictive and constructive measures of the Liquor Control Board, and Lord D'Abernon makes out a strong case for maintaining the latter after the war, being convinced that restriction and regulation on reasonable lines are not only needed on national grounds, but are beneficial to trade interests. He concluded by arguing that the influences checking public drunkenness must also have done much to raise industrial efficiency by reducing the extent and intensity of chronic alcoholic poisoning in its less pronounced forms and earlier phases. In view of this, and of the marked improvement in the care of children and of the home, attributed by medical officers of health and others to liquor restrictions, he cannot believe that any responsible body of opinion would wish to sacrifice the ground gained and relapse into pre-war conditions.

PUBLIC HEALTH OF ENGLAND AND WALES IN 1916.

The supplement to the forty-sixth annual report of the Local Government Board, containing the report of the medical officer for 1916-17, appeared recently. Sir Arthur Newsholme begins by pointing out that a review of the national health during the year has again been rendered exceptionally difficult by the disturbance of population due to war and to the vast new industries created during the war. For the same reasons the medical officers of health have found great difficulty in accurately estimating populations when recording birth and death rates. With the single exception of measles, the record of ordinary infectious diseases has remained favourable. In this respect the first three years of the war gives cause for satisfaction. During 1916 measles and German measles were for the first time notifiable, and throughout England and Wales some 348,000 cases were notified, giving a rate of 1 per cent. of the population.

The report indicates a number of important health services which have been prejudiced by the war; against this there is to be set the much increased attention paid to the means of improving the health of mothers and young children. Certain local authorities still remain inert and unteachable, but generally speaking there was during 1916 a great growth of work on behalf of maternity and infant welfare. The need for redoubled effort in these directions is emphasized by the diminished natural increase of population during the two years. In 1914 there were 362,354 more births than deaths in England and

Wales; in 1915 this excess of births over deaths was only 252,201; while in 1916 the excess was 277,227. These figures reveal the importance of saving child life and of improving the health of all survivors, and in this connexion Sir Arthur Newsholme expresses the opinion that there is no insuperable difficulty in reducing the total deaths in childhood to one-half their present number. It is encouraging to note here that during 1916 the rate of infant mortality was the lowest on record.

The Claims of the Army.

The annual report for the previous year made reference to the demands of the army for medical practitioners, and, as is well known, these have become still more urgent, with a corresponding increase in the work of inquiring into each case in which the release of a public health officer for military service is concerned. A large number of both whole-time and part-time medical officers of health for England and Wales have now left their civil work for service with the army. Their places have in a number of cases been filled by women. Two medical women are now acting as county medical officers of health, while many more hold official appointments as tuberculosis officers and assistant tuberculosis officers. But the depletion of the public health services has become serious, and unless considerable readjustments are made, more medical officers cannot be spared consistently with the public safety. While more than 500 public health officers have joined the forces, the subordinate staffs of sanitary inspectors have also been greatly depleted, with the result that many untrained men and women are carrying out the duties formerly in the charge of trained men. It is scarcely surprising to learn that under such conditions outbreaks of infectious diseases have here and there not been promptly controlled. Moreover, especially in regard to small-pox, enhanced risks have had to be taken owing to the inexperience of the local officers, and much of the time of those medical inspectors of the Board who are not on military duty is taken up in emergency work arising therefrom. This section of the report closes with a tribute to the medical officers of health and sanitary inspectors remaining on civil duty, who have not only done admirable work in their own districts but have assisted less experienced colleagues in other districts.

Enteric Fever.

The prevalence of enteric fever, says the report, is, perhaps, the best single gauge of the sanitary condition of the community; and it is satisfactory, therefore, to note that following on the steady decline of this disease during the last thirty years, there has been during the last two years a striking fall in the number of cases. In 1911 there were 13,852 cases notified in England and Wales; the number has steadily fallen year by year to 5,564 in 1916. It appears that some areas are still remiss in notifying cases of enteric fever, with consequent risk to the community and confusion of statistics. The more considerable local outbreaks were investigated by the Board's medical inspectors, and some of their inquiries are briefly described in the report. As in previous years of the war the medical department of the Board kept in touch with the Army Medical Department as to the precautions to be taken upon the discharge of military convalescents from typhoid and paratyphoid fever. Thorough and systematic arrangements have been made for the transfer of such convalescents to enteric dépôts, where bacteriological examinations for the discovery of carrier cases are made before each patient is discharged. Upon his discharge from the dépôt notification is sent to the medical officer of health for the locality where the man intends to spend his furlough. Similar arrangements as regards dysentery have also been in force for some time, and nothing but good can come of such co-operation.

Polio-myelitis.

There was a very severe outbreak of this disease in New York City during 1916, with 8,900 cases and 2,400 deaths, but nothing of the sort, fortunately, occurred in this country. The possibility of such outbreaks, however, justifies the close watch kept on the prevalence of this disease and the collection of all the facts of individual cases with a view to the accumulation and analysis of

epidemiological evidence. Continued study of the conditions under which this disease occurs is imperatively needed: "Not only does its fatality amount to about 14 per cent., the greater number of the victims being young children, but one-half of the survivors remain permanently crippled." In view of these facts, Sir Arthur Newsholme does well to remind medical officers of health of the important aid they can give in enabling patients who have suffered from polio-myelitis to become efficient members of society. Notified cases should be periodically visited and parents should be impressed with the importance of securing suitable treatment promptly and continuously, so as to minimize the deformities otherwise likely to occur.

Tuberculosis.

The longest section of the report is devoted to the subject of tuberculosis. The total deaths from this disease during the past six years are set out in a table. Comparing 1913—the last complete year before the war—with subsequent years, deaths from pulmonary tuberculosis were 1,582 more in 1914, 4,621 in 1915, and 4,490 more in 1916. This increased mortality from pulmonary tuberculosis was shared by both sexes, and was not reflected by a corresponding increase of deaths from other forms of tuberculosis. The assumption that it was due to the altered conditions of life during war time must be considered in relation to collateral experience of other diseases, notably influenza, pneumonia, and bronchitis. The figures for 1915 and 1916 show that the increased death-rate from pulmonary tuberculosis was associated with a still greater mortality from influenza, just as was the case in the years 1890–1892, and again in 1899–1900. The year 1915 was notable also for the high death-rate from pneumonia and bronchitis; but in 1916 the deaths from pneumonia no longer occurred in excessive numbers, whilst the excess in deaths from influenza and from bronchitis continued on a smaller scale than in 1915. The only safe inferences from these figures seem to be that influenza is a very dangerous complication of pulmonary tuberculosis, and that the war conditions of the past two years have had an important share in the excessive mortality from all four diseases. Men in the army and men and women in industrial employment have been exposed to conditions leading to the spread of tuberculosis and to the calling into activity of latent disease. The experience of the Continental countries engaged in the war seems to be the same. In all of them, so far as official records are available, tuberculosis appears to have been more rife and more fatal than before the war. In our own country, at least, this unfavourable record would no doubt have been worse but for organized efforts to secure improved conditions of work and housing for munition workers.

In view of this association of war conditions with a notable increase of pulmonary tuberculosis Sir Arthur Newsholme gives an instructive summary of the special action taken in recent years for the control of tuberculosis. Between January 1st, 1909 (when Poor Law cases of pulmonary tuberculosis became compulsorily notifiable), and the outbreak of war, a series of important steps were taken in the direction of the administrative control of tuberculosis. These efforts were meeting with increasing success until the war rudely intervened, and not only put a stop to further developments of organized antituberculosis work, but seriously crippled the efficiency of existing measures. The linking up of the different agencies required to secure the full benefit of the schemes has also been seriously retarded by the war.

The difficulties and defects of the tuberculosis arrangements hitherto made are set out by Sir Arthur Newsholme with a view to further action directed to their removal. In normal times a large proportion of consumptives refrain from applying for treatment until the disease is fully established and they are incapacitated for work. In the three years of the present war temptations to neglect symptoms pointing to consumption have increased, as have temptations to conceal the fact of the existence of consumption. With regard to the private practitioner, it is pointed out that early recognition and treatment depend upon his skill, upon his having adequate time for the examination of each patient, and upon his willingness to refer doubtful cases for consultation with the tuberculosis officer. In the circumstances of war, when nearly every doctor remaining in civil practice is overworked, these conditions cannot at

present be fulfilled. The report is especially insistent on the need for greater co-operation between the family doctor, the tuberculosis officer, and the medical officer of health. If this took place generally a much higher proportion of cases would be recognized at the earlier stage when no sputum is available, and the tuberculous character of many cases of so-called chronic bronchitis would be recognized. The question is discussed at some length why sanatorium treatment as hitherto developed has fallen short of expectations, and the opinion is expressed that the best results are only to be got when the form of treatment in every case is determined solely by the medical needs of the patient. The hygienic conditions of the patient's home should influence this decision, but if regard is had to any other considerations institutional treatment must continue to give relatively unsatisfactory results. This section of the report ends with the maxim that housing and institutional treatment for tuberculosis are to be regarded not as alternatives, but as necessary complements to one another, each calling for increased expenditure.

Venereal Diseases.

During the close of the period under review much of the time of officers of the medical department was given to work in connexion with the setting up by local authorities of schemes for the treatment of venereal diseases. These schemes owed their origin to the regulations issued by the Board in July, 1916, which were followed by conferences between medical inspectors of the Board and local officials. By the end of last March eighty-six out of 145 councils had submitted schemes, of which forty-five were approved. Valuable help was given by the National Council for Combating Venereal Diseases in dealing with the curious objections raised by squeamish hospital boards, and in arousing local interest in local schemes. The Army Council has also assisted in certain districts by allowing R.A.M.C. officers with special experience of venereal diseases to be appointed for this work. The evidence given before the Royal Commission and the experience of the army have led medical officers of treatment centres to use salvarsan substitutes very largely in the treatment of syphilis, especially in its early stages. This course is considered most desirable by the Board, but medical officers of centres are in no way limited as to the choice of remedies for each particular case. Where specially trained experts are not available the Board discourages arrangements for making the Wassermann test in the laboratories of local authorities. It has also decided that pathologists under venereal disease schemes are not to be approved unless they are medical men, and therefore in a position to apply the knowledge obtained by medical training to problems arising in connexion with specimens taken from patients suffering from or suspected of venereal disease. With regard to gonorrhoea, it is noted that the treatment of this disease even under the best conditions does not compare in efficacy and in the rapid reduction of infectiousness with the treatment of syphilis by arseno-benzol preparations. Prompt and early treatment of gonorrhoea is of primary importance, and arrangements have been made with the Army Council for Colonel Harrison to provide, for publication by the Board, in a form available for civilian practitioners, the valuable experience obtained by army doctors in the control of this disease.

Miscellaneous.

The concluding sections of the report deal with maternity and child welfare work, in which there has been much activity under pressure by the Board; with scientific investigations conducted under the auspices of the Board; and with the personnel of the medical staff, more particularly in respect of war services. On the outbreak of war all the medical inspectors of the Board at once placed their services at the disposal of the president for service in any capacity. Among those who were chosen for commissions was Dr. J. Morgan Rees, who was killed in France in October, 1916, while serving in the R.A.M.C. The appendices to the report include a summary of information on cases of poliomyelitis by Dr. R. J. Reece; Dr. A. W. J. MacFadden's valuable report on the work of inspectors of food; Dr. Eastwood's report on the work of the Board's pathological laboratory; and Dr. F. R. Blaxall's report from the Government lymph establishment.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on Tuesday, November 13th, 1917, thirty-five cases were considered, and £330 voted to thirty-three of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 38, of M.R.C.S.Eng. who practised at Oxford and died in January, 1917. Applicant was left with five children, aged 10 months to 13 years, and with exception of £1,100 capital is dependent on relatives, who cannot do very much. Wants help for the education of the children. Voted £20, and referred to the Guild.

Daughter, aged 56, of M.R.C.S.Eng. who practised in North Wales and died in 1913. Applicant was teaching in Austria when the war commenced, and lost practically all her belongings. Only certain income £21 per annum, and this year has been living on a legacy of £60 left her by a relative. Health has been very indifferent of late. Voted £10, and referred to the Guild.

Daughter, aged 52, of L.S.A.Lond. who practised at London and Eastbourne and died in 1882. Applicant and her mother lived together until the death of the latter in July, 1917, and several small items of income died with her. The applicant has a small school, the profit from which is about £25 a year. Her other income is from investments bringing in about £14 a year. Voted £10 in two instalments.

Daughter, aged 34, of M.R.C.S.Eng. who practised in Yorkshire and Bedford and died in 1906. Applicant has been a chronic invalid all her life, and her brother-in-law has kept her since her father's death, but owing to illness and loss of income he cannot do so entirely now. Voted £18 in twelve instalments.

Daughter, aged 65, of M.R.C.S.Eng. who practised in London and Birmingham and died in 1856. Applicant tries to make a living by sewing, but owing to bad health and the increased cost of living is unable to pay her way. Relieved three times, £35; last time, March, 1913. Voted £12 in twelve instalments.

Widow, aged 36, of L.R.C.P.Édin. who practised in Edinburgh and died in 1916. Applicant was left with four children, aged 3 to 11, with an income of £96 a year. Owing to the increased cost of living she finds it impossible to manage. Relieved once, £12. Voted £15 in twelve instalments.

Widow, aged 59, of L.R.C.P.Édin. who practised at Langley and died in 1909. Lives in own house, which is heavily mortgaged. Endeavours to make a living by taking in paying guests, but, owing to high price of living, is unable to make ends meet. Relieved seven times, £70. Voted £10 in two instalments.

Widow, aged 60, of M.D.Glag. who practised in Perthshire and died in 1907. Her total income from a lodger and other sources £73. Son who helped to keep the home together now in the army. Relieved three times, £22. Voted £10.

M.R.C.S.Eng., aged 48, married, who has practised at Birmingham. Applicant suffers from disseminated sclerosis, and is quite helpless. Only income 10s. a week from relatives. Only son recently elected to an Epsom College scholarship. Relieved once, £18. Voted £26 in twelve instalments.

Widow, aged 47, of L.R.C.P.Édin., who practised at Lochgelly and died in 1913. Has five children, of whom two only are able to assist by providing £95 a year. One son in the army, and no separation allowance. Increased cost of living makes it impossible for her to manage. Relieved twice, £30. Voted £10 in two instalments.

Widow, aged 54, of M.D.Édin. who practised at Newcastle and died in 1896. Applicant left without means. She obtained work, but fractured her leg some time ago, and has been incapacitated since. Has a daughter who is a widow and works as a clerk and helps as far as possible. Relieved three times, £36. Voted £12 in twelve instalments.

M.R.C.S.Eng., aged 47, married, who practised in London and other places. Applicant has suffered from asthma for a number of years. He joined the R.A.M.C., but after a few months was invalided out. Now totally incapacitated from work, and his wife, who had obtained a post, had to give it up to nurse him. All savings practically exhausted. Voted £20, and recommended to apply to another fund, from which a little help has been given.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

THE Prussian medical court of honour was called upon recently to decide whether doctors should be entitled to reserve to themselves the right to raise their bills if not paid within a certain period. The court decided against this proposal as being derogatory to the dignity of the medical profession.

British Medical Journal.

SATURDAY, JANUARY 5TH, 1918.

THE ASSOCIATION IN 1917.

It has been our custom in the first number of each new year to pass in review the main events of the medico-political world during the preceding twelve months. Present conditions, however, impose brevity upon us no less than upon our correspondents and contributors, and this retrospect must be limited to a few outstanding features only of the work of the British Medical Association in 1917. The full chronicle will be found in the reports of Council, in the records of the proceedings of the Annual Representative Meeting and of the Divisions, and in the report of the conference of Local Medical and Panel Committees. From these it is evident that while the time and energies of medical practitioners have been more and more encroached upon under the grip of war, a number of new problems, as well as of old problems with new names, have had to be handled on behalf of the profession.

Of the topics not immediately related to war, the proposal for a Ministry of Health has, perhaps, attracted most interest, and taken up the greatest share of the time of officers, committee-men, and officials. The story begins with a paragraph in a lay paper last January to the effect that the Local Government Board was about to launch "a little bill" for dealing with maternity and child welfare. It was at once seen that such a measure would have far-reaching effects, and after the matter had been discussed by the committees interested in such questions a special subcommittee was formed to define the policy of the Association. The conclusion was soon reached, and has since been confirmed by the Representative Body and the profession at large, that the only possible method for placing the health administration of the country upon a sound basis would be by the creation of a Ministry of Health—a measure advocated by the Association at intervals during the past fifty years. Communications were opened up with Lord Rhondda, then President of the Local Government Board, and an outline scheme was drafted which formed the basis for further discussion within the Association. This scheme was approved in general terms by the Representative Body, which empowered the Council to go further into the matter, and to present these proposals to the Government on behalf of the medical profession. Since then the Ministry of Health Committee appointed by the Council has held conferences with the promoters of a bill drafted by the National Insurance organizations, and with representatives of the Society of Medical Officers of Health and other professional organizations directly concerned. The original proposals have been examined in the light of recent events, and a revised scheme has been drafted by the committee for submission to the next meeting of the Council. Furthermore, as we noted last week, the Association has been approached by the Minister of Reconstruction, to whom the Cabinet has entrusted the duty of sounding the chief parties interested with a view to the possibility of an agreed bill, and the considered opinion of the Association has now been set out in a memo-

randum, which was forwarded in the last week of the year to Dr. Addison.

During the year several matters arose of great importance to panel practitioners, and these were brought to a head at the annual conference, on October 18th, of representatives of Local Medical and Panel Committees. It was recognized before the meeting that the Insurance Acts Committee of the British Medical Association would have to justify itself once more as the official mouthpiece and central co-ordinating body of the profession in insurance matters. After criticisms had been answered, and explanations given, it became clear that the Committee retained the confidence of the great majority. A proposal that in all negotiations the members of the profession on the panels would be better represented by some separate organization directly appointed by Panel Committees, was lost by 113 votes to 16, while a vote of confidence in the Insurance Acts Committee was subsequently carried by a very large majority. The conference thus reaffirmed the position of the Committee as the authorized spokesman of panel practitioners in central negotiations. This point being settled, the much-discussed regulations for the medical treatment of discharged disabled soldiers and sailors were considered, and it was finally resolved that in view of the decisions of the 1916 conference the Committee had made as good an experimental arrangement as was possible.

With regard to the remuneration for insurance work generally great dissatisfaction was expressed, criticism centring round the constitution of the central pool, and the methods of distribution thereof. It is clear that the medical profession will not be satisfied with the present system of payment as outlined in the explanatory memorandum of the Commissioners (Memo. 229/I.C.) issued in October, 1916, which makes the "insurance day" the unit of remuneration. The conference instructed the Insurance Acts Committee to press for an independent actuarial investigation of the central pool, and to this the Commissioners have since agreed. Other important resolutions related to the just claims of rural practitioners for increased mileage grants. As the result of representations made on their behalf by the Insurance Acts Committee the Commissioners have lately induced the Treasury to authorize an additional grant for 1917, which will permit of an increase in the special payments made to rural practitioners in respect of mileage generally, including extra payments for mileage under the scales laid down for the treatment of temporary residents and for invalided sailors and soldiers. Lastly, the conference demanded, in response to a general feeling throughout the country, that the capitation fee for insurance work should be raised to at least 10s. per annum during the present year. This demand has been placed before the Commissioners by the Insurance Acts Committee. If their negotiations should fail, it is thought that the scheme for collective bargaining approved by the conference may prove a powerful lever at a later date.

A subject prominent throughout the year has been the control of venereal diseases. At the end of January a joint deputation from the British Medical Association, and from municipal corporations, had an interview with the President of the Local Government Board to urge the suppression of the treatment of venereal diseases by unqualified persons, and shortly afterwards the Association issued an important memorandum to local authorities embodying its recommendations for the organized prevention and treatment of these diseases. On March 6th a Venereal Diseases Bill in conformity with the views of the

deputation was introduced into the House of Lords, and later became law. Beyond this the Association has had a hand in fixing the fees medical officers of venereal disease clinics should receive, the scale laid down by the Representative Body having been largely accepted by local authorities throughout the country.

The increasing difficulties of carrying on medical practice in war time have made it necessary for the Association to keep a close watch on Government restrictions as they affect the mobility of doctors, especially those in country districts. Assistance has been given to practitioners in obtaining licences for an adequate supply of petrol; the Ministry of Munitions has been persuaded to make arrangements to facilitate repairs to doctors' cars; and a working arrangement has been entered into for securing a limited supply of carbide for motor lamps for practitioners whose claims can be recommended by the Association. A badge for doctors' motor cars has also been prepared for issue to members of the Association who undertake to use it only when motoring on professional duties. The idea has been cordially approved by chief constables throughout the country, and it is expected that cars bearing this emblem will be relatively immune from the attentions of policemen on the look-out for breaches of the Motor Spirit Restriction Order. It need scarcely be added that this privilege will depend upon the loyal adherence by all users of the badge to their undertaking.

The Central Medical War Committee was brought into being by the British Medical Association, and has been housed, staffed, and financed by the Association, whose machinery has been at its disposal from the beginning. The work of the Committee is widely appreciated throughout the profession, and it is not surprising that the Representative Body decided once more that Association money could properly be expended on this purpose. The influence and prestige of the Committee has undoubtedly increased during the past year. When the military authorities in April made the false step of calling up all medical men under 41, without reference to the statutory professional committees, the Central Medical War Committee and the Committee of Reference made a firm and dignified remonstrance to the War Office, and having a good case their protest was successful. Since that event the position of the professional committees has become more secure, and the Central Medical War Committee is increasingly recognized by Government departments in all matters coming within its purview. Thus the reconstituted National Service Ministry early sought its advice and co-operation in the setting up of the new recruiting boards; while the Committee of Inquiry into the Army Medical Service, whose report on its findings in France has now been presented to the Secretary of State for War, was mainly composed of members of one or other of the three statutory committees recognized under the Military Service Acts.

THE AIR MEDICAL SERVICE.

THE constitution of the Air Council which will replace the Air Board has been fixed and its relation to other great departments of State and to Parliament defined by an Order in Council made in accordance with the Air Forces Act, and gazetted on December 21st. It provides that the President of the Air Council shall be a principal Secretary of State, so that his position in relation to Parliament and the government on the one hand and to the Air Council on the other will be the same as that of the First Lord of the Admiralty

and the Secretary of State for War to Parliament and the government and to the Board of Admiralty and the Army Council respectively. Lieutenant-General Sir David Henderson has been appointed Vice-President of the Council, and there will be eight other members, of whom seven, already nominated, are to be the occupants of certain offices specified in the Order: the Chief and the Deputy Chief of the Air Staff, the Master-General of Personnel, and the Controller of Equipment—these four being appointed by the Crown—the Director-General of Air Craft Production appointed by the Ministry of Munitions, and three other persons appointed by the Secretary of State, of whom two are the Administrator of Works and Buildings, Sir John Hunter, K.B.E. of the Ministry of Munitions, and the Parliamentary Under Secretary, Major J. L. Baird, M.P. hitherto Parliamentary Secretary to the Air Board. A secretary, Mr. W. A. Robinson, C.B. of the Office of Works, and an assistant secretary have been appointed. The Order contains no reference to an Air Medical Service, but it is clear that such a service must at once be established, and it is sincerely to be hoped that the vacant seat on the Air Council may be filled by its Director-General.

The Air Service must be formed at first by combining the air branches of the navy and army into a single service controlled by the Air Council with the new Secretary of State at its head, but recruiting must of course continue. The initiating combination in respect of personnel is to be carried out gradually. At present the officers and men of the two air services are borne on the lists of the navy or army, and the medical officers of air units have been drawn from the one list or the other according to the ascription of the air unit to which they were attached. In this way a certain number of medical officers of both services have gained special experience and have had the opportunity of showing special aptitude for the work. The Air Council will no doubt wish to take these over to form the nucleus of its medical service, and will take care that they lose neither seniority nor prospects of promotion by the transfer.

Part of the work of the Air Medical Service will be of the ordinary kind which falls to be performed by every military medical service, but much of it will be conditioned by the peculiar duties of an air force. Although a considerable proportion of the men enlisted into the Air Service may be for employment on land as mechanics and orderlies at air stations, in repair shops, and in transport and supply, and need not perhaps reach a higher physical standard than men enlisted into other services, it is quite otherwise with the selection of men to be trained for flying. A man who aspires to fly must be submitted to very strict physical examination by the Air Service medical officer before he is sent to be trained; he must be very carefully watched during his training to discover any latent weakness, and after he has been passed as a flyer constant supervision must be kept over the state of his general health, and especially over the condition of his nervous system, to ensure that the perfect adjustment between senses, brain, and muscles, which he must have possessed when he passed the flying tests, is maintained. Many accidents can be traced to a pilot going up when he was not thoroughly fit. The Air Service medical officer in the field or at a camp of exercise must have authority to prevent any man from going up whose quickness of response has deteriorated, and to prescribe the steps to be taken to ascertain whether the deterioration is merely transient, or of such a nature as to require his admission to an Air Service hospital. The duties of such an air medical officer

are therefore in the main clinical, and we would express the very emphatic opinion that in any scheme for an Air Medical Service this fundamental fact should be recognized from the first, and also the further fact that the problems for an Air Medical Service are largely new. The army had an immense body of civil experience and research to draw upon for most of its problems; the same was true of the navy, though in certain directions—vision, for instance—it has had to gain experience which will be of value to an Air Medical Service. But civil practitioners have hitherto had nothing to do with air problems, and physiologists very little. It is therefore incumbent on the Secretary of State for the Air to institute and encourage research into the special physiological and medical problems awaiting solution for the greater efficiency of his service and the saving of lives and equipment. In the Army Medical Service promotion to the higher ranks has very seldom been accorded except to officers selected for administrative posts, who thereupon, as a rule to which there must be very few exceptions, ceased to have any direct personal connexion with clinical medicine and surgery. This may be inevitable to-day when the armies have been so enormously expanded, but it is a misfortune only partly repaired by the appointment and promotion of consultants.

"Fame is the spur that the clear spirit doth raise to scorn delights and live laborious days." If the poet of the puritans could write this, are we to-day to blame a man who, finding the way to the highest positions in his service barred along one road, seeks the other? If it is a misfortune for the Army Medical Service that eminence in clinical medicine and surgery, or in research, very seldom leads to high rank and consideration in the service, it would be a disaster for the new Air Medical Service. We hope Lord Rothermere, when considering the scheme for the Air Medical Service, will give full weight to the scientific side of its work.

THE LOGIC OF THE FOOD POSITION.

"It was so evident that even now he had everything to learn. He did not know that there were physical laws and economic laws, quantities and reactions that all humanity voting *namine contradicente* cannot vote away, and that are disobeyed only at the price of destruction. He did not know that there are moral laws that cannot be bent by any force of glamour, or are bent only to fly back with vindictive violence. . . . He had to defeat the Giants or go under. He was by no means absolutely despairful. In this hour of his utmost failure, with blood and disaster upon his hands and the rich promise of still more horrible disaster, with the gigantic destinies of the world towering and toppling over him, he was capable of a belief that by sheer exertion of his voice, by explaining and qualifying and restating, he might yet reconstitute his power. He was puzzled and distressed no doubt, fatigued and suffering, but if only he could keep up, if only he could keep talking."

This account of the political leader in Mr. H. G. Wells's story, *The Food of the Gods*, brings to a focus a weak point in the economy campaign of the Food Ministry. Nobody can fairly accuse the Ministry of not realizing the importance of appealing to the public at the present juncture; we doubt whether, even at the crisis of the voluntary recruiting campaign, so much printed matter was circulated or so many speeches and lectures delivered as three months of Sir Arthur Yapp's efforts have produced. But no scientific student of this propaganda can fail to notice that it is tainted with the vice of Mr. Wells's politician—an unhesitating faith in rhetoric as the *primum mobile*.

The public are indeed always being preached at or scolded; they are urged to be patriotic, to do their bit to support our gallant fellows at the front; they

are told that what is asked of them is unworthy the name of sacrifice, while the abstemious habits of the Food Controller and his wife (who, we see, at Christmas, "partook of the simplest fare, avoiding even poultry") are chronicled in the daily papers. But what we have looked for and never found in this literature is any sign of faith in the capacity of the working classes to comprehend a reasoned statement. A serious attempt should have been made to render accessible to all the really quite simple scientific facts upon which a system of rationing must be based. There has been no lack of suitable literature. The tract by Professor Wood and Professor Hopkins on *Food Economy in War Time*,¹ and that of Professor Wood on the *National Food Supply in Peace and War*,² are written by acknowledged experts, in non-technical language. The pamphlet *Food and How to Save it*,³ written by Dr. E. I. Spriggs for the Ministry of Food, is a very practical handbook for the housekeeper. It deals with the economical use of food, and has special sections on how to make up the Controller's allowance most cheaply, how it may be done by the well-to-do and those earning good wages, on weekly budgets, and on children's meals. Owing to the date at which it was written it does not now fully apply to present conditions, but it is easy to make the necessary modifications. A Government which can afford to distribute gratuitously millions of copies of a rhetorical sermon might, one would suppose, be able to give a like publicity to the facts of an even graver war problem. As, however, the Government will make no such attempt to educate the nation, the duty devolves upon the medical profession.

In recent issues we have given the heads of a course of instruction which members of the medical profession will, we hope, find useful if called upon to deal with the subject. In the first place, most emphasis should be given to the energy value of food; as Professor Bayliss puts it, "take care of the calories and the protein will take care of itself." This caution is needed because the medical profession in the past has perhaps been rather inclined to dwell upon the problems of nitrogenous metabolism, and the public may have been led to exaggerate the practical importance of this side of dietetics. It should be pointed out that, given an equality of external conditions, the food needs of a worker are completely determined by the muscular exertion he has to put forth. As industrial examples, in addition to those given in previous articles, we may take the following, computed from the valuable data of Slosse and Waxweiler⁴ for Belgian operatives. The mean daily energy value for Belgian weavers (56 observations) was 3,366 calories, for miners (115 examples) 3,604, and for quarry men (49) 4,314. These are net values, allowance having been made for waste in cooking and non-absorption; incidentally, they confirm the conclusion reached in an earlier article that the consumption of food by the English working classes, both before and since the war, was by no means excessive. On these lines the necessity of preferential rationing, whether voluntary or compulsory, and the gross absurdity of all sharing alike can be made intelligible.

In the second place, the fallacy of supposing that brain workers need the same quantity of food as

¹ Cambridge: The University Press. 6d. net. (Reviewed December 4th, 1915, p. 827.)

² Cambridge: The University Press. 6d. (Reviewed August 25th, 1917, p. 261.)

³ London: H.M. Stationery Office. To be purchased through any bookseller. Price 3d.

⁴ *Enquête sur le régime alimentaire de 1,065 ouvriers belges*. Brussels, 1910.

hand workers, can be exposed by an account of Atwater's results.⁶ In this connexion we may refer to an article published in the *Herald* on December 22nd, 1917, under the title "Still Starving at the Ritz." Our contemporary pointed out that while the wealthy might eat their full share of rationed articles they could get in addition an unlimited quantity of the unrationed. It added, "those who imagine that luxurious feeding by the rich does not injure the poor forget that money spent for the benefit of one set of people cannot be spent on others, and also that money only buys labour power in one form or another, and, therefore, labour spent on providing luxuries cannot be spent on the production of the necessities of life." We called attention to the facts some weeks ago, and it seems to us high time that really effective steps were taken to remove a cause of popular discontent. There is, on physiological grounds, no reason why the customers of the Ritz should be unstinted in their consumption of "suprême de sole Jovinillo" or "turbot poché, beurre fondu," the latter delicacy involving (if we correctly interpret what Mr. Chesterton has called a sort of super-French) the use of an article not to be obtained in most retail shops.

Finally, instruction in dietetics will include an account of the way in which external conditions—exposure to cold, journeys to and from the factory, and so forth—increase the energy requirements of the body, and reference must be made to the way in which locally abundant sources of energy—such as potatoes, for example, in some districts—can replace those which are scarce and dear. We believe that on these lines, and with a minimum of technical words and details, it is possible to create a sane public opinion, and we think that the medical profession should lose no time in setting to work. It is hard that this new burden should be placed on the shoulders of over-worked professional men. It is irritating to them to read and hear the rhetorical nonsense emanating from well-intentioned and ill-instructed amateurs. But the scientific man should remember that the irritation he feels at once is, sooner or later, felt by the bulk of his fellow citizens. They may not be able to give scientific reasons for believing that an account of Lord Rhonda's abstinence from turkey on Christmas Day does not help them towards a solution of their own difficulties, but they are conscious that such statements are valueless. It is this smouldering discontent and annoyance which we fear, and we can think of no remedy other than education, and of no educators other than medical men.

THE DEFECTS OF TUBERCULOSIS ADMINISTRATION.

CRUSADES, whether peaceful or warlike, do not always achieve the promises of their initiators, but failure is generally due to lack of co-ordination of the methods of attack. With respect to tuberculosis, the results of combined action do not as yet point to any substantial reduction in the incidence of the disease in crowded areas, although a very considerable number of tuberculous individuals are being restored to working capacity by timely treatment. Does the fault lie with the machinery or with the methods by which the machinery is being employed? The first requirement for the suppression, whether of crime or disease, is detection. The introduction of notification, it was hoped, would enable the presence of tuberculosis in communities great and small to be quickly detected. As at present employed it fails to effect this purpose. The annual returns made by medical officers of health throughout the country bear witness again and

again to the fact that notification is frequently deferred until the final stage of the disease is in progress, and that the greater number of notified cases prove fatal within the two following years. Special attention has been directed to this question by Dr. Ellis, tuberculosis officer for Middlesbrough, where already considerable reforms have been introduced and more trustworthy returns obtained. He has repeatedly pointed out that death registration should in all cases be correlated with notification, not only as a means of obtaining accurate information as to the prevalence of the disease in any given area, but also as an indication of the thoroughness with which notification is being carried out. While it is true that the early diagnosis of tuberculous disease of the lung is not so simple a matter as the recognition of the onset of acute infectious disease, yet to wait for the appearance of bacilli in the sputum is to lose valuable time. Recent correspondence in our columns has made it evident, however, that such delay is by no means unusual. It should be recognized not only by the medical profession but also by local authorities that the merest suspicion of the presence of tuberculosis should be a warrant for notification and examination by an expert, armed with all the means of diagnosis that modern medicine provides. If such examination should prove to be negative no harm will have been done, whereas the prompt discovery of a focus of disease may be the means of saving individual life and usefulness, and the prevention of future infection in the household. To be generally effective such a system must be generally adopted upon uniform lines, and it must be enforced. Without some means of compulsion the present go-as-you-please methods of registration and report will not bring us any nearer to the goal. Only when accurate information is forthcoming as to the incidence and distribution of the disease throughout the country can the various agencies for treatment be economically and intelligently applied. Not only central control but abundant powers, delegated to local authorities, are needed if the existing machinery is to yield the results for which it was originally set up.

THE FOOD REQUIREMENTS OF MENTAL WORKERS.

WE publish elsewhere (p. 37) a letter by Dr. Mercier on the food requirements of sedentary workers, which, like all he writes, is interesting, and, from our point of view, the more opportune, because it affords an opportunity of once more stating certain facts which do not yet seem to have received the general appreciation they deserve. Dr. Mercier's letter, indeed, rather provokes the question, *scire tuum nihil est, nisi te scire hoc sciat alter?* About the necessity of vitamins in a diet there can be no two opinions. A diet, superabundant in calories, might be fatally insufficient through a lack of vitamins. But as war flour is an adequate source of antiscorbutic vitamins, and the fresh vegetables, which the Food Controller urges us to consume, are well supplied with antiscorbutic vitamins, no diet likely to be devised for the civilian population will be defective in these particulars. Hence we did not devote space to enlarging upon the obvious. It is also true that a modicum of protein in the diet is necessary to mental as to other efficiency, although we had forgotten that the credit of demonstrating this belonged to Dr. Mercier; but we were mindful of the evidence produced by Atwater, Benedict, and Carpenter, showing that the intensity of metabolism is not appreciably affected by mental work. Atwater and Benedict,¹ when speaking of their study of the effects of mental work in calculating and studying a German treatise on physics for eight hours a day, say: "In intensity and amount it was such as would hardly be equaled by a person not accustomed by long training to reasonably severe mental effort. Yet, as previously noticed, it exercised no apparent

⁶ BRITISH MEDICAL JOURNAL, December 15th, 1917, p. 800.

¹ Bulletin 136, p. 191.

effect on the metabolism of matter or energy, the results of the period agreeing in all essential particulars with those of the period in which the subject rested." We do not think there is any evidence that the requisite quantity varies with the consumer's intellectual effort. A caterer who, on the basis of available foodstuffs, drew up a diet scale providing sufficient calories but insufficient protein would need to exercise considerable ingenuity. If we take care of the calories the protein will take care of itself. Lastly, a recognition of the influence of external conditions upon the rate of heat loss, and therefore upon the need for energy in the food, is surely implicit in any argument based upon calories at all. The figures we provided were deduced from average experience, and like all averages may be inapplicable in particular circumstances. This is the real case against any paper scheme of rationing, but, on that point, Dr. Mercier's quarrel is not with us, but with the Food Controller or the U boats.

THE PULSE PRESSURE TEST BEFORE OPERATIONS.

A SIMPLE and reliable test for the estimation of the reserve power of the cardio-vascular system in cases in which an operation is proposed would be a valuable addition to available methods of clinical prognosis. A test of this kind depending on the behaviour of the pulse pressure after exercise has been proposed by Cashman,¹ who gives blood pressure and pulse charts and a number of illustrative cases, including some in which, as a result of this test, operative interference was refused or carried out under local or spinal anaesthesia so as to subject the circulatory system to the least possible strain. In a normal person exertion calls forth a compensatory response on the part of the cardio-vascular system with a rise of both the systolic and diastolic blood pressures; but as the diastolic pressure rises less than the systolic, there is an increase in the pulse pressure, or the difference between the systolic and diastolic pressures, as compared with that before the exertion. On the other hand, a fall in the pulse pressure, whether due to a fall in the systolic pressure or to a rise in the diastolic pressure, shows that there is a poor response to mild strain on the part of the cardio-vascular system, and is usually accompanied by breathlessness, dizziness, or fatigue. This is often seen in visceroptosis, prolapse of the uterus, and gall bladder disease, and may be due to a damaged myocardium or cardio-vascular system that is working with so little reserve power that it may fail if subjected to sudden strain. In practically all operations the cardio-vascular system is exposed to strain, varying in different instances, and the risk of death from cardiac failure is considerable in cases in which this test shows diminution of the pulse pressure on mild exertion. The test is carried out as follows: The pulse-rate and blood pressures are taken in the recumbent and in the standing position, then the patient walks rapidly or uses dumb-bells, and the pulse-rate and blood pressures are again taken in the standing and recumbent positions. In normal persons the systolic pressure rises on standing and after exercise, whereas in cases of cardio-vascular debility the systolic blood pressure falls on changing from the recumbent position. The increase or rise of the pulse pressure in healthy persons and its diminution or fall in cardio-vascular insufficiency have already been mentioned. In cases with gross irregularities in the force of the heart the test is difficult to apply. It appears to have been independently suggested by Lankford.

THE ALLEGED INCREASE OF CANCER.

IN the *Journal of Cancer Research* (July, 1917) Professor W. F. Willcox, of Cornell University, publishes an interesting statistical paper on the alleged increase of cancer. He discusses the various explanations which have been put forward to account for the recorded increase of cancer

mortality in all civilized countries, and concludes that "the cumulative evidence that improvements in diagnosis and changes in age composition explain away more than half, and perhaps all, the apparent increase in cancer mortality rebuts the presumption raised by the figures, and makes it probable, although far from certain, that cancer mortality is not increasing." The most important addition to existing data contained in Professor Willcox's essay is an extension down to 1913 of the tabulation of deaths from cancer in Frankfort, which was used by King and Newsholme in their well-known paper of 1893. This tabulation supports the original views of King and Newsholme, in that the increase has continued to affect only "inaccessible" cancer in both sexes, the rates for "accessible" cancer being stationary. In other respects the author follows familiar lines, the difference between different workers being chiefly a question of the emphasis put upon particular arguments. In one or two respects Professor Willcox seems to attribute rather more novelty to his criticisms than they possess. We think that all vital statisticians are thoroughly familiar with the fact that comparisons in terms of a standard population are affected by the choice of standard. The discussion has turned not on the fact, but upon how to avoid fallacious interpretations. Professor Willcox does not mention the most recent contribution to the subject, that of Pearson and Tocher,¹ who suggest that when the question is whether two samples are compatible they should be reduced to that standard population which makes it least likely that the two samples could have arisen therefrom. They show how to determine such a standard, point out practical difficulties in its application, and propose another and more general treatment of the problem, which is of importance, and avoids the ambiguity of the standard population method. It should also be noted that many other authors have provided statistical evidence of the association between cancer death-rates and facilities for diagnosis. For instance, Greenwood and Wood found for American cities a correlation of 0.23 between the death-rate from cancer and the presence of a good medical school, the population being kept constant by the method of partial correlation.² Maynard³ also went into the question of diagnosis in connexion with American data.

FLIES IN WINTER.

WHAT happens to flies in winter? This question has long vexed entomologists and sanitarians, and is of special interest now that we have a vast army living under active service conditions, and exposed to fly-borne diseases. Many observers maintain that adult flies are capable of hibernation in warm and quiet corners. According to this view, a few flies in the fully developed form go into winter quarters towards the close of October, and emerge under the spell of the warm spring days to set about the business of propagating their kind. Captain R. P. McDonnell and Staff Sergeant T. Eastwood, R.A.M.C., have recorded in the *Journal of the Royal Army Medical Corps* some observations which tend to show that flies pass the winter in the larval stage, and that the hibernating adult fly is a myth. Their investigations thus support the minority opinion that all flies die off about October or November, and that the species is preserved by the careful selection on the part of the female fly of a suitable hatching ground for her eggs out of harm's way. But those who hold this view have suggested that the ova remain unchanged throughout the winter, and only hatch out into larvae when summer approaches. Captain McDonnell and Staff Sergeant Eastwood made thorough examination of many manure dumps and disused trench latrines in order to test their hypothesis that the flies' eggs deposited in such places during late autumn are the source of the next

¹ *Biometrika*, 1916, xi, 163.

² *Journ. Hygiene*, 1914, xiv, 89.

³ *Biometrika*, 1909, vii, 278.

¹ Z. Cashman, *Amer. Journ. Med. Sci.*, 1917, cliv, pp. 476-489.

year's plague of flies, and, further, that the hatched-out larvae in a dormant state persist all the winter, and come to the surface in spring or early summer. On March 3rd, 1917, after weeks of bitterly cold weather, living fly larvae were found three feet down in a heap of old manure which had lain untouched since October, 1916, and was covered with grass and leaves. Further evidence of the same kind was collected, but the authors rightly refuse to draw definite conclusions from the few preliminary and isolated observations so far made. The practical bearing of these inquiries is evident. If the larvae and pupae of flies are proved to survive in considerable numbers in manure heaps during winter, then manure heaps must be looked on as a source of danger at all seasons of the year. It is, we believe, well established that all the adult individuals of many species of insects do die off during the winter, the race being continued by eggs carefully hidden in a suitable place with a stock of food for the larvae. At the same time there is no doubt that adult flies may be seen on the wing in many warm kitchens all through the winter, and it does not seem to have been proved that these are incapable of laying eggs in the spring.

THE VENEREAL DISEASE DISPENSARY SYSTEM IN GERMANY.

At the annual meeting of the German Society for Combating Venereal Disease, held on June 22nd, 1917,¹ in Mannheim, the sole topic of discussion was the dispensary system, which has encountered much criticism and opposition. The physician in charge of this system in Metz, Dr. Max Müller, outlined the aims of the dispensary with regard to the continuity of treatment of syphilis. Recovery could be assured only by prolonged treatment and supervision of the patient, and it was one of the functions of the dispensary to step in when the patient, against the advice of his doctor, absented himself. The dispensary was to be a link between the patient and his doctor, shepherding the wayward patient back to his doctor for treatment. Yet the dispensaries, he admitted, had not been received by the medical profession with the "joyful and general acclamation" so good a social reform deserved. Many objections had been raised. It was feared that the dispensaries would interfere with the relations between patient and doctor, and would fetter scientific progress by petty regulations. These were fears which the tact of the dispensary chief would have to allay; he should avoid criticizing the doctor's treatment. Another objection was the breach in the confidential relations between the patient and his doctor threatened by the intervention of the dispensary. The doctors were, however, to be under no compulsion with regard to the dispensary, as had been threatened, and the dispensaries, on the other hand, would shun autocratic ways. In return it was hoped that the doctors would abandon their opposition, which was not appreciated by the general public, which was inclined to overlook the ethical objections of the medical profession to a social reform, and to see in its opposition a selfish motive. In the discussion after this speech it was agreed that the dispensary system must be regarded as an established institution, and that it remained for its adherents to labour for its developments along the best lines. Finally a motion was passed, without dissent, to the effect that all doctors should help in the campaign against venereal disease, and that those in particular who had already utilized the dispensary system with good effect should enlighten their patients as to its aim and value. It was recognized that the doctors should be tactful in committing unwilling patients to the dispensary, and that the campaign against venereal disease could be successful, notably in regard to the dispensary system, only with the co-operation of as many doctors as possible. It was therefore essential for the insurance societies to work in harmony with the medical

profession. It was necessary also that unqualified practitioners should not be allowed to tamper with venereal disease, and that treatment by correspondence and public touting for patients should be prohibited by law.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.

THE alphabetical rubrics in the current part of the *New English Dictionary* run from stillation to stratum, and the medical terms from stillbirth to stratification, although, of course, the last-named word has other than medical meanings. The term stillborn is defined as "born lifeless, dead at birth, abortive," and no hint is given that it is ever employed in any other sense, although as a matter of fact several recent textbooks of obstetrics regard it as synonymous with asphyxia neonatorum, and one (R. W. Johnstone's) adds: "Stillbirth is not the same thing as the child's being born dead, although death may supervene if prompt treatment is not applied." It is somewhat curious that the first recorded use of the word stillborn in English seems to have been in the figurative sense. It is in Shakespeare's *Henry IV*, Part II: "Grant that our hopes (yet likely of faire byrth) should be stillborn." Stimulant has three physiological or medical meanings, namely: (1) Something that temporarily quickens some vital process; (2) alcoholic drinks; (3) something that excites an organ to its functional activity. The same three meanings run through the other allied terms such as stimulate, stimulating, stimulation, and stimulus. Stint is an interesting word etymologically, and it is sometimes used with the medical meaning of to check or staunch—for example, a bleeding. The editors of the Dictionary are so careful, as a rule, to give every medical usage of ordinary terms, that one is surprised not to find stirrage given as an occasional synonym of quickening in the sense of the feeling of fetal movements. The employment, however, of stirp, with its modern meaning in eugenics, is chronicled; and stirrup in its surgical application is referred to. Among the rarer medical terms are stithy, the anvil bone of the ear and a disease incident to horses and oxen; stive, the eyeball or the pupil; and stonepock, a hard suppurating pimple. Commoner medical words are found in stomacace, stomatic, stomatitis, stomato- in various compounds, storax, strabism and strabismus, strabotomy and stramonium. Stone has some curious semi-medical significations, such as the equivalent of a urinary calculus or of a gallstone, of a testicle, or as an intensive corresponding to completely, as in stone-blind, stone-dead, and stone-dumb. And so, notwithstanding the vicissitudes of these times, this great national undertaking, the *New English Dictionary*, goes on its way towards a successful, if to a somewhat retarded, conclusion, and the editors are to be congratulated, one and all, on their indefatigable lexicographic labours.

SUNLIGHT, FOLIAGE, AND AIR PURIFICATION.

A PAPER on the influence of sunlight on the formation of nitrites from nitrates in aqueous solution and on the assimilation of nitrites by green leaves, read at the last meeting of the Royal Society by Professor Benjamin Moore, contains several points of general interest. He finds that when green leaves are immersed in nitrate solution comparatively little nitrite accumulates, showing that nitrites are rapidly absorbed by the green leaf. Nitrates taken up by plants from soil would, in the presence of sunlight, be changed to nitrites, which are much more reactive. This indicates that the early stages of synthesis of nitrogenous compounds are carried out in the green leaf and aided by sunlight. Dilute solutions of nitrates exposed either to sunlight or to a source of light rich in light-energy of short wave-length (such as light from the mercury arc) are converted into nitrite. The fact that the interposition of a layer of glass between the source of light and the solution of nitrate

¹ *Med. Klin.*, July 29th, 1917.

greatly slows the reaction, shows that the most effective rays are those of short length. Rain water preserved for a considerable time contains no nitrites, but freshly collected rain water or dew always contains a mixture of nitrites and nitrates. Air bubbled through distilled water free from nitrite and nitrate gives a mixed reaction afterwards when the water is tested for nitrites and nitrates, showing presence of both forms of oxides of nitrogen in air. There is no hydrogen peroxide or ozone in air at surface level. The fresh odour in open air, commonly referred to as "ozone," is probably nitrogen trioxide, which at high dilutions has the odour of ozone. The oxides of nitrogen are probably formed by the action of sunlight, rich in ultra-violet rays, upon air and aqueous vapour in upper regions of the atmosphere. Professor Moore concluded by drawing attention to the importance of these actions of light in purification of air and water and enrichment of soils and waters by the continuous supplying of matter essential to organic growth, the energy of which, like that for the upbuilding of non-nitrogenous organic compounds, comes from sunlight.

THE PHYSIOLOGICAL PROBLEMS OF THE ILLUMINATING ENGINEER.

THE young profession of illuminating engineering has never hesitated to enlist the help of the ophthalmologist, for, notwithstanding all rules and formulas and readings of photometers, the ultimate verdict on the lighting of any place or building is based on the impression received by the eye. *Solus oculus est iudex*. This was pointed out in Mr. A. P. Trotter's presidential address to the Illuminating Engineering Society, when it was stated that it would be useful if more work were done, or at least more literature made accessible, on the physiology of vision so far as concerns the relation of light flux to visual perception. Mr. Trotter pointed out that the range of luminous stimulus to which the eye could respond was enormous extending from illuminations of 0.0001 of a foot-candle on the darkest night to 5,000 or more foot-candles in summer sunshine. There must be some intricate provision over and beyond the mere contraction of the pupil—perhaps a chemical change in the retina, or an inhibition of the optic nerve, or a compensatory reaction or opposing activity in the brain—to explain the automatic adjustment of control which permitted so sensitive an organ as an eye to accommodate itself to such great changes in the external stimulus. If the physiologist could inform the illuminating engineer further with regard to that quantitative control it would be of assistance in many ways. Mr. Trotter suggested that illuminating engineers should give some attention to experimental and observational psychology, so that the various factors involved in sense impressions could be disentangled and dealt with one by one.

THE Royal Dental Hospital, Leicester Square, has received a donation of £250, being the amount allocated to the hospital by the trustees of the late Leopold Salomons, Esq.

THE Scottish Women's Hospitals have done excellent work in France, in Serbia, and in Corsica for the Serbians, in Salonica, and Rumania, as has been noted from time to time in these columns. The committee has now published a second *Thistle* souvenir book, a miscellany of stories, verse, and pictures, intrinsically worth more than the price (Glasgow and London: J. Horn, Ltd. (and Menzies); pp. 104, 1s. 6d.) at which it is sold. The first page reproduces in facsimile a letter from M. Poincaré, who has not forgotten that he is Lord Rector of the University of Glasgow. In it he expresses his gratitude "to the courageous Scottish women for their inexhaustible charity and for the indefatigable devotedness they show to the wounded soldiers of the allied countries." Miss Mellroy is to be congratulated on having got about her so long a list of distinguished contributors and on the good appearance the new number of the *Thistle* makes.

THE WAR.

TREATMENT OF WOUNDS OF WAR.

WE gave some account, a short time ago, of the results reached by the Inter-Allied Surgical Conferences held in March and May, 1917. A third conference, held in November, 1917, was attended by delegates of America, Belgium, Great Britain, France, Italy, Japan, Portugal, and Serbia. It reached a number of conclusions which are of general interest, some of them to surgeons at the front, others also to those serving at hospitals at the base or at home.

Wounds of the Thorax and Abdomen.

(1) In wounds involving both the thorax and abdomen the special factor is the wound of the diaphragm; the wounds of the thoracic and abdominal organs do not present any special features from the anatomical point of view. (2) Hernia of the abdominal organs is difficult to recognize clinically. Radioscopic examination showing displacement of the heart to the right is an element in diagnosis which should be taken into account, especially with haemothorax of the left side. (3) Operation is indicated in almost all cases, the exception being the case of a very small projectile involving only the upper part of the abdomen, especially on the right side. Independently of indications for operation afforded by the thorax and the abdomen, perforation of the diaphragm is in itself sufficient to call for suture. (4) Operation by the thoracic transpleural route presents great advantages both for the inspection of the lesions and for the treatment of the pleural cavity and the diaphragmatic wound (suture). It permits also the treatment of lesions of the subdiaphragmatic abdominal organs, whether herniated or not. (5) Cases occur in which a separate laparotomy may be indicated. (6) Thoracic-laparotomy allows of the treatment of both the thoracic and abdominal lesions on a large scale and through a single incision.

Fractures involving Joints.

(1) The aseptic course seen by osteo-articular lesions in which operation is performed early (within ten to twelve hours) clearly indicates that the surgical treatment of fractures involving joints should aim at the maximum of conservatism. (2) Comminuted fractures of the epiphysis and shaft are now amenable to thorough cleansing and curettage, followed by primary suture. (3) Fractures of the epiphysis and shaft which are partial or in T form are, according to circumstances, amenable to arthrotomy with reposition, or to arthrotomy with limited excision of bony fragments (partial atypical resection) followed by primary suture. (4) Primary resection is indicated only in exceptional instances: (a) in the case of bony lesions, when it should be performed only in very comminuted fractures of the articular extremities; experience proves that it is more likely to be required at the hip or shoulder than in the knee, elbow, or foot; (b) primary resection in doubtful cases in order to obtain a better functional result should give place to conservative methods (arthrotomy with removal of fragments of bone, partial atypical resection). Bad functional results are amenable to late orthopaedic resection, which will generally be done under better conditions than a primary resection. (5) The indications for primary amputation are crushing of the limb with destruction of the principal arterial trunk. (6) Immediate active mobilization appears to be an indispensable part of operative treatment, and seems to have given better results than those following immobilization (Willems). (7) Resection may still be necessary in the treatment of infected articular fractures.

Treatment of Chronic Osteomyelitis.

(1) The mechanism of infection is the same as that of infection in other war wounds; it spreads in two ways: (a) by continuity through the medullary and compact tissue, and (b) to a distance along fissures. (2) The spread through the bony tissue is generally slow and limited. Among the earliest germs to spread are the streptococcus, the staphylococcus, the enterococcus, and, more rarely,

anaerobic organisms. The germs most often found in the flora of subacute or chronic suppuration of bones are the streptococcus, staphylococcus, enterococcus, and the pneumobacillus. (3) The treatment of chronic osteomyelitis should above all things be preventive; it does not differ from the treatment of the seat of fracture. (4) At the present time the treatment of established osteomyelitis is purely surgical; it should be undertaken early and consists essentially of (a) free opening up of the seat of fracture; (b) careful search for all sequestra and foreign bodies, and their removal; (c) free laying open of all cavities. (5) This having been done one of two alternative methods may be followed: either (a) immediate closure of the wound, completed by an autoplasmic operation, or (b) chemical sterilization of the wound, secondary autoplasmia to fill up the bony cavity, and then suture. The second method is that most generally applicable.

Late Results of Fractures of the Thigh.

(1) Speaking generally, the end results of the treatment of fractures of the thigh are poor. This is due to the extent of the lesions, to insufficient reduction and retention, and, above all, to infection of the seat of fracture. (2) The late results of fractures in the upper third, and still more in the lower third of the femur, are those which leave most to be desired. (3) The late complications most frequently met with are (a) infections producing chronic osteomyelitis; (b) deformities due to incomplete reduction (shortening, rotation, and angular union); (c) very rarely defective consolidation, or functional loss of power having an articular, muscular, or nervous origin. (4) Of these deformities, shortening is the most common, and the only one which is not always avoidable (loss of bone). (5) Rotation and angular union are most often due to inefficient surgical treatment. (6) Primary sterilization is the principal object to be sought; its insufficiency is the essential cause, direct or indirect, of the defective results. The slow progress of, and the difficulties encountered in treating, prolonged infections make it less possible to ensure retention of the fragments. (7) Primary suture of the wound and secondary suture after cicatrization, transforming an open fracture into a closed fracture, have a determining influence on the remote results of treatment of fractures of the thigh. (8) Joint stiffness, very frequently observed in the knee, and stiffness of the hip and the foot, either separately or in combination, can be prevented by early mobilization. (9) Adhesions of muscles to the callus are the cause of many functional troubles which may necessitate surgical operation to free them. (10) Trophic complications (muscular atrophy, oedema, vasomotor disturbances) play a very important part and should always receive early and persistent treatment. (11) Very pronounced deviations, attended or not by osteomyelitis, are amenable to osteotomy; when there is concomitant osteomyelitis resection of the callus is generally indicated.

Wounds of Nerves.

(1) Operations on nerves for war wounds have so far given relatively poor results. Partial lesions give a larger percentage of good results than total lesions. (2) The mediocrity of the results is due chiefly to operation at too late a period. (3) Operation should never be undertaken in the presence of suppuration. (4) The three principal causes of want of success in late operations on nerves are (a) sclerosis of the peripheral end which must increase with the lapse of time; (b) too wide an interval between the two ends; (c) the intensity and duration of suppuration. (5) Retraction of tendons, ankylosis of joints, and ischaemic muscular sclerosis all tend greatly to diminish the value of the functional result. The joints ought from the first to be put in an appropriate corrective position. (6) Primary suture of the nerve, which is rendered possible by the methods now in use for the disinfection of wounds, tends considerably to improve results in respect of the frequency, the rapidity, and the degree of functional recovery. (7) Even when the operation is unsuccessful, primary suture maintains the ends of the nerves in an anatomical position which greatly facilitates later operation. (8) Functional recovery occurs slowly; it requires many months and even years, and this fact must be kept in mind in estimating the final degree of disability.

Secondary and Late Complications of Wounds of the Brain.

(1) The effect of the documents collected* is to show that though secondary complications of cerebral wounds are relatively frequent, late infectious complications are much more rare than was supposed. (2) Organic disorders consecutive to wounds of the brain (hemiplegia, monoplegia, aphasia, visual disturbances, etc.) frequently show a tendency to improve. Their treatment belongs to the domain of neurology. (3) Late epileptic attacks of a Jacksonian character may be benefited by surgical operation—the removal of a cause of compression, of foreign bodies, or of fragments of bone. It is not advisable to operate on account of one or two isolated attacks of Jacksonian epilepsy, for they may be due to an attack of encephalitis from which recovery may take place, and upon the course of which surgical operation can have no influence. Epileptic attacks, except in cases where a foreign body or a fragment of bone is present, do not call for any fresh surgical operation. Where there is hypertension of the cerebro-spinal fluid, lumbar punctures controlled by the manometer may be useful. (4) Late cerebral abscesses, diagnosed and differentiated from non-suppurative encephalitis, ought to be operated upon after accurate clinical localization by the surgeon and the neurologist. After an exploratory puncture and taking care not to destroy protective adhesions, the abscess should be opened and its sterilization tested periodically by bacteriological examination. (5) Late localized meningitis and encysted meningeal abscesses ought to be operated upon. (6) The present treatment of generalized meningitis is usually ineffective. The most rational means of treatment appears to be repeated lumbar puncture. (7) Cerebral hernia with abscess should be operated upon and the abscess drained. It seems preferable, in order to avoid the possible diffusion of a local infection, not to perform lumbar puncture during the acute febrile phase which occurs in some cases of cerebral hernia. When the evidences of infection observed at the onset have diminished, lumbar punctures, by diminishing intracranial hypertension, may favour the reduction of the hernia. Resection of a hernia is an operation only justifiable when local necrosis occurs or meningocele is present. (8) Intracerebral foreign bodies which are determining attacks of encephalitis, epileptic attacks, or an abscess, should be removed. Foreign bodies which are well tolerated ought, it would seem, to be left alone. (9) The facts collected show that cranioplastic operations performed with an aesthetic object are specially indicated when the loss of substance is in the frontal region. From the point of view of cure they are only justifiable in cases in which the distensibility of the scar is the only discoverable cause of the symptoms observed. From the prophylactic point of view the risk of cranial injury of the trephined region later on may be an indication for operation. In every case the surgeon should make sure that there is no contraindication to operation afforded by any nervous trouble, by any chemical or cytological alteration in the cerebro-spinal fluid, or by papillary stasis. (10) The best prophylactic treatment of secondary or late infectious complications is by methodical disinfection and primary sterilization of the intracerebral traumatic foci.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

Surgeon Probationer H. M. Macpherson, R.N.V.R.

Prisoner of War.

Surgeon Probationer P. A. Faichney, R.N.V.R.

ARMY.

Died of Wounds.

COLONEL C. C. FLEMING, D.S.O., R.A.M.C.

Colonel Charles Christie Fleming, D.S.O., R.A.M.C., died, aged 53, on December 24th, 1917, of wounds caused by a bomb on the previous day. He was the son of the

* Of 6,661 old cases of trephining in hospitals in regional neurological centres in France the number of epileptic attacks partial or general observed was 675 (10.14 per cent.); the number of cases of cerebral abscess was 94 (1.41 per cent.); of old meningitis 32 (0.48 per cent.); and cases of late cerebral hernia 54 (0.81 per cent.); among these old cases of trephining, there were 83 deaths (1.24 per cent.), and one case only of sudden death.

late Deputy Surgeon-General Andrew Fleming, was born on November 6th, 1864, and educated at Edinburgh University, where he graduated M.B. and C.M. in 1888. After filling the posts of resident physician and resident surgeon in the Edinburgh Royal Infirmary, and of resident physician in the Edinburgh Royal Hospital for Sick Children, he entered the R.A.M.C. as surgeon-lieutenant on January 30th, 1892, becoming surgeon-captain on January 30th, 1895, and major on January 30th, 1904, and retiring on October 29th, 1910. After his retirement he acted for a time as secretary to the Scottish branch of the British Red Cross Society. He also joined the Reserve of Officers, and rejoined for duty on April 17th, 1915, in his old rank of major. During the war he had risen to colonel, and was A.D.M.S. to the Highland Division when he met his death. He served in the Nile campaign of 1898 as senior medical officer in the operations on the Upper Atbara, in the action at Gedaref, and in the defence of Gedaref; was mentioned in dispatches, and received the medal, the Egyptian medal, and the D.S.O. He also served in the South African war from 1899 to 1902, when he took part in the advance on Kimberley, including the actions of Belfont and Magersfontein, in the relief of Kimberley, and in the operations in Cape Colony and in the Orange River Colony, and received the Queen's medal with five clasps and the King's medal with two clasps.

CAPTAIN N. MCG. SMITH, R.A.M.C.

Captain Norman McGaan Smith, R.A.M.C., was reported as having died of wounds, in the casualty list published on December 22nd, 1917. He was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1915, took a temporary commission in the R.A.M.C. soon after, and was promoted to captain after a year's service.

Died on Service.

CAPTAIN W. E. GIBBONS, M.D., R.A.M.C.

Captain Wilfred Ernest Gibbons, R.A.M.C., died at a base hospital on December 21st, 1917, after a short illness following an operation. He was the son of Mr. John Gibbons of Mossley Hill, Liverpool. He received his medical education at the University of Edinburgh, where he graduated M.B., C.M. in 1896, and M.D. in 1900. He had held the office of house-surgeon to the Edinburgh Royal Infirmary, and subsequently became assistant to Dr. Maclaren, the senior surgeon at the Carlisle Infirmary. He settled in practice in Leicester in 1900, and was late chairman and honorary secretary of the Leicester and Rutland Division of the British Medical Association. He took great interest in sports, and on several occasions represented his university at association football. He married in 1901, and is survived by his widow and two children. In 1908 he joined the Territorial Force, and was mobilized with his unit, and had been on the staff of the base hospital since November, 1914.

Accidentally Killed.

CAPTAIN H. M. SPOOR, M.C., R.A.M.C.

Captain Herbert Mather Spoor, M.C., R.A.M.C., was reported as accidentally killed, in the casualty list published on December 29th, 1917. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1908, and then went into practice at Stoke, Rochester, where he held the appointment of superintendent of the Hoo isolation hospital. He joined the R.A.M.C. as a temporary lieutenant on April 17th, 1915, was promoted to captain after a year's service, and received the Military Cross on September 26th, 1917.

Wounded.

Captain R. G. Burnard, Australian A.M.C.
 Captain W. C. Douglass, R.A.M.C. (temporary).
 Captain F. G. Flood, M.C., R.A.M.C. (S.R.).
 Captain J. R. Forde, R.A.M.C. (temporary).
 Captain L. R. Hill, R.A.M.C. (temporary).
 Captain E. H. Lawson, R.A.M.C. (temporary).
 Captain D. M. Moffatt, M.C., R.A.M.C. (temporary).
 Captain J. E. S. Smith, R.A.M.C. (T.F.).
 Captain C. J. Timms, M.C., R.A.M.C. (temporary).
 Captain W. K. Turner, Canadian A.M.C.
 Lieutenant G. Gordon, R.A.M.C. (temporary).
 Lieutenant S. G. Johnson, R.A.M.C. (temporary).

Formerly Reported Wounded, now Reported not Wounded.

Captain O. Matthews, Australian A.M.C.

Missing.

Captain G. A. D. McArthur, R.A.M.C. (temporary).
 Lieutenant T. F. Ryan, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Cavanagh, Rev. Bernard C. F., son of Dr. Cavanagh of Dublin, died of wounds in Palestine on December 21st, 1917. He was born at Limerick in 1866, educated at Crescent College, Dublin, ordained in 1890, and had worked for twenty years as a Redemptorist missionary before he joined the army as a chaplain.

Crawford, Dunlop, Second Lieutenant Royal Engineers, only son of the late Dr. John Kerr Crawford of Kilwinning, died of wounds in East Africa on December 10th, 1917, aged 28.

Elliott, H. C., Lieutenant Royal Engineers, second son of Dr. Christopher Elliott of Clifton, died at a base hospital on December 20th, 1917, of wounds received on December 8th.

Steyn, Stephen Sebastian Lombard, Lieutenant Royal Field Artillery, son of the late Dr. G. H. Steyn, killed in December, 1917, aged 26. He was educated at the Diocesan School, Rondebosch, South Africa, and at the University College, Oxford, where he was a Rhodes scholar of 1909. He was a noted Rugby football player, having played at three-quarter both for Oxford and for Scotland in 1911 and 1912. He got his commission on December 8th, 1914.

MEDICAL STUDENT.

Chalmers Cowan, Philip, Captain Manchester Regiment, attached Royal Flying Corps, is reported missing since November 8th, 1917, when he took part in an air combat in France. Captain Cowan was a second year medical student of Trinity College, Dublin, when he joined the Manchester Regiment in August, 1914, from the Dublin University O.T.C. He was promoted captain in October, 1916, and shortly afterwards joined the Royal Flying Corps. He was in his twenty-second year and was a son of Dr. P. C. Cowan of Ailesbury Road, Dublin.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

In connexion with the New Year long lists of appointments, awards, and promotions were published in special supplements to the *London Gazette* on December 31st. The honours mentioned have been awarded to the following medical officers, all of whom belong to the A.M.S. or R.A.M.C. unless otherwise indicated:

Naval Awards in Recognition of Services during the War.

K.C.B. (CIVIL).

Surgeon-Generals: Wm. Henry Norman, C.B., R.N., George Lenthal Cheatle, C.B., C.V.O., R.N.

C.B. (CIVIL).

Surgeon-Generals: Arthur Edmunds, R.N., Wm. W. Fryn, R.N., James Lawrence Smith, M.V.O., R.N.
 Deputy Surgeon-General Daniel Joseph Patrick McNabb, R.N.

C.M.G.

Fleet Surgeon E. H. Meaden, R.N.

D.S.O.

Staff Surgeon Henry Cooper, R.N.

For Valuable Services Rendered in Connexion with Military Operations in the Field.

C.B. (MILITARY DIVISION).

Surgeon-Generals: Richard Henry Stewart Sawyer, C.M.G., Henry Neville Thompson, C.M.G., D.S.O.
 Colonel and Honorary Surgeon-General Bruce M. Skinner, C.M.G., M.V.O.

Colonels: Charles Mackie Begg, C.M.G., N.Z.M.C., Robert Hammill Firth, Anthony John Luther, Foster Reuss Newland, C.M.G., Alexander Dunstan Sharp, C.M.G., James Matthew Forrest Shine, Alfred Sutton, C.M.G., A.A.M.C., Hugh Champneys Thurston, C.M.G., James Barnett Wilson, C.M.G.
 Lieut.-Colonel and Brevet Colonel (temporary Colonel) Frederick Smith, C.M.G., D.S.O.

Temporary Colonels: Sidney Maynard Smith, Alfred Henry Tubby, C.M.G.

Lieut.-Colonel and honorary Colonel Charles Joseph Trimble, C.M.G.

Lieut.-Colonel (temporary Colonel) Thomas Finlayson Dewar.

Lieut.-Colonel (acting Colonel) Arthur Russell Aldridge, C.S.I., C.M.G.

G.C.M.G.

Temporary Surgeon-General Sir George Henry Makins, K.C.M.G., C.B.

K.C.M.G.

Surgeon-General William Grant Macpherson, C.B., C.M.G.
Colonels and honorary Surgeon-Generals: James Murray
rwin, C.B., James Maher, C.B.
Temporary Colonels: Thomas Crisp English, C.M.G.,
James Purves Stewart, C.B.

C.M.G.

Colonels: George Walter Barber, D.S.O., A.A.M.C., Robert
James Blackham, C.I.E., D.S.O., Ernest William Bliss, D.S.O.,
Edward George Browne, C.B., Robert Rupert M. Downes,
A.A.M.C., Philip Cecil Harcourt Gordon, Alfred Ernest C.
Kibble, D.S.O., Charles Joseph MacDonald, Samuel Guise
Moore, C.B., Charles William Profeit, D.S.O.

Temporary Colonel (Lieut.-Colonel R.A.M.C.T.F.) William
Pasteur.

Lieut.-Colonel and Brevet Colonel (temporary Colonel)
Howard Ensor, D.S.O.

Lieut.-Colonels (temporary Colonels): Arthur Thomas White,
A.A.M.C., Daniel Davis Shanahan, D.S.O.

Lieut.-Colonels: Clarence Isidore Ellis, Charles Tilson
Hudson, I.M.S.

Temporary Lieut.-Colonels: Leonard Stanley Dudgeon,
Ernest Henry Starling, F.R.S.

Temporary honorary Lieut.-Colonel Nathan Raw.

For Services Rendered in Connection with the War.

K.C.B. (MILITARY DIVISION).

Surgeon-General Sir David Bruce, C.B., F.R.S.

C.B. (MILITARY DIVISION).

Surgeon-General Francis John Jencken.

Colonels: William Coates, C.B. (Civil), Frederick Gault Finley,
C.A.M.S.

Temporary Colonel (Lieut.-Colonel R.A.M.C.T.F.) Howard
Henry Tooth, C.M.G.

Temporary Lieut.-Colonel Andrew Balfour, C.M.G.

Temporary honorary Lieut.-Colonel George Seaton Buchanan.
Major and Brevet Lieut.-Colonel Robert Markham Carter,
I.M.S.

K.C.M.G.

Colonel and honorary Surgeon-General Michael William
Russell, C.B.

Temporary Colonels: Charles Alfred Ballance, C.B., M.V.O.,
Archibald Edward Garrod, C.M.G., F.R.S.

C.M.G.

Colonels: Kenneth Cameron, C.A.M.C., Joseph Griffiths,
Charles Henderson Melville, Charles Pye Oliver, K.H.P.,
George Septimus Rennie, C.A.M.C., Wallace Arthur Scott,
C.A.M.C., Walter Langmuir Watt, C.A.M.C.

Temporary honorary Colonel Sir John Collicie.

Lieut.-Colonel (honorary Surgeon-Colonel, temporary Colonel)
William Mitchell Roodcroft.

Lieut.-Colonels (temporary Colonels): Kenneth Smith,
A.A.M.C., Douglas Murray McWhae, A.A.M.C.

Lieut.-Colonels: Henry Stewart Anderson, Louis Edward
Barnett, N.Z.M.C., John Gordon, A.A.M.C., Arthur deCourcy
Scanlan.

Honorary Lieut.-Colonel James Anderson Murdoch, A.A.M.C.

Temporary Lieut.-Colonels: James Hurley, A.A.M.C., John
Charles Grant Ledingham, George Basil Price, Charles Morley
Wemyss.

Temporary honorary Lieut.-Colonels: Harry Richard Ken-
wood, John Robertson.

Major (temporary Lieut.-Colonel) Thomas Mill, N.Z.M.C.

Major (acting Lieut.-Colonel) John Andrew Amyot, C.A.M.C.

Major Thomas Wardrop Griffith.

KNIGHT BACHELOR.

Major Andrew Macphail, C.A.M.C., Professor of History of
Medicine, McGill University, Montreal.

C.I.E.

Lieut.-Colonel and Brevet Colonel Henry Francis Cleveland,
V.H.S., I.M.S., Deputy Director-General, I.M.S.

Lieut.-Colonel Bawa Jiwan Singh, I.M.S., Inspector-General
of Prisons, Bihar and Orissa.

Lieut.-Colonel Wm. Bryan Lane, I.M.S., Inspector-General of
Prisons, Central Provinces.

Lieut.-Colonel Henry Smith, I.M.S., Civil Surgeon, Amritsar,
Punjab.

Major Henry Coddington Brown, I.M.S., Assistant Director,
Central Research Institute, Kasauli.

Assistant Surgeon Kellar Nath Das, Professor of Midwifery,
Campbell Medical School, Calcutta.

PROMOTIONS.

The following officers have been promoted to the rank
indicated for distinguished service in the field:

To be Brevet Colonels.

Lieut.-Colonels (temporary Colonels): H. E. M. Douglas, V.C.,
C.M.G., D.S.O., J. Poe, D.S.O.

To be Brevet Lieut.-Colonels.

Majors (temporary Lieut.-Colonels): A. McMunn, S. L.
Pallant, D.S.O., M. G. Winder, D.S.O.

Majors (acting Lieut.-Colonels): B. R. Dennis, G. W. G.
Hughes, D.S.O.

Majors: R. T. Brown, D.S.O., J. T. Johnson, D.S.O.,
R. McCarrison, I.M.S.

To be Brevet Majors.

Captain (temporary Lieut.-Colonel) R. E. Kelly.

Captains (acting Lieut.-Colonels): G. H. Dive, D.S.O., P. S.
Tomlinson.

Captain (temporary Major) K. W. Monsarrat.

Captains: R. C. Dun, G. W. Ellis, W. R. Galwey, M.C., A. D.
Griffith, A. S. N. Macgregor, G. Patton.

Temporary Captains: N. Duggan, H. F. Marris.

The following officers have been promoted to the rank in-
dicated for valuable services rendered in connexion with the
war:—

To be Brevet Colonel.

Lieut.-Colonel R. J. C. Cottell, T. W. O'H. Hamilton, C.M.G.,
P. H. Johnston, C.M.G., G. W. M. Moullin, J. J. Pratt, I.M.S.,
S. J. Thomson, C.I.E., I.M.S., T. B. A. Tuckey.

Major and Brevet Lieut.-Colonel J. S. Postock.

To be Brevet Lieut.-Colonel.

Major (acting Lieut.-Colonel) J. C. Furness.

Major (local Lieut.-Colonel) A. Wright.

Surgeon-Major F. P. MacCabe, Irish Horse.

Majors: W. E. A. Armstrong, I.M.S., T. W. Griffith, H. Jones,
F. W. Mott, F.R.S., H. J. Parry, D.S.O., C. G. Spencer, W. K.
Steele.

To be Brevet Major.

Captain (temporary Lieut.-Colonel) H. J. Stiles.

Captain (temporary Major) E. W. H. Groves.

Captain H. G. Gibson.

To be honorary Lieut.-Colonel.

Quartermasters and honorary Majors: A. Bruce, D. J.
Gillman, H. G. Hasell.

DISTINGUISHED SERVICE ORDER.

Bar to the Distinguished Service Order.

Major (temporary Lieut.-Colonel) Wm. M. Bell Sparkes,
D.S.O.

Captain (acting Lieut.-Colonel) Frank Worthington, D.S.O.

Temporary Captain (acting Lieut.-Colonel) James R. C.
Greenlees, D.S.O.

Distinguished Service Order.

Lieut.-Colonels (temporary Colonels): Harold P. W. Barrow,
C.M.G., Henry W. Grattan, Harry A. Hinge, C.M.G., John
W. H. Houghton, George A. Moore, C.M.G., Charles A. Peters,
C.A.M.C., Frederick S. Penny, C.M.G., Edward W. Slayter,
C.M.G.

Lieut.-Colonels: James J. Black, A.A.M.C., Samuel R.
Burston, A.A.M.C., Edward W. W. Cochrane, James E. Davey,
C.A.M.C., Charles H. Dickson, C.A.M.C., Michael H. Downey,
A.A.M.C., Thomas R. Elliott, Archibald N. Fleming, I.M.S.,
Thomas Fraser, Arthur H. Moseley, A.A.M.C., Thomas J. F.
Murphy, C.A.M.C., Henry S. Newland, A.A.M.C., Charles T. H.
Newton, N.Z.M.C., Edgar E. Powell, R.A.M.C., J. M. Y.
Stewart, A.A.M.C., Alexander H. Thwaites, A.A.M.S., Arthur
B. Ward, S.A.M.C., Arthur O. B. Wroughton.

Temporary Lieut.-Colonels: John Edward H. Davies,
Thomas McC. Leask, C.A.M.C., Wm. R. Matthews, Charles E.
Wassell, A.A.M.C.

Majors (temporary Lieutenant-Colonels): P. S. Clarke,
S.A.M.C., Reginald T. Collins, John P. Crombie, Norman E.
Dunkerton, George J. Houghton, Rochford N. Hunt, Thomas
Kay, Gerard A. Kempthorne, Sydney M. W. Meadows, Clifford
H. Reason, C.A.M.C., Henry F. Sbea, Frederick Whalley,
Charles R. White, James Wood.

Majors (acting Lieut.-Colonels): Alfred T. Bazin, C.A.M.C.,
Percy G. Bell, C.A.M.C., Richard Coffey, David L. Fisher,
James J. Fraser, C.A.M.C., John M. Gover, Alexander Leggat,
Wm. McCall, Thomas B. Moriarty, Wentworth F. Tyndale
C.M.G., Joseph Ward, James H. R. Winder.

Majors: Alan S. D. Barton, A.A.M.C., David D. Cade,
A.A.M.C., Frederick Cameron, N.Z.M.C., Clement L. Chap-
man, A.A.M.C., Walter T. Finlayson, I.M.S., Roy S. McGregor,
A.A.M.C., Edward H. Milner Moore, George S. Mothersill,
C.A.M.C., John J. Power, A.A.M.C., C. John Tozer, A.A.M.C.,
David M. Tomory, S.A.M.C., Ernest B. Waggett, George W. W.
Ware, Henry James Williams, A.A.M.C.

Captains (temporary Lieut.-Colonels): Francis L. Brandish,
Arthur T. Falwasser, William I. Thompson.

Captains (acting Lieut.-Colonels): Edmund Alderson Frederick
H. Bradley, Charles S. Brebner, Wm. Egan, Thomas S. Eves,
Wm. R. Gardner, Harold Gibson, Arthur H. Habgood, Edward
J. Kavanagh, M.C., John Dn P. Langrishe, John A. Manifold,
Ernest C. Phelan, M.C., Alexander M. Pollard, John W. L.
Scott, George P. Taylor, M.C., Wm. Tyrrell, M.C., Andrew R.
Wright.

Captain (temporary Major) Arthur W. Falconer.

Captains: Thomas Carnwath, Thomas S. Dunn, E.A.M.S.,
Harold A. T. Fairbank, Eric G. Gauntlett, Alexander J.
Gibson, John G. Gill, M.C., Alfred G. Hebblethwaite, Basil
Hughes, Stanley D. Largo, M.C., Wm. McK. H. McNallagh,
M.C., John Wm. McNee, George W. Miller, George S. Parkin-
son, Alexander D. Stirling, James H. Thomas.

Temporary Captain (acting Lieut.-Colonel) Christopher F.
Bulstrode.

Temporary Captains: John Anderson, Gordon A. McLarty,
Hugh B. Owen, Uganda Medical Service, John F. G. Richards,
Adrian Stokes.

(To be continued.)

The Albert medal has been conferred upon Captain O. R. Hoskyn, R.A.M.C., for the following heroic deed:

In France, on November 24th, 1916, as a result of a serious railway accident, a man was plucked down by the legs under some heavy girders. The wreckage was on fire, and the flames had already reached the man's ankles. Captain Hoskyn crawled into a cavity in the flaming wreckage, and, after releasing one of the man's legs, amputated the other, whereupon the man was drawn out alive. Captain Hoskyn retaining hold of the main artery until a tourniquet could be put on.

MENTIONED IN DISPATCHES.

SUPPLEMENTS to the *London Gazette* issued on December 24th and 28th, 1917, contain, in addition to the names published in our issue of December 15th, 1917, p. 806, a further list of officers of the A.M.S., R.A.M.C., Dominion Medical Corps, and the United States Army Medical Corps, mentioned by Sir Douglas Haig in his dispatch dated November 7th, 1917, for distinguished and gallant services and devotion to duty.

HEADQUARTERS STAFF.

Surgeon-Generals: Sir A. T. Sloggett, K.C.B., K.C.M.G., K.I.I.S., W. G. Macpherson, C.B., C.M.G., M. W. O'Keefe, C.B., R. Porter, C.B., R. H. S. Sawyer, C.M.G.

Colonels (temporary Surgeon-Generals): C. H. Burtchall, C.B., C.M.G., J. M. Irwin, C.B., B. M. Skinner, C.M.G., M.V.O., H. N. Thompson, C.M.G., D.S.O.

Colonels: de B. Birch, C.B., V.D., E. G. Browne, C.B., G. Cree, C.B., C.M.G., R. H. Firth, P. C. H. Gordon, S. Hickson, C.B., A. J. Luther, S. Macdonald, C.M.G., R. L. R. Macleod, C.B., S. G. Moores, C.B., F. R. Newland, C.M.G., J. M. F. Shine, W. T. Swan, C.B., H. C. Thurston, C.M.G., J. B. Wilson, C.M.G., K. W. Wright, C.M.G., C. A. Young, C.M.G.

Brevet Colonel (temporary Colonel) T. W. Gibbard, K.H.S.

Temporary Colonel H. McI. W. Gray.

Brevet Colonel H. Ensor, D.S.O.

Lieut.-Colonels (temporary Colonels): H. P. W. Barrow, C.M.G., R. J. Blackburn, C.I.E., D.S.O., E. W. Bliss, D.S.O., A. W. N. Bowen, D.S.O., F. R. Buswell, C.M.G., T. F. Dewar, H. E. M. Douglas, V.C., D.S.O., C.M.G., H. N. Dunn, D.S.O., O. W. A. Elsnor, D.S.O., H. W. Grattan, H. A. Hinge, C.M.G., J. W. H. Houghton, T. P. Jones, C.M.G., G. A. Moore, C.M.G., G. J. A. Ormsby, D.S.O., J. Poe, D.S.O., C. E. Pollock, D.S.O., C. W. Profeit, D.S.O., H. V. Prynn, M. M. Rattray, D.S.O., D. D. Shanahan, D.S.O., A. D. Sharp, C.M.G., E. W. Slayter, C.M.G., A. G. Thompson, D.S.O., H. S. Thurston, C.B., C.M.G.

Lieut.-Colonels (acting Colonels): R. W. Clements, D.S.O., W. E. Hudleston, D.S.O.

Lieut.-Colonels: A. Chopping, C.M.G., J. S. Gallie, D.S.O., H. C. R. Hime, H. G. Martin.

Brevet Lieut.-Colonel E. Ryan, D.S.O.

Major (acting Lieut.-Colonel) W. F. Tyndale, C.M.G.

Majors W. F. McAllister-Hewlings, J. FitzG. Martin, C.M.G., C. G. Thomson, D.S.O., L. V. Thurston, D.S.O., A. C. Turner, G. W. W. Ware.

Captains: T. H. Balfour, M.C., W. S. S. Berry, G. O. Chambers, A. J. Clark, M.C., G. W. Ellis, A. J. Gibson, J. G. Gill, S. S. Greaves, M.C., A. G. Hebblethwaite, A. H. Heslop, D.S.O., S. D. Large, M.C., D. C. Macdonald, G. S. Parkinson, G. W. Smith, R. E. Todd, A. Wilson, M.C., A. R. Wright.

Temporary Captains: W. H. Alderton, G. D. Hindley, K. W. Mackenzie.

Lieutenant (temporary Captain) C. W. Treherne.

Consultants.

Surgeon-Generals: Sir A. A. Bowlby, K.C.M.G., K.C.V.O., Sir G. H. Makins, K.C.M.G.

Colonels: A. Fullerton, C.M.G., Sir W. P. Herringham, C.B., W. Pasteur, S. M. Smith, A. B. Soltan, C.M.G., C. G. Watson, C.M.G.

Lieut.-Colonel C. S. Myers.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonels: T. R. Elliott, C. I. Ellis, T. Fraser, H. A. L. Howell, J. G. Jameson, W. R. Matthews, A. H. Morris, A. O. B. Wroughton.

Temporary Lieut.-Colonels: C. J. Trimble, C.M.G., V.D., J. E. H. Davies.

Temporary honorary Lieut.-Colonel N. Raw.

Acting Lieut.-Colonel C. S. Brember.

Majors (temporary Lieut.-Colonels): W. Bennett, D.S.O., E. B. Bird, D.S.O., R. Coffey, R. T. Collins, J. F. Crombie, N. E. Dunkerton, R. F. M. Fawcett, D.S.O., P. J. Hanafin, D.S.O., W. J. S. Harvey, D.S.O., G. J. Houghton, G. W. G. Hughes, D.S.O., R. N. Hunt, A. E. S. Irvine, T. Kay, H. B. Kelly, D.S.O., G. A. Kempthorne, S. M. W. Meadows, A. C. Osburn, D.S.O., W. F. Roe, D.S.O., W. M. B. Sparkes, D.S.O., F. Whalley, J. H. R. Winder, M. G. Winder, D.S.O., J. Wood.

Majors (acting Lieut.-Colonels): P. R. Ash, B. R. Dennis, A. D. Ducat, H. Fulton, J. M. Gover, F. W. Johnson, E. F. Q. L'Estrange, W. McCall, E. C. Montgomery-Smith, D.S.O., T. B. Moriarty, J. Nightingale, H. F. Shea.

Majors: W. J. P. Adye-Curran, T. A. Barron, G. A. Benson, H. D'A. Blumberg, T. D., T. S. Coates, A. W. A. Irwin, G. W. Miller, E. H. M. Moore, J. S. Y. Rogers, D.S.O., M. Sinclair, J. W. West.

Temporary Major (acting Lieut.-Colonel) E. Alderson.

Temporary honorary Majors: C. W. M. Hope, T. Houston.

Brevet Major H. F. Pantou, D.S.O., M.C.

Captains (temporary Lieut.-Colonels): J. Barkley, W. J. E. Bell, D.S.O., J. D. Bowie, D.S.O., F. H. Bradley, A. T.

Falwasser, W. R. Gardner, E. J. Kavanagh, M.C., J. de P. Langrishe, A. M. Pollard, J. Robertson, N. C. Rutherford, D.S.O., S. M. Smith, G. P. Taylor, M.C., W. I. Thompson, W. Tyrrell, M.C.

Captains (acting Lieut.-Colonels): F. L. Bradish, H. N. Burroughes, H. G. W. Dawson, G. H. Dive, D.S.O., W. Egan, T. S. Eves, H. Gibson, A. H. Habgood (S.R.), A. Irvine-Portescue, E. C. Phelan, M.C., H. C. D. Rankin, R. T. C. Robertson (S.R.), J. W. L. Scott, F. Worthington, D.S.O.

Captain (temporary Major, acting Lieut.-Colonel) T. A. Green.

Captains (temporary Majors): J. D. Fiddes, A. C. F. Turner, D.S.O.

Captains: J. G. Anderson, S. R. Armstrong (S.R.), R. P. Ballard (S.R.), J. H. Bayley, M.C. (S.R.), A. J. Beveridge (S.R.), T. R. H. Blake, M.C., R. A. Broderick, A. S. Bruzand, D. Buchanan, F. D. Caddell, M.C., W. K. Campbell, D.S.O., F. C. Chandler, P. J. Chissell, T. C. Clarke, J. Dale, R. M. Davies, A. H. T. Davis, W. H. Davison, J. W. Dew, C. K. G. Dick, R. C. Dun, J. Dundas, A. H. Falkner, J. McK. Ferguson, H. J. B. Fry, C. E. H. Gater (S.R.), R. E. Gibson, H. Goodman, H. B. Graham, A. H. Greg, T. W. Hancock, A. J. Hawes, W. S. Haydock (S.R.), J. H. Hebb, H. Henry, W. Hunt, M.C. (S.R.), A. H. Haycke, R. Jacobs, A. E. Jury, C. M. Kennedy, R. Kennon, G. D. Laing, J. H. Lloyd, P. MacCullum (S.R.), S. McCausland, W. McK. H. McCullagh, M.C. (S.R.), J. P. McGreehin, J. W. McNee (S.R.), D. G. McKrae, J. S. Manford, H. F. Marriss, S. S. Meighan, A. D. Moffat, F. R. H. Mollan (S.R.), H. S. Moore (S.R.), C. B. Moss-Blundell, J. C. Newman, C. Nicholson (S.R.), H. S. Palmer, A. C. Pearson, G. E. Pepper (S.R.), J. Pinder, G. S. Pirie (killed), J. M. Plews, R. B. Price, W. Raffle, J. Rafter (S.R.), R. T. Raine, J. Ramsay, J. F. G. Richards, F. A. Roper, P. J. Ryan, J. C. Sale, D.S.O., M.C., H. A. Sandiford, J. J. M. Shaw (S.R.), C. N. Smith, W. Sneddon, J. C. Sproule, J. Stephenson (S.R.), A. D. Stirling, E. S. Stork, D.S.O., F. Sykes (S.R.), J. H. Thomas, J. Walker (S.R.), D. L. Wall, W. S. Wallace (M.C.), G. D. Watkins, D.S.O., F. H. C. Watson, F. W. White, J. B. Williamson (S.R.), W. F. Wood, D.S.O. (S.R.).

Temporary Captain (temporary Lieut.-Colonel) H. Faulkner.

Temporary Captains (acting Lieut.-Colonels): C. D. Pyc-Smith, D.S.O., M.C., J. R. C. Greenlees, D.S.O.

Temporary Captains: E. A. Aldridge, J. Alexander, R. C. Alexander, F. H. Allfrey, J. Anderson, L. Anderson, D.S.O., G. W. Armstrong, D.S.O., W. H. Attlee, G. T. Baker, J. H. Banks, J. H. Barry, D.S.O., M.C., N. Mc. C. Boyce, E. Boyers, R. Charles, G. S. Clancy, A. Climie, J. M. Campbell, C. D. Coyle, P. W. Craig, G. McI. Dale, A. W. Dennis, C. F. Drew, J. C. Dunn, D.S.O., M.C., I. Feldman, J. H. Fletcher, D.S.O., M.C., A. Fraser, J. Gibson, W. B. Gordon, E. H. Griffin, D.S.O., M.C., E. L. M. Hackett, A. E. Halliwell, A. G. P. Hardwick, R. Herdman, W. J. Hirst, R. McC. Hill, D.S.O., R. D. Laurie, D. Lees, D.S.O., O. C. Link, J. W. Linnell, T. L. Llewellyn, H. L. McCormick, A. L. McCreery, F. C. Macdonald, A. Macintyre, D. MacIntyre, E. C. Mackay, W. Mackenzie, G. A. McLarty, G. D. McLean, I. C. Maclean, D.S.O., M.C., W. R. P. McNeight, J. C. Mackwood, J. Manuel, H. W. Moir, H. Mortimer, J. M. Moyes, H. G. Oliver, M.C., J. B. Orr, D.S.O., M.C., J. I. O'Sullivan, H. A. Pallant, D.S.O., M.C., H. Y. Riddell, R. C. Robertson, R. S. Ross, G. W. R. Rudkin, M. P. Scanlon, H. L. Shelton, S. J. Simpson, V. F. Soothill, T. Stansfield, J. L. Stewart, M.C., A. Stokes, D. J. Stokes, H. S. Sugars, D.S.O., M.C., R. I. Sullivan, J. Tate, J. N. L. Thoseby, G. G. Timpson, H. S. Turner, M.C., V. C. W. Vickers, C. D. Walker, J. Walker, K. M. Walker, F. E. S. Willis, A. Wilson, F. B. Winfield, P. R. Woodhouse, C. S. E. Wright.

Temporary honorary Captains: E. H. Hicks, C. McNeil.

Lieutenants (temporary Captains): J. H. Boag, J. La F. Lauder, D.S.O., M.C.

Temporary Lieutenants: D. H. Collingham, W. J. Isbister, H. S. Johnston, D. A. H. Moses.

Quartermaster and honorary Major J. Dunn.

Quartermaster and honorary Captain W. Wilson.

Quartermasters and honorary Lieutenants: C. W. Atkins, E. Bireb (honorary Major), J. E. Wright, J. Forman, W. Gough.

Temporary Quartermasters and honorary Lieutenants: E. C. Bowen, M. W. Colahan, G. F. Drayson, G. Foster, T. H. Griggs, R. L. Masters, H. G. Miller, T. Newling, W. Parnell, J. H. Turner.

UNITED STATES ARMY MEDICAL CORPS.

Lieut.-Colonels: H. Cabot, C. C. Collins, M. De Lancy, J. D. Fife, H. L. Gilchrist, R. U. Patterson.

Majors: G. W. Crile, H. Cushing, L. L. Hopwood, V. H. Kazanjian.

FRIENDS' AMBULANCE UNIT.

Dr. H. Nockolds.

AUSTRALIAN IMPERIAL FORCE.

Staff.

Colonels: G. W. Barber, D.S.O., A.A.M.C.; W. W. Hearne, D.S.O., A.A.M.C. (killed); R. B. Ilustable, D.S.O., V.D., A.A.M.C.; A. Sutton, C.M.G., A.A.M.C.; A. T. White, V.D., A.A.M.C.

Majors (temporary Lieut.-Colonels): J. H. Anderson, A.A.M.C.; R. S. McGregor, A.A.M.C.

Majors: H. K. Fry, D.S.O., A.A.M.C.; W. Vickers, A.A.M.C.

Army Medical Corps.

Lieut.-Colonels (temporary Colonels): J. A. Dick, M. H. Downey, A. E. Shepherd.

Lieut.-Colonels: J. J. Black, S. R. Burston, A. G. Butler, D.S.O.; H. H. B. Follett, F. A. Maguire, A. H. Moseley, H. S.

Newland, J. S. Purdy, D.S.O., J. M. Y. Stewart, V.D., C. E. Wassell, J. R. Webb.

Honorary Lieut.-Colonel E. W. Hayward.

Major (temporary Lieut.-Colonel) H. V. P. Conrick, D.S.O.

Majors: S. V. Appleyard, D.S.O., A. S. D. Barton, F. L. Bignell, L. W. Bond, D.S.O., H. P. Brownell, D.S.O., D. D. Cade, C. L. Chapman, W. B. Craig, D.S.O., W. M. A. Fletcher, A. C. Fraser, R. I. Furber, D.S.O., W. A. Hailes, D.S.O., E. L. Hutchinson, D.S.O., W. W. S. Johnston, D.S.O., M. C. H. B. Lee, D.S.O., M. C., R. M. McMaster, D.S.O., R. B. North, J. J. Power, G. S. Robinson, M.C., C. J. Tozer, H. J. Williams.

Captains: H. F. Dunstan, G. S. Elliott (killed), F. W. Fay, L. J. Hunter, J. T. Jones, M.C., I. B. Jose, A. Jnett, C. F. Robinson, J. R. Tillett (died of wounds), E. D. Watson, A.A.D.C.

Quartermaster and honorary Major T. F. Hall.

Quartermaster and honorary Captain J. I. Anderson.

CANADIAN FORCES.

Staff.

Colonel A. E. Ross, C.M.G., C.A.M.C.

Lieut.-Colonels (temporary Colonels): H. M. Jacques, C.A.M.C., D.S.O., C. A. Peters, C.A.M.C., R. P. Wright, D.S.O., C.A.M.C.

Major (temporary Colonel): A. E. Snell, D.S.O., C.A.M.C.

Canadian Army Medical Corps.

Lieut.-Colonels: R. J. Blanchard, J. E. Davey, C. H. Dickson, J. A. Gunn, J. Hayes, T. J. F. Murphy, F. W. E. Wilson.

Majors (temporary Lieut.-Colonels): A. T. Bazin, J. N. Gunn, T. McC. Leask, C. H. Reason.

Majors (acting Lieut.-Colonels): P. G. Bell, J. J. Fraser.

Majors: D. J. Cochran, G. S. Mothersill, S. Paulin.

Captains: L. E. Clark, W. J. E. Mingie.

Lieutenant W. McL. Moore (Canadian Red Cross).

Quartermaster and honorary Captain J. E. Tulloch.

NEW ZEALAND FORCE.

Staff.

Colonel C. M. Begg, C.M.G., N.Z.M.C.

Medical Corps.

Colonel D. J. McGavin, D.S.O.

Lieut.-Colonels: D. N. W. Murray, D.S.O., J. H. Neil

Majors: F. G. Cameron, K. MacCormick, D.S.O., R. H. Walton.

Captains: H. M. Goldstein, M.C., I. N. Spedding.

SOUTH AFRICA.

Medical Corps.

Lieut.-Colonel A. B. Ward, commanding South African General Hospital.

Quartermaster and honorary Lieutenant W. Richardson.

BRITISH WEST INDIES REGIMENT.

Temporary Surgeon Captain W. S. Mitchell.

INDIAN ARMY.

Indian Medical Service.

Lieut.-Colonel A. N. Fleming, Major J. J. Urwin.

The list also contains a number of names of N.C.O.'s and men of the R.A.M.C., A.A.M.C., C.A.M.C., N.Z.M.C., S.A.M.C., and members of the various nursing services.

THE name of temporary Captain Frederick Edward Saxby Willis, R.A.M.C., attached Seaforth Highlanders, was accidentally omitted from the list of recipients of the Military Cross published in our issue of December 22nd, 1917, p. 839.

NEW YEAR HONOURS.

THE following New Year Honours have been conferred upon medical men, in addition to those specifically awarded for services in the field and in connexion with the war, published at pp. 30-32. On behalf of the medical profession we offer congratulations to all those of our number whose distinguished services have thus been recognized:

G.C.V.O.

Sir Bertrand Dawson, K.C.V.O., C.B., M.D., Physician in Ordinary to H.M. The King, Physician London Hospital.

K.C.V.O.

Lieut.-Colonel Hugh Mallinson Rigby, R.A.M.C., F.R.C.S., Surgeon to H.M. The King's Household and to H.M. Queen Alexandra's Household, Surgeon London Hospital.

M.V.O.

Staff Surgeon Louis Greig, R.N., M.B., Ch.B.

K.C.B.

Sir George Newman, M.D., Principal Medical Officer to the Board of Education.

KNIGHTHOOD.

Dr. Barclay J. Baron, Consulting Physician for Diseases of the Throat and Nose, Bristol General Hospital; ex-President of the Bath and Bristol Branch of the British Medical Association.

Dr. Thomas J. Horder, Assistant Physician St. Bartholomew's Hospital.

Dr. John Phillips, Emeritus Professor of Obstetric Medicine, King's College; Consulting Obstetric Physician, King's College Hospital.

Mr. Harold J. Stiles, M.B., C.M., F.R.C.S. Edin., Surgeon Royal Edinburgh Hospital for Sick Children.

KAISAR-I-HIND GOLD MEDAL.

Dr. Ernest Neve, Surgeon Mission Hospital, Srinagar, Kashmir.

Scotland.

THE PROPOSED MINISTRY OF HEALTH.

THE Royal College of Physicians of Edinburgh has issued a statement dealing with the question of the establishment of a Ministry of Health. Under the privileges conferred by its charter it is the duty of the College to consider "any matters affecting the general interests of the medical profession and the public." The College has accordingly considered this question, and has accepted the general proposition that it would be to the advantage of the public health were the various existing health agencies co-ordinated and brought under the supervision, control, and initiative of a board of health, constituted on the lines suggested in the statement, and presided over by a Minister of State. The only aspect of the question which leads to a divergence of view is as to the desirability of proceeding with a scheme of such magnitude at this strenuous and anxious time in the nation's history, when the medical forces of the country are large disorganized. In the circumstances the prevailing opinion of the College is that the establishment of a Ministry of Health ought to be postponed until after the war.

Statement by the Royal College of Physicians of Edinburgh.

The Royal College of Physicians of Edinburgh was erected by Royal Charter granted by His Majesty King Charles the Second, 29th November, 1681, and incorporated anew by Royal Charter granted by Her Majesty Queen Victoria, 16th August, 1861. The Royal College has been, and continues to be, largely concerned with matters affecting the health of the nation. It has taken considerable part in developing medical science and practice. It is therefore particularly interested in all proposals which have for their aim the erection of a State Department of Health. The Fellows of the College have given careful consideration to the subject. The statement which follows is the outcome of deliberations which had regard to the great questions of health and the urgent need of their recognition and effective handling by the State. The standpoint of the College is frankly medical, not political or departmental.

The administration of health measures has in the past been developed in connexion with a number of Government Departments, such as the Local Government Board, Home Office, Board of Education, Insurance Commission. Each of the several departments has worked within the limits of certain Acts of the Legislature dealing with definite subjects and conferring definite powers. The health of the community has received benefit from the work of the departments; but the operations of the departments have not attained that comprehensive measure of success which the extent and gravity of the health problem demand.

As regards health questions, the sphere of the several departments is limited, and, with increasing legislation, the overlapping which inevitably follows from their separation becomes steadily aggravated. A fundamental weakness lies in the fact that in none of the departments concerned is the control vested in a minister appointed primarily to deal with health problems.

From this division of interest and responsibility departmental difficulties are apt to arise; policy in regard to matters pertaining to health tends to become subject to considerations of departmental jurisdiction; and the essential interest of health questions is liable to be obscured. Under the restrictions of the present system it has been impossible to evolve concerted means for dealing with the complex and ever widening problems of national health. Not until these restrictions are removed will it be possible to attain effective and adequate machinery.

What is required is the creation of a ministry which shall concern itself with health matters pure and simple, and to whose jurisdiction shall be transferred from other departments the operations of all existing enactments in so far as they deal with health. This opens up another aspect of the question, namely, the immense extent of the issues involved. Existing Acts deal only with sections and fragments of the subject. A multitude of conditions affecting health are not included in the purview of the Acts, and have hitherto been left untouched.

The Minister of Health must handle the whole problem. He must be concerned not only with questions already dealt with by the Legislature, such as infectious diseases, infant welfare,

etc., but also with fresh questions arising from time to time, for example, conditions causing or affecting forms of sickness and disease not yet included within the operation of Health Acts. Such matters are frequently brought to light in the work of the medical profession. Beyond the treatment of individual cases by medical practitioners there are large questions concerning conditions to which sickness is due. These are certainly matters for a Ministry of Health.

To enable the Ministry to carry out its wide and highly complex functions, a Board of Health should be constituted, and its members selected in such a way as to ensure that the attention of the Ministry of Health would be directed to all matters affecting health.

The Royal College of Physicians of Edinburgh is, therefore, of opinion that it is essential, in the public interest, that a Government department should be erected to deal exclusively with health.

The Royal College suggests:

I. That the department should consist of a Minister and a Board of Health, of which the Minister should be chairman, and whose members should be elected on the ground of experience and interest in matters pertaining to health.

II. That the purposes of the department should be: (1) To administer the Health Acts. (2) To devise executive measures for dealing with health problems not hitherto defined by legislative measures. (3) To institute inquiries with a view to introduce measures for improving conditions affecting health. (4) To develop facilities for investigation of problems in health and disease as they may arise.

III. That the Board should include three groups of members: (1) Administrative officials. (2) Laymen with wide experience of health problems, or in the administration of hospitals and other health agencies, official or voluntary. (3) Medical members who have had experience in: (a) public health service; (b) general practice; (c) special clinical department, including industrial medicine; (d) medical research; (e) medical statistics.

In name and by authority of the College,

WILLIAM RUSSELL, M.D.,

President.

A. DINGWALL-FORDYCE, M.D.,

Secretary.

Edinburgh, December 6th, 1917.

PRELIMINARY EXAMINATIONS AT THE UNIVERSITIES.

The report of the Joint Board of Examiners of the Scottish Universities contains statistics of the passes and failures at the medical preliminary examination. At St. Andrews 17 entered—4 failed in all subjects entered for, 9 passed in all subjects entered for, 1 passed in two subjects and 3 in one subject; at Glasgow 106 entered—39 failed in all subjects, 47 passed in all subjects, 5 in two subjects, and 15 in one subject; at Aberdeen 24 entered—2 failed in all subjects, 13 passed in all subjects, 1 in two subjects, and 8 in one subject; at Edinburgh 72 entered—19 failed in all subjects, 30 passed in all subjects, 1 in three subjects, 7 in two, and 15 in one.

SCOTTISH JUBILEE NURSES.

The annual report of the Scottish Branch of the Queen Victoria's Jubilee Institute for Nurses states that 121 were absent on military nursing service and that 10 had been mentioned in dispatches or had received war honours. Nurses were doing good work in many lonely districts of Scotland under the Highlands and Islands Medical Service Board, and also for infant welfare schemes. There are now 276 nursing associations in affiliation with the Scottish Branch. Dr. J. Haig Ferguson, in seconding the adoption of the report, said that there was no more welcome visitor from the point of view of the doctor or the patient than the Jubilee nurse, and added that all should be enrolled with the Central Midwives Board. Dr. Angus Macdonald paid a tribute to the services of the nurses from the point of view of the general practitioner.

Ireland.

PRESENTATION OF BOYLE MEDAL.

At a recent scientific meeting of the Royal Dublin Society, when Lord Rathdonnell, President, was in the chair, the Boyle Medal was presented to Professor J. A. McClelland, Sc.D., F.R.S.

The report of the committee of the honorary officers, recommending the award, adopted by the Committee of Science and the Council, stated that the claim of Professor McClelland to the medal was based upon research in many branches of science, but primarily in those which deal with ionization as resulting from additions of electrons to gaseous molecules, or aggregates of such, and with the more recently discovered forms of radiation associated

pre-eminently with radio-activity. His work on ionization had been used by Sir J. J. Thomson in his work on conductivity through gases, and his discoveries in secondary radiations had been the starting point of much similar work in England and abroad. More recently Professor McClelland had served with distinction on the Advisory Council instituted by the State. The occasion was the sixth on which the medal had been presented. Professor J. Joly, F.R.S., enlarged on some points in Professor McClelland's papers, and Professor H. Conway, F.R.S., added a tribute to the industry of the medallist.

The President presented the medal with a few well-chosen words, expressing the goodwill of all sections of the society, and Professor McClelland, having acknowledged the honour, remarked that the future for research work was becoming very bright, for the industrial combinations to further research would lessen the difficulty experienced by those who devoted themselves to it in finding no openings afterwards.

VACCINATION DEFAULTERS.

The Local Government Board has pointed out to the guardians that the number of vaccination defaulters in Wexford Union has increased to 3,306, and has urged them to continue prosecutions until the whole list is exhausted. The clerk announced that it had been decided to prosecute in fifty-six cases.

An additional war bonus of £7 a year each has recently been granted by the Derry Guardians to the eight maternity nurses in the union.

England and Wales.

LONDON ASSOCIATION OF MEDICAL WOMEN.

At a meeting of the London Association of Medical Women on December 11th, with Lady Barrett in the chair, a discussion took place on (a) the advisability of a special department for maternity and child welfare under a Ministry of Health, and (b) the merits of municipal as opposed to voluntary control in maternity and child welfare. Miss Harris, of the Women's Co-operative Guild, said the subject was of special importance now, on account of the many new occupations open to women, which might seriously affect their health in pregnancy, whereas after the war there would probably be limited employment and shortage of food. There were two main difficulties to be met: (1) bad environment, and (2) poverty, standing in the way of proper medical attention and nursing. National and municipal action was essential, individual efforts being inadequate. The two great national agencies concerned with the health of the people were national health insurance and the public health authorities. The former allowed (a) maternity benefit of 30s. to insured women and wives of insured men, but it left paupers out of account, and in any case the amount was insufficient. (b) Payment of sickness benefit to insured married women; this was unsuitable, as the test was incapacity to work and the allowance was only made after three days' illness, while the proposal to convert maternity benefit into a marriage dowry was unsound. The Local Government Board issued valuable reports and paid 50 per cent. of the cost of infant welfare centres established by local authorities. But the distribution, remuneration, and training of midwives needed much revision. There was a shortage of maternity hospitals and homes; dinners and milk should be provided for expectant and nursing mothers, and there should be a supply of home helps. A Ministry of Health should have a strong maternity department, largely staffed by women. Mrs. Hood said that the women of the Co-operative Guild were looked upon as the thrifty working class. They disliked charity and felt that during the period of maternity they had a right to care and attention, just as their children had a right to free education. Municipal was preferable to voluntary control and savoured less of charity. Antenatal centres were much appreciated by the working classes and maternity hospitals were essential. Dr. Christine Murrell thought the endowment of motherhood might solve the question. She advocated the union of municipal and voluntary control in maternity and child welfare work; the municipal

body would then find the funds and the voluntary factor would supply the initiative, while the scheme would not be hampered by cumbersome machinery. Dr. Janet Lane-Claydon said that maternity hospitals were very few in the provinces, but adequate in London, provided the beds were used for abnormal cases only. She thought there would be great difficulty in safeguarding the home during the mother's absence. She was strongly in favour of a combined male and female staff at the head of a maternity department under the Ministry of Health. Lady Barrett said that the provision of beds for pregnancy sickness was inadequate even in London. It was obvious that voluntary initiative had been largely responsible for the public interest in the work, but it seemed impossible to make the work uniform and complete without some central controlling body which should supply the funds. There was no reason, however, why municipal authorities should not very largely make use of the voluntary help already being given.

THE LIVERPOOL MEDICAL INSTITUTION.

The first pathological meeting of the Liverpool Medical Institution was held on December 20th, 1917, Dr. Macalister, the President, in the chair. Several specimens, macroscopic and microscopic, were shown, of which the following were of special interest: Rapidly growing sarcoma following injury with secondary deposits in the liver, sarcoma of the stomach, aneurysm of the heart rupturing into the pericardium, endothelioma of the finger, and granular kidney with cerebral hæmorrhage in a boy aged 15. Mr. Thurstan Holland exhibited skiagrams of two cases of congenital deformity of the bones of the hands and feet, showing fusion of some of the bones of the tarsus and metatarsus, as well as of the carpus and metacarpus. The patients complained of little or no discomfort, and such a condition could not have been diagnosed in the absence of x rays. Apparently very few cases of this deformity are on record, and they were only discovered through the patients complaining of never being able to move the extremities quite as freely as desirable. Captain Cone, M.O.R.C., U.S.A., read an interesting paper on some pathological conditions of peripheral nerves resulting from war injuries. He illustrated his points by numerous lantern slides, and supported the view, on the strength of his observations, that in separated nerves sensibility of the structures beyond the site of lesion was maintained through a nexus established between the uninjured nerve fibrils in the skin and adipose tissue. Captain Cone was able to show the feasibility of such a connexion by microscopic slides. He was unable to show whether intramuscular nerve filaments performed a similar function. He thought that growth from nerves uninjured and situated in the skin and adipose tissue linked up with branches and fibrils from the distal ends of the severed nerve trunks.

Correspondence.

THE MINISTRY OF NATIONAL SERVICE.

SIR.—The letter of your correspondent last week raises some general questions, as, for instance, the natural history of committees, on which, were time and paper not so scarce, it might be interesting to speculate, and at least one matter of detail deserving very careful consideration. He says, somewhat cynically, of the Medical Department of the Ministry of National Service, that it is too young to be open to much criticism. I am told by those who profess to know that the medical arrangements of that department are working well in spite of not a few difficulties, among which must be reckoned the unpopularity of the military department it in part replaced. Your correspondent sees that one of its chief dangers is the magnitude of the task thrust upon it, but it is not clear that he appreciates fully how great this task may become. If it proves its usefulness, and other Ministries learn to depend upon it for information and guidance in medical matters, it may be called upon to take charge of a very much larger field in civil life, and eventually—possibly in no long time—to undertake, though not, perhaps, under the same auspices, much other work that will need to be done as a consequence of the social changes set up by the war.

As yet the profession does not speak with a single voice. The British Medical Association aspires to do so, but has never had the political wisdom to come to an understanding with the Colleges, which for their part show interest in the general affairs of the profession only spasmodically, and as it were grudgingly. Within the Association there is dissension, one section denouncing it for neglecting the interests of panel practitioners and the other decriing it because it thinks too much of them.

The Ministry of National Service has very important duties which cannot end with the war. The civilian profession is for the first time really represented in the Government, and it has such an opportunity through this representation as may serve to bring to fruition many avowed professional aims and to re-establish it on a basis sufficient to meet all impending socio-economic changes (the probabilities of which are undoubted) while resolving its present condition of transition.

The immediate need is the more wide distribution of Government medical work on a part-time basis, the ideal being that every practitioner be called upon to do an equal amount of this in addition to discharging his more general obligations to the civilian population. When the other work consequent on the incidence of the war requires to be done, the present system can, if necessary, be applied with any required modification.—I am, etc.,

January 1st.

Y.

THE TREATMENT OF TRAUMATIC PARAPLEGIA.

SIR.—The article in your issue of December 29th, 1917, upon "The treatment of paraplegia from gunshot or other injuries of the spinal cord," calls for serious criticism. Colonel Mayo-Robson asks: "If we can by operative means remedy paralysis due to nerve destruction by transplanting new nerve tissue or part of the spinal cord of one of the lower animals, as I proved possible some years ago, why should we not be able to obtain return of function in a damaged spinal cord by excising the injured section and transplanting into the gap thus made a portion of the spinal cord of a recently killed rabbit, or perhaps better, of a sheep or calf?" The cases quoted of restoration of function by grafting¹ refer to injuries of peripheral nerves, which differ in at least one essential respect even from the medullated fibres of the spinal cord, namely, in possessing a neurilemma sheath. This sheath plays a critical and apparently indispensable part in regeneration. Further, the structure and function of a peripheral nerve are infinitely less complex than those of the spinal cord.

The case against the experimental operation suggested by Colonel Mayo-Robson rests upon definite experimental facts. The whole question of the possibility of regeneration of the spinal cord, together with many references to the literature on the subject, is discussed in Schüter's *Textbook of Physiology*, 1900, p. 878. Therein it will be found that no evidence of the possibility of regeneration of the spinal cord has been found by experiments upon animals higher in the scale than *Lacerta viridis*.

The account of the two cases quoted by Colonel Mayo-Robson as encouraging the belief that regeneration might occur, is so lacking in detail as to be quite unconvincing. The danger that the proposed operation may be carried out is intensified by two facts—first, that it is suggested by a surgeon of such high standing, and secondly, that patients with recoverable, or partly recoverable, lesions, disheartened by the slowness of their progress and the apparent hopelessness of their condition, may be, as Colonel Mayo-Robson says, "willing to undergo operation even if it gives the barest possibility of success." It is true that Colonel Mayo-Robson specifies that only the hopeless cases should be thus operated upon, but the single case which he cites as having so far been submitted to operation was one of incomplete division of the cord. Further, the diagnosis between incomplete and complete lesions, more especially in the earlier weeks or even months, before the urinary tract has become irremediably infected, is still often a matter of great difficulty. At the present time there exists neither experimental nor clinical evidence that an operation of grafting upon the spinal cord does offer even the remotest possibility of

¹ BRITISH MEDICAL JOURNAL, September 15th, 1896, and October 31st, 1896.

success, and it seems cruel to hold out to these unfortunate patients any hope whatever that, by submitting to a severe operation, by no means intrinsically devoid of danger, their condition may be benefited.—I am, etc.,

London, W., Jan. 2nd.

PERCY SARGENT.

PRIMARY EXCISION OF GUNSHOT WOUNDS OF THE ELBOW-JOINT.

SIR,—I was particularly glad to see the letters you have recently published on this subject from Messrs. Mansell Moullin and Swan, because, having in the earlier stages of the war to undertake secondary excisions of some difficulty for such cases in a late stage after they had gone through the often serious septic period, I urged in a lecture delivered at Guy's in April, 1916, and subsequently published, a wider application of primary excision. Undoubtedly primary excision was at that time being practised by some surgeons both for the elbow and shoulder, and I have since had occasion to know that the utility of these operations is generally recognized at casualty clearing stations. But I do not think I am quite in agreement with Mr. Swan as to his use of the term primary, and I gather from his letter that Mr. Mansell Moullin shares my view when he urges that these operations should be undertaken, as they often are, at casualty clearing stations. As Mr. Swan very rightly points out, excision at the base gains for the patient very definite advantages, not the least of which is the "control of sepsis," but my contention would be that a primary excision undertaken at a casualty clearing station within a few hours of infliction of the wound should be one of the means by which sepsis is inhibited and the patient is spared a long septic convalescence, possibly several operations for the removal of sequestra, and the formation of a firm mass of scar tissue around the joint which makes a secondary excision a much more formidable proceeding. In all of Mr. Swan's cases quoted in the *Proceedings of the Royal Society of Medicine*, May, 1917, septic infection was already present, and I venture to think that they cannot therefore be regarded as instances of the value of "primary" excision. Those who have been working at casualty clearing stations for two or three years without opportunities of correcting or confirming their opinions and practices by the knowledge of what is the ultimate judgement on them by those working at the base exhibit a very keen and laudable spirit of inquiry as to the end results of such and many other common casualty clearing station operations, and, as I know from recent personal experience, receive suggestions or criticisms in the most friendly manner; this is only one of many subjects on which the judgement of those who have wide experience at home would be heartily appreciated by surgeons who have only casualty clearing station experience to guide them.

If it were possible to improve most of the surgery done at casualty clearing stations it would be by the wider dissemination amongst the surgical specialists working there of the end results of war surgery.

I find that I have notes of seven cases of primary excision of the shoulder or elbow carried out at the time when the wounds were as far as possible completely excised, and foreign bodies, if present, removed; the chief indication seems to have been involvement of the articular surface with comminution, and on the extent of comminution must depend the amount of bone removed. As far as I can judge, there is a greater probability of restriction of normal movement by bone reformation, particularly in the elbow, than that too free removal of bone will result in a flail joint. If the injury was limited to the bones of the forearm, the humerus was left intact, and similarly, whenever possible, the radius and ulna were spared and the cut end of the humerus allowed to rest above the greater sigmoid cavity of the ulna. As my cases were usually able to be sent to the base within twenty-four hours, I have no knowledge of the end results, and it is chiefly in the hope that I may learn something from those into whose hands they have passed—particularly if the results have been imperfect—that I am now writing.—I am, etc.,

London, W., Dec. 13th, 1917.

C. H. FAGGE.

SIR.—Major Hey Groves has, no doubt inadvertently, misrepresented what I wrote upon this subject. I have never advocated "primary excision of the elbow-joint in

the presence of virulent sepsis." On the contrary, I deprecate most strongly any attempt at such a proceeding. It can only end in disaster. It is too late then, and there is nothing for it but to wait. But if, before this stage has been reached, while the infection has not yet spread into the soft tissues beyond the possibility of excision, the whole cavity is laid open, all damaged tissue and broken fragments of bone removed, and with them so much of the ends of the bones as will secure a sufficiently firm fibrous joint, much pain and suffering can be saved, and the arm will regain its full use in a far shorter time than under the present method of conservative treatment.—I am, etc.,

London, W., Dec. 23rd, 1917.

C. MANSELL MOULLIN.

"PAINLESS CHILDBIRTH."

SIR,—The discussion of scopolamine-morphine narcosis in childbirth reported in your issue of December 15th involves questions of such national and even world-wide importance that an attempt at an elucidatory summary of the facts stated and a few comments thereon may possibly be of interest to your readers. I propose to allude to the five reports in the numerical order in which they are printed.

The reports do not state whether there was any selection of the cases; it may be presumed, however, that narcosis would not be adopted in cases already autotoxic from albuminuria, etc., and the patients were therefore in a certain measure selected.

The narcosis would seem to have been fairly equal in all, complete amnesia varying from 46.2 to 55.0 per cent.; hence the resulting phenomena might be expected to correspond very closely in the different sets of observations; this, however, is not the case; they vary very widely, and in some respects contradictorily. The details are variously summarized, making comparison difficult.

The narcosis, for example, is reported by No. 5 as being accompanied by excitement in 35 per cent., with maniacal excitement in a few. No. 4 says there was restlessness in 50 per cent., but no active delirium. The rest are silent on the subject of delirium. Again, in regard to involuntary muscular action, No. 1 reports of the first stage "there is sometimes entire cessation," the second is "markedly prolonged," and the third also prolonged. No. 2 reports "diminution in first stage for an hour or two, afterwards normal." No. 3 summarizes "marked delay in labour." No. 5 records "marked delay in labour, and on the contrary No. 4 states that labour did not seem so prolonged after the first injection; "any prolongation occurred before the injection." Of voluntary bearing down No. 1 reports "lack of, especially in primiparae"; No. 5, "as a rule subnormal, absent in 10 per cent."; No. 2, "present in 68 per cent."

Abnormal labours were reported by No. 1 as being in large proportion, Nos. 2, 3, 4 make no comment, and No. 5 remarks that there was an increased failure of occipito-posterior positions to undergo spontaneous rotation attributable to the lack of bearing-down efforts.

Instrumental relief was reported by No. 1 in 45 per cent.; is not stated in No. 2; No. 3 says was required in second stage owing to absence of strong expulsive efforts; No. 4 reports its use in 17.9 per cent. but as not being due to the effects of the drug. No. 5 reports an increase and "relatively difficult," owing to failure of bearing-down efforts. Ruptured perineum is recorded by No. 5 only, as being greatly in excess, due to difficulty in controlling the patient. Retention of urine was mentioned in one report only as occurring in 10 per cent.

The effects on the child seem to consist in very frequent difficulty in starting respiration, often with blueness and limpness, and it seems probable, as the President remarked, that the mortality was increased.

It would be of interest to compare these results with those of delivery in ordinary alcoholic narcosis; there must be ample material to make such a comparison, since a country midwife recently stated that it was customary on her arrival at a case in her district to be presented with a bottle of brandy and another of whisky, being asked to choose which she would take herself and which she would give to her patient. Since humanity is more or less tolerant of alcohol its use would probably be better borne than the drug in question and the patient would have the advantage, as in the example quoted, of enjoying her favourite form of alcoholic narcotic.

The view that narcosis prolongs labour, and that it would be still more prolonged but for instrumental interference, is largely admitted in these reports, and the acknowledged condition of the child at birth makes it probable that this might determine a fatal result in weakly or premature infants. This makes it very urgent that the registration of stillbirths should become a part of our law at the earliest possible date, with a proviso that the fact of birth under narcosis should be stated in the certificate, so that an inquest might be held if necessary.

I sincerely hope that all societies engaged in the effort to reduce infant mortality will direct their attention to this procedure, which threatens to assume very large proportions, and may still further lessen our diminishing birth-rate.—I am, etc.,

London, N.W., Dec. 22nd, 1917.

HENRY RAYNER, M.D.

COMPRESSED MOSS DRESSINGS.

SIR,—Will you permit me to draw the attention of surgeons who are using sphagnum moss in military hospitals to the compressed form of moss dressings? Owing to their small bulk there is saving of cubic space in transport, also economy in use of packing materials. They are very carefully sublimated and otherwise prepared by workers who have had some years' experience. Before use the compressed dressing has to be expanded by soaking in lotion, but this is a very simple proceeding, and full directions are sent along with the dressings.

The workshops making these dressings are capable of turning out considerably more than they are at present asked to do, and as this form of dressing may not be so well known as the other forms, samples of compressed dressings, which are made in standard sizes, will be forwarded on application to the D.G.V.O., Scotland House, New Scotland Yard, London.—I am, etc.,

CHARLES W. CATHCART,

Lieut.-Colonel R.A.M.C.(T.).

Edinburgh War Dressings Supply,
37, Palmerston Place, Edinburgh, Dec. 27th, 1917.

WAR NEPHRITIS.

SIR,—I have read with interest the articles on war nephritis by Sir Thomas Oliver, and Captains Dunn and McNee. The last-named writers state that cases of war nephritis "with copious haematuria have certain features in common." This has also been our experience. Observations have been made on sixty such cases, and the history in the great majority is so similar that one cannot think it a mere coincidence.

Regimental medical officers are familiar with trench fever. All know how often painful shins occur either with or after the attack. How often one has to send men to hospital just because of this troublesome shin pain!

In hospital these patients are frequently seen. They sit up at night rubbing their shins—sleep is difficult, often impossible. On examining the shins in well-marked cases, wasting sensory changes are found. The recovery in most is slow, in others the following may complicate matters:

(1) Systematic examination of the urine in these cases shows that the urine is turbid. Pus cells may be present, and casts of a granular nature are not infrequent.

(2) A sudden pyrexia followed by haematuria.

(3) A definite nephritis with oedema (usually slight in these cases) but always showing a tendency to another pyrexial attack with haematuria. This may follow either (1) or (2).

This sequence of events may be purely accidental or otherwise indicative. One has seen trench fever in the line—seen painful shins follow it, sent the men to hospital, and learnt afterwards that in some nephritis followed. In hospital this war nephritis (haematuric variety) supervenes in these shin cases, and amongst all the diseased conditions in a medical division one has rarely seen it follow anything else. One has come to regard the sequence as a clinical group.

The suggestion is made on clinical grounds that these cases of painful shins (neuritic) and many cases of war

nephritis (haematuric) are complications of trench fever; the suggestion is worth consideration.—I am, etc.,

December 12th, 1917.

ALEX. WM. HENDRY,
Captain R.A.M.C.

THE FOOD REQUIREMENTS OF THE SEDENTARY WORKER.

SIR,—Your estimate of the sufficiency of food is based entirely on the number of calories the food contains, and, as far as I know, every other estimate published is calculated by the same standard. I submit that this basis is insufficient, is grievously insufficient, and may be very fallacious.

In the first place, it omits altogether the necessity of vitamins. The amount of certain vitamins that is necessary for the maintenance of health has been calculated, and works out at about $2\frac{1}{2}$ grains (not grams) per day for a man of 11 st. The value in calories of these $2\frac{1}{2}$ grains is altogether neglectable, but they are of vital necessity in the diet. How then can a diet that is estimated in calories alone be pronounced sufficient? It may contain a superabundance of calories, and yet be gravely and even fatally insufficient.

Your scale was calculated for sedentary workers, but it took no account whatever of the character of the work done by the sedentary worker, and I submit that a diet scale that takes no account of the character of the work is as inefficient as one that takes no account of the quantity of the work. Different quantities of work require different diets, it is true; but different kinds of work also require different diets. At any rate, when we are calculating a minimal diet, it is surely of importance to take into account the kind of work as well as the quantity of the work.

I have shown by a demonstration admitted by you to be valid, that a certain minimum of protein is necessary to mental efficiency. Mental exertion of minimal amount utilizes and requires a certain minimum of protein. If this is so, is it not extremely likely that mental exertion beyond the minimum requires an amount of protein beyond the minimum? Is it not likely that what is true *simpliciter* is true *secundum majus et minus* also? Your calculations are made with respect to sedentary workers, as if the output of muscular exertion were all that need be taken into account; but sedentary workers may be employed on work, such as copying or typewriting, that is almost wholly automatic, and requires the minimum of mental exertion; or they may be employed in working out problems of the utmost intricacy and difficulty, involving great and prolonged mental exertion. Is it to be assumed as a matter of course that the diet scale of these two kinds of workers must be the same, and ought to be the same? Is it not almost certain that they ought to be different? I submit that when the number of calories has been estimated the task of composing a diet scale is not completed—it is only begun. Even in the matter of calories alone, is no distinction to be made between one sedentary worker and another? Is the Home Office official, who works, beside a roaring fire in a double-windowed, turkey-carpeted, tobacco-atmosphered lounge, at the problem of the number of calories he requires in his food, to be placed on the same allowance as the man who works, insufficiently clad, in a draughty shed, at some unintellectual sedentary occupation such as may fall to the lot of any of us any day—such, for instance, as picking oakum? Sir, if you will take your place, voluntarily or involuntarily, in the latter situation, I think you will feel the necessity of different diet scales for different sedentary workers.—I am, etc.,

Parkstone, Dorset, Dec. 23rd, 1917.

CHAS. MERCIER.

* * * We publish elsewhere (p. 25) a note on the points raised in this letter, and a further discussion of the general subject in a leading article on the logic of the food position.

FUND IN AID OF DR. J. F. C. MEYLER OF DUBLIN.

SIR,—In the JOURNAL of October 13th, 1917 (p. 497), you were good enough to give publicity to the appeal which was made in this case, the result of which I am pleased to say has been quite satisfactory. I shall feel obliged if you will allow me, on behalf of the Committee, to thank the

subscribers, through your valuable medium, for their prompt and generous response.

My Committee are also greatly indebted to you for your kind assistance in the matter.—I am, etc.,

TREVOR N. SMITH,

Honorary Secretary, Meyler Fund.

8, Upper Fitzwilliam Street, Dublin,
Dec. 27th 1917.

Obituary.

WILLIAM DUNCAN, M.D., F.R.C.S.ENG.,

CONSULTING OBSTETRIC PHYSICIAN TO THE MIDDLESEX HOSPITAL.

We regret to record the death, at the age of 61, of Lieut.-Colonel William Duncan, formerly obstetric physician to the Middlesex Hospital, and senior physician to the Chelsea Hospital for Women. Dr. Duncan studied medicine at St. Thomas's Hospital, where he won various scholarships and prizes. He qualified L.S.A. in 1879, obtained the M.D. degree of the University of Brussels, with first class honours, in 1880, and the diplomas of M.R.C.P.Lond. and F.R.C.S.Eng. in 1883. After holding with distinction several house appointments at St. Thomas's Hospital, and a prosectorship at the Royal College of Surgeons, for which he was awarded a first class certificate of honour, he was appointed lecturer in practical midwifery at the Middlesex Hospital, and assistant physician to the Chelsea Hospital for Women. In later years, as he rose to the senior post at each of these two institutions, he acted as examiner in midwifery and the diseases of women at the English Conjoint Board, the University of Glasgow, the Victoria University of Manchester, and the Apothecaries' Society. While resident accoucheur at St. Thomas's Hospital in the early eighties he was responsible for three annual reports of the obstetrical department of that hospital, and he subsequently made various contributions to the literature of gynaecology and obstetrics. On his retirement from active practice Dr. Duncan was appointed to the consulting staffs of the Middlesex and Chelsea Hospitals. In 1909 his zeal on behalf of the volunteer movement was rewarded with the Territorial Decoration, and during the next five years he served as lieutenant-colonel commanding the Middlesex Yeomanry. He was a justice of the peace for the County of Bucks, and in 1908 held the office of sheriff.

Mr. VICTOR BONNEY writes:

I worked with and under the late William Duncan for many years, and should like to express my esteem for him. He was a genial and kind-hearted man, and generous and loyal to his colleagues and juniors. As an operator he was exceedingly conscientious, careful, and neat, and possessed in a high degree the qualities of tenacity and determination, so that though he never adopted the full gamut of modern aseptic technique, his cases did exceptionally well at a period when the mortality and morbidity of abdominal section were much greater than at present. Had his entire energies been applied to his professional work he would have accomplished far more than he did, but his conviction (now so fully proved right) that national defence was the first concern of all men led him to devote much of his time to voluntary military service. His long-time ambition was about to be realized, and as colonel of his yeomanry regiment he was just going to France when the incurable condition from which he died suddenly declared itself. Though he knew that death in sudden agony might come to him any minute, and could not be long delayed, an invalid, and in more or less constant pain and discomfort, he maintained the same steady fortitude and courage which I shall always remember as his chief characteristic in the operating theatre.

We are indebted to Mr. COMYNS BERKELEY for a personal memoir from which we take the following extracts:

Apart from his professional attainments, which were of a high order, William Duncan will be remembered most for his unswerving loyalty to his friends, and for the thoroughness with which he did everything that he took up. A St. Thomas's man, from the day he was appointed

to the staff of the Middlesex Hospital until the day of his death he was imbued with the spirit of Middlesex, and, while in its active service, he in every way identified himself so much with this institution that it may truly be said it never had a more devoted member. A large number of residents and students have had occasion to be grateful for the help he gave them.

Everything that Duncan seriously took up he did well at. In his early days he joined the Duke of Cambridge's Hussars as surgeon, but as this post gave him very little to do he changed into the combatant ranks, and at once set to work to make his troop the best in the regiment. When the South African war broke out, Major Duncan, as he then was, prepared at once to go out with a draft from his regiment. To his great disappointment his senior officer was sent out in charge. In due course Duncan rose to command the regiment, the name of which by this time had been changed to that of the Middlesex Yeomanry. This military side of his life is the best example, apart from his professional work, of the very thorough manner in which Duncan carried out anything he took up, but there were others. Made a Freemason comparatively late in life, nevertheless Duncan worked at the craft with such enthusiasm that in a few years he became, in virtue of his work, a Grand Officer, and there was none who knew the ritual better or could deliver it more impressively. He was a Founder of the Middlesex Hospital Lodge, the Middlesex Yeomanry Lodge, and the Middlesex Yeomanry Chapter.

Duncan was very fond of the country, and, for some years before he retired and after, he lived at Shenley and was very popular with the villagers and farmers in the neighbourhood. He was on the local Bench and founded a cricket and football club. Nothing gave him more pleasure than to invite teams down, and many an old Middlesex man will recall those very pleasant outings and the lavish hospitality dispensed by their host. He also kept a pack of harriers, and was very successful as their Master.

William Duncan, if not a brilliant, was at any rate a very fine operator. He paid the greatest attention to details, not neglecting to stop all oozing of blood because the hands of the clock would show that the operation had taken a few minutes longer, and handling all tissues with the greatest gentleness. His results were extremely good and his temperature charts were remarkably steady, in spite of the fact that he never followed the aseptic ritual to such a degree as commonly obtained in the latter years of his professional life.

LIEUT.-COLONEL JOHN ROCHE RAHILLY, R.A.M.C. (retired), died at Weston-super-Mare on December 26th, 1917, aged 73. He was educated in Dublin, took the L.R.C.S.I. and the L.R.C.P. Edin. in 1865, and entered the army as assistant surgeon on March 31st, 1868, becoming surgeon on March 1st, 1873, and surgeon-major on March 30th, 1880, and retiring on November 28th, 1888. While the regimental medical system was in force he was medical officer of the 21st Royal Scots Fusiliers.

SURGEON-MAJOR JOHN ROBB, Bombay Medical Service (retired), died at Aberdeen on December 20th, 1917, aged 74. He was educated at Aberdeen University, where he graduated M.B. and C.M. with honours in 1866, and M.D. in 1876. Entering the L.M.S. as assistant surgeon on October 1st, 1868, he became surgeon on July 1st, 1873, and surgeon-major on October 1st, 1880, retiring on November 2nd, 1889. From 1873 to 1882 he served as residency surgeon at Zanzibar, acting also from time to time as assistant political agent, and between 1882 and 1889 was civil surgeon at Aden, Surat, and Ahmedabad successively. He was the author of *A Medico-Topographical Account of Zanzibar*, published in 1889.

DR. EDOUARD DELANGLADE, professor in the Medical School of Marseilles, was killed recently by a shell while visiting a dressing station in Alsace. He studied medicine in Paris, where he was *interne*, and graduated in 1895 with a thesis on congenital luxation of the hip and its surgical treatment. He won a high position at Marseilles, where he was the leading surgeon.

Dr. FIEUX, *professeur agrégé* in the medical faculty of the University of Bordeaux, lost his life on December 9th as the result of an accident among the mountains near Grenoble, where he was in charge of a military hospital. He held the rank of *médecin-major*, 1^{re} classe, and his courage, devotion to the wounded, and operative skill won for him the Cross of the Legion of Honour. He was 49 years of age, and took his degree at Bordeaux in 1896. He was on the staff of the Bordeaux Maternity, and had a great reputation as an obstetrician and gynaecologist; he had also earned distinction as a biologist. He was one of the pioneers in the serum diagnosis of pregnancy.

Dr. FRANKLIN P. MALL, professor of anatomy in Johns Hopkins University, Baltimore, who died on November 17th, 1917, was born in Iowa in 1862, and graduated M.D. Michigan in 1883. He was appointed instructor in pathology at Johns Hopkins University in 1888. From 1889 to 1892 he was professor of vertebrate anatomy in Clark University, Worcester, Massachusetts; he next held the chair of anatomy in the University of Chicago, but in 1893 returned to Johns Hopkins as professor of the same subject. In 1915 he was appointed director of embryology in the Carnegie Institution at Washington. He was president of the Association of American Anatomists from 1905 to 1907.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

THE Senatus reported to the University Court on December 17th, 1917, that they had approved a recommendation of the Faculty of Medicine that a course on tuberculosis shall be obligatory in the medical curriculum as from October 1st, 1918, and that the course shall consist of lectures and practical instruction, open to final year students of the University. Principal Sir Alfred Ewing presided at a medical graduation ceremonial on December 19th. The candidates for degrees were presented by Professor Littlejohn, Dean of the Faculty of Medicine. Sir Alfred Ewing in the course of his address announced that 57 medical students had returned to their studies from service in the army, and 46 from service in the navy. The students of medicine attending the University now numbered 849, against 783 at the corresponding date last year; and of these 849 students 564 were men and 285 were women.

The following degrees were conferred:

M.D.—F. T. Bowerbank,* W. T. James, P. W. Lam, C. Robertson, W. E. J. Whitley.*

* Commended for thesis.

M.B., Ch.B.—G. Balsillie, A. O. L. Brownlee, D. Cook, A. C. C. Craig, Kshibendra Mohan Dey, J. W. C. Fairweather, D. T. P. Gay, R. N. Gibson, J. G. Gilruth, J. T. Godfrey, Elizabeth Harper, J. H. Kerr, V. St. C. Lucas, A. S. McKern, S. D. Nurse, W. G. F. Owen-Morris, J. E. Purves, E. G. Pyott, A. Robertson, Mary J. Rutherford, R. L. Stewart, J. A. Stirling, F. B. Sutherland, E. T. S. Taylor, P. F. V. Walsh, D. M. Young, J. W. van Zyl.

UNIVERSITY OF ABERDEEN.

THE following degrees were conferred on December 18th, 1917:

M.B., Ch.B.—J. B. Mutch, D. J. V. Pereira, H. Roger.

UNIVERSITY OF ST. ANDREWS.

THE following candidates have been approved at the examination indicated:

M.B., Ch.B.—Kathleen I. David, W. A. Fraser, Dora M. Walker.

UNIVERSITY OF DUBLIN.

THE following candidates have been approved at the examinations indicated:

FINAL M.B.—*Part II, Medical Jurisprudence and Hygiene; Materia Medica and Therapeutics; Pathology*: J. G. Holmes,* R. Resnecor,* J. J. G. de Kock,* J. C. J. Callanan,* H. B. Van der Merwe,* A. H. Thompson, J. F. Sheppard, V. G. Walker, C. D. Brink, Mary C. Sheppard, T. J. R. Warren, R. W. Shaw, C. J. Quinlan, A. Blagoff, C. H. Keller (Medical Jurisprudence and Hygiene, Materia Medica and Therapeutics).

* Passed on high marks.

FINAL M.B., B.Ch., B.A.O.—*Part II, Medicine*: Meta G. Jackson, S. A. Clark, F. W. P. Sullivan, W. Sweetnam, J. R. Brennan, C. P. Chambers, T. S. McDonald, J. B. Taylor. *Surgery*: H. L. Parker,* T. S. McDonald, J. M. Hill, W. V. Pellissier, P. A. Dormer, Margaret Wolfe, L. J. Nugent, D. S. Prentice,† Olive G. Blackburn, T. E. Hill. *Midwifery and Gynaecology*: T. S. McDonald, W. P. Elford, E. J. Lyndon, F. J. Dymoke, J. E. Jameson, W. V. Pellissier, E. E. Rollins, F. W. Godbey, E. S. E. Mack, L. J. Nugent, K. Greer, C. H. Keller.

* High marks. † To be examined in Pathology.

D.P.H. *Part I, Bacteriology, Pathology, Chemistry, Physics, and Meteorology*: R. B. Jackson.

Part II, Sanitary Engineering; Vital Statistics and Public Health; Hygiene and Epidemiology: R. B. Jackson, T. Kirkwood.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH. At the annual meeting of the College Professor William Russell was elected president, Dr. Freeland Barbour vice-president, Dr. Norman Walker treasurer, Dr. H. Dingwall-Fordyce secretary, and Dr. H. Graham curator of the Research Laboratory.

Medical News.

A BROTHERHOOD of comrades-in-arms has been formed among the Austrian military doctors.

WITH the object of promoting the study of tropical medicine in Nicaragua a medical association of the Atlantic seaboard of that republic has been founded at Bluefields.

THE American Ambassador in Rome was authorized some time ago to draw on the Red Cross for any amount up to £50,000 to be applied to relief work in Italy. On November 11th a further sum of £50,000 was appropriated to meet emergency expenses arising from the recent reverses of the Italian army.

KING GEORGE'S Fund for Sailors now amounts to £263,000, and the Council has made a distribution of £55,000 to various marine benevolent institutions, including £5,000 to the Grand Fleet fund for the relief of immediate distress among men of the Royal Navy, their widows and dependants.

THE schedule to the Poison and Pharmacy Acts, 1908, has recently been amended by the transfer of the following substances from Part 2 to Part 1: "Diethyl-barbituric acid, and other alkyl, aryl, or metallic derivatives of barbituric acid, whether described as veronal, propanal, medinal, or by any other trade name, mark, or designation; and all poisonous urethanes and ureides."

THE book on *The Organization and Methods of the Military Orthopaedic Hospital*, Shepherd's Bush, can be obtained (price 2s.; post free 2s. 3d.) on application to the officer in charge of the hospital, Ducane Road, Shepherd's Bush, London, W.12. It is not supplied direct from the printers.

THE Committee of the French Surgical Association has decided that the annual congress, which has been in abeyance since the beginning of the war, shall be held in 1918, at a date to be fixed later. The meeting will be exclusively devoted to questions of war surgery. Communications should be addressed to the General Secretary, Dr. J. L. Faure, 10, rue de Seine, Paris.

THE Japanese Ambassador in Rome has handed to the Prime Minister of Italy the sum of £62,258 to be applied for the benefit of wounded soldiers and refugees from the invaded provinces. The money was collected by a Japanese society of which the head is Prince Tokingawa, President of the Chamber of Peers, and among the promoters of the movement was the Japanese Primo Minister.

THE authorities in Berlin have decreed that on the door-plates of doctors called up by the army particulars shall be given as to the address and consultation hours of their substitutes. The army doctor who is still able to attend to some of his civilian practice must state on which days he may be consulted. These regulations have been necessitated by the many complaints of time lost in applications for urgent medical attendance from medical men found to be absent on war work.

THE Board of Education announces that the Science Museum, South Kensington, was reopened to the public on January 1st. The museum has been closed to the public for nearly two years; it has, however, been open without interruption for students. The greater part of the museum will be open free on every week day from 10 a.m. to 5 p.m. and on Sundays from 2.30 p.m. to 5 p.m. Almost simultaneously comes the announcement that the Government has decided to commandeer the British Museum for the offices of the Air Ministry, and has maintained its decision in spite of the unanimous protest of the trustees.

A MEETING of the Royal Sanitary Institute will be held on January 11th and 12th in the Town Hall, Chester, under the chairmanship of Professor A. Bostock Hill, M.D. On Friday, January 11th, at 7 p.m., Dr. Naylor Barlow (M.O.H. Wallasey) will open a discussion on the present position with regard to venereal diseases and the sufficiency of the methods now available for combating them. On Saturday, January 12th, Dr. Meredith Young (county M.O.H. Cheshire) will open a discussion on "Activated Sludge." Those wishing to take part in the discussions can obtain a copy of the papers to be read on application to the Secretary of the Institute, 90, Buckingham Palace Road, S.W.

Letters, Notes, and Answers.

Authors desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are:

1. EDITOR of the *BRITISH MEDICAL JOURNAL*, *Ailology*, Westrand, London; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC

EASY STARTING OF MOTOR CAR.

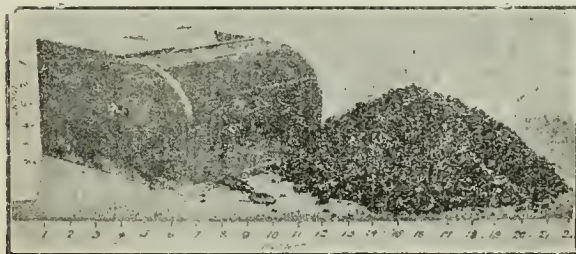
DR. J. CRYER (Manchester) writes: Any medical man who has an ordinary gas jet in his garage, attaches 6 ft. of flexible tubing, and inserts it into the air inlet of the carburettor, will find starting on a cold morning reduced to simplicity itself.

SUPPURATING THYMUS.

DR. ARTHUR J. MATHISON (Hornsey) writes that he made a *post-mortem* examination on a female infant four months old on November 28th and found a suppurating thymus, which he thinks is a very rare condition. Probably suffocation was produced gradually, as both lungs were congested.

THE JAPANESE FLY TRAP.

CAPTAIN N. S. GILCHRIST, R.A.M.C., writes: The enclosed photograph of the now famous "Japanese fly trap" may interest readers of the *BRITISH MEDICAL JOURNAL*. Out here in Egypt we can find nothing to equal it, and the heap of flies beside it represents about a week's work at a time of the year when flies in camp were comparatively few. It is quite a simple machine of two main parts, the wire-gauze cage (detachable) and the machine to catch the flies, which consists of a revolving wooden drum, driven by clockwork. The



keyhole is visible. All the trap is of dark wood varnished, except the rollers, which should be white, as the fly is at once attracted by the shiny surface. All the trap should be scrupulously clean except the rollers, which are baited with any sort of sweet filth attractive to flies; milk and sugar acts well, or watered molasses or treacle, and so does egg, blood, etc., only these are apt to dry hard, and retard the action of the clock. The fly sitting on the slowly-revolving drum is carried into the bottom of the box, which is dark; but he sees a gleam of light leading from the wire cage, and makes a rush for it. He never finds his way out again. The trap is excellent in every way, and is a Japanese patent.

TRENCH FEVER AND THE NOTIFICATION OF INFLUENZA.

TRO RONO PUBLICO writes: In view of the possibility of a new "infectious" disease in the guise of trench fever becoming prevalent in this country, would it not be an advantage to have, for the duration of the war, all cases of so-called influenza notified? Not only would treatment in an isolation hospital help to reduce the number of cases rendered unfit or practically incapacitated, but it would give opportunity for the search for the causal factor. Most isolation hospitals have sufficient laboratory accommodation for carrying out the necessary investigations, and the best results would probably be had from cases removed from houses where members of the household have returned from active service, and where there is the possibility of vermin transmission.

MEDICAL OFFICERS AND OFFICE WORK.

SUBURBAN MEDICO, while recognizing that there is a prospect of reforms being made which will obviate the complaints of lack of work from temporary officers of the R.A.M.C., writes to point out that at the present time, in every medical unit, at least one officer is practically fully occupied with the work that in the infantry falls to the company officer and adjutant—that is, courts-martial, orderly room, censoring of letters,

paying the men, inspection of kit and quarters, and the numberless office duties. The work, he thinks, could be done by a combatant officer, unfitted for further active service by wounds or disease, attached to each medical unit.

CIVIL SURGEONS IN MILITARY HOSPITALS.

C. S. writes to draw attention to the case of civil surgeons engaged in whole-time work at military hospitals who volunteered for commissions early in the war, and having been rejected as totally unfit even for home service, gave up their appointments or practices about two years ago in order to release fit men for service abroad. They were put to full work, he says, including night duty and the meeting of ambulance trains at various terminuses at all hours of the day and night. Commissions have not been given to these medical men, and they can be dismissed or go voluntarily at a day's notice. The War Office takes no responsibility for their health; if they fall ill, their pay stops whilst they are off duty; it is even a matter of some difficulty to get them into their own hospitals when sick, and while in hospital they are charged 6s. a day. As they wear no uniform, not even a badge, few people know they are serving their country. They are entitled to no gratuity, however long they have served, and they get no facilities for travelling by rail such as their commissioned colleagues do. Our correspondent submits that such civil surgeons are entitled to some official recognition and a little more generous and considerate treatment.

THE PENETRATING POWER OF A BRITISH BULLET.

DR. W. MILNER BURGESS (Frinton-on-Sea) writes: Whilst acting as resident medical officer I was called to a soldier in a billet (second floor) who, whilst cleaning his rifle, without knowing that a live cartridge was in the breech, shot himself through the anterior surface of the left femur, between the middle and lower third, causing a compound comminuted fracture (a splinter of bone being picked off the floor; the bullet passed out through the popliteal space, causing free bleeding, the man being blanched, but the posterior tibial could be felt at the inner ankle. He was removed to hospital and did well. The bullet next passed through the second floor and the ceiling of the first floor, wounding a man on the right wrist, dorsal aspect, superficially from the ulnar to the radial side; passed through the first floor and ceiling of the ground floor, missing a man's head; and struck the hearthstone, ricocheting and burying itself in the ground floor.

PHTHISIS AND CANCER IN A RURAL DISTRICT.

"M.D." sends us notes on an examination he has made of the statistics on phthisis and cancer in a parish in the south of Scotland for the period from 1880 to the present year. The parish is purely agricultural, the industry of stocking weaving at one time carried on being now extinct. The population of the parish was 1,015 in 1891, 939 in 1901, and 865 in 1911. The following figures, showing the deaths from the two diseases in the periods mentioned, may be of interest for the purpose of comparison:

Period.	Pulmonary Tuberculosis.					Cancer				
	No. of Deaths.	M.	F.	Average Age at Death.		No. of Deaths.	M.	F.	Average Age at Death.	
1880—1890 ...	44	13	31	M. 31	F. 29	5	2	3	M. 67.6	F. 65.4
1890—1900 ...	26	9	17	34	29	13	6	7	70	69
1900—1910 ...	16	8	8	35	27	8	4	4	61.6	72
1910—1917 ...	10	3	7	34	26	6	1	5	74	51.2
Totals ...	96	33	63			32	13	19		

The statistics are typical of what we are accustomed to see during the past four decades—namely, a large reduction in the number of deaths from tuberculosis (pulmonary in this instance, with one or two cases of tuberculous meningitis and peritonitis), and a slight increase in the number from cancer. The average age at death is typical of the two diseases, and the preponderance in the number of female cases is striking, also the greater age of the male cases.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restant* letters addressed either in initials or numbers.

An Address

ON

THE ORTHOPAEDIC OUTLOOK IN
MILITARY SURGERY.

BY

COLONEL SIR ROBERT JONES, C.B., C.M.,

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

THE subject of this address is sufficiently comprehensive to fill a large volume, and I can only touch, and that very lightly, upon certain problems of interest. I shall, however, try to explain the orthopaedic mind in its dealings with surgical problems, and refrain from any discussion of the more abstruse principles.

A knowledge of the best way to correct deformities and restore function should involve a knowledge of preventive methods. The pathetic side of an orthopaedic centre is the collection of physical disabilities which should never have been. The inspiring fact is that in our experience hardly a case is found to whom we cannot offer help. In the early stages of the war we dealt exclusively with corrective orthopaedics. Now that we have convoys sent directly over to us we are becoming more and more profitably engaged on the preventive side.

One point which has impressed all who are seeing end results is the necessity that we should work in much closer association with surgeons abroad than we do at present. In this way we could approach problems from their point of view, and they would learn also of the later phases of their cases. It would strengthen judgement on both sides, and clarify and standardize treatment. Consultants on both sides of the Channel would find it a welcome relief to share each others' burdens. Such important questions as the primary excision of joints and fractures of the femur, and many others, require the closest consideration which can best be made productive by such co-operation.

From its original meaning the term "orthopaedic" would seem to have little application to military surgery. We know, however, that orthopaedic surgery in civil practice has long ago burst the bonds of its etymology. It has enlarged its borders chiefly in two directions—the operative and the educational. The aim of the orthopaedic surgeon is to restore functional use to disabled limbs. He has not merely to correct a distorted limb, but to help it to perform its function. A straight limb may be ineffective functionally, while a crooked one, under appropriate after-care, may be made extremely useful.

Orthopaedic surgery has enlarged its borders on the operative side by reason of the advances made in pathological, anatomical, and physiological knowledge, which have rendered it possible to perform operations leading to the restoration of physical function which, years ago, could not be considered. It has enlarged its borders in the educational direction by taking advantage of modern methods of restoring the function of the locomotor system by electrotherapy, massage, and wisely directed voluntary exercise. There is no definite operation which is essentially orthopaedic; there is no special appliance or apparatus which is the peculiar mark of the orthopaedic surgeon. A surgeon is judged good or bad from the orthopaedic standpoint by the results of his efforts to correct physical disability. Orthopaedic surgery is based on, and consists of, the recognition and practice of definite principles of treatment—whether operative, manipulative, or educational—which lead to the restoration of function in deformed or disabled limbs or muscles.

The orthopaedic mind thinks in terms of function. It has to deal with a pre-operative and a post-operative stage. The operative stage, although it may be essential, has only its proportionate value. For this reason, orthopaedic operations which are necessary preliminaries to re-education of function include the correction of gross deformities, the reconstruction of joints, grafting operations on bones, muscles, and tendons, and the repair of injured nerves. They include the maintenance of joints and limbs in proper position in order that injured tissues may recover functional efficiency. This is preventive. They involve also the correction of faulty positions of

joints by manipulations most carefully conducted by splint or by graduated support. They should also include the prevention of those pathological displacements of joints which are found too often in our wards.

It behoves surgeons generally to expand their knowledge of the principles which guide us in orthopaedics, in order to lessen the necessity, or shorten the period of disability. The early wound treatment would include certain methods which involve an efficient fixation of the limb in the position best suited for usefulness.

In these days of operative exploits it is not easy to find the mind which will be sufficiently patient to undergo a training in the slow methods involved in this special kind of work. I deplore the loss of a number of young men who have failed to resist the lure of the abdomen, and who are now hopelessly lost in that productive cavity. They are badly wanted, but very difficult to deliver.

The orthopaedic surgeon must be tenacious, hopeful, enthusiastic, and very, very patient: or he fails to supply that psychological element which inspires his patient through the mouths of weary waiting so often needed before any results of treatment are apparent.

The conditions which, taken together, create an orthopaedic case may be classed roughly under the following heads:

1. The mechanical injury to bone, joint, muscle, or nerve.
2. The atrophy and disease of these structures primarily due to the injury.
3. Inco-ordination of movement due to disease of the brain—a result of atrophy and disease of peripheral structures.
4. Psychological conditions which can be overcome by re-educational processes.

The fact that about 50 per cent. of the wounded of this war have received injuries resulting in impairment of locomotor function and usefulness of limbs has brought the importance of orthopaedic principles and methods of treatment into a prominence which no one had foreseen.

The number of wounded men is so great that they form an economic problem, not only for the present but for the future. The problem for the present is how most rapidly to make the wounded man fit for military service; or, failing fitness for military service, how are we to make him become an independent self-supporting citizen and not a crippled dependant? The problem of the future is how the partially disabled man is to be kept as fit as possible after he has left the army. This last problem is for the Ministry of Pensions to solve, and a more momentous problem, fraught with so many possibilities of success or failure, has rarely existed. There should be no gap in continuity of treatment when the soldier leaves the army and becomes the care of the Pensions Ministry.

HOSPITALS AND ACCOMMODATION.

In the early stages of the war the sudden influx of large numbers of wounded men demanded a sudden expansion of hospital accommodation. At this time also the terrible sepsis of wounds from the battlefields of France presented a difficulty for which surgeons had not been prepared by previous experience. The severe septic injuries from which the men were suffering took a long time to heal, and the wounded from other big battles began to crowd into this country faster than the hospitals could be cleared by the normal discharge of patients fully cured of their disabilities.

The pressure on accommodation was such that from time to time various orders were issued for the discharge from the army of men who would not be fit for active service within a specified number of months. The result of this was that men were discharged from the army and from hospital as soon as their wounds were healed and their general condition allowed them to leave, but they were not cured of their physical disabilities. Consequently, the civilian population was steadily becoming more and more burdened with wounded men not fit to earn their living, and not likely to become fit until they had some further surgical treatment.

This was a state of affairs which presented grave dangers from the economic standpoint. As the end of the war began to seem more remote than at first thought probable, it became clear that this hasty discharge of wounded men must cease—not only from the point of view of national economy, but also from the point of view of military conservation of man power. There was no Pensions Ministry at this time to supplement treatment,

and the Statutory Committee never found its legs, so the responsibility again fell upon the shoulders of the War Office and room had to be found for the readmission of these discharged men. They included cases of mal-united fractures, which required operative treatment; un-united fractures, many of which required bone grafting; old cases of nerve injuries requiring suture, and innumerable cases of stiff fingers, ankylosed joints, and contractures due to scars following septic wounds.

It was at this stage that Sir Alfred Keogh instructed me to start the first orthopaedic centre in Liverpool, with a view of concentrating under one roof a staff trained in orthopaedic principles and an equipment which could provide for all the stages of treatment necessary for the restoration of function. This enabled other hospitals to evacuate some of their worst and more tedious cases, and make room for more recent ones. We started in Liverpool with 250 beds, and we have now sixteen centres in the British Isles containing close upon 15,000 of our wounded. Of the men treated in these centres 75 per cent. have been returned to the army.

WHAT IS AN ORTHOPAEDIC CENTRE?

An orthopaedic centre consists of:

1. A staff of surgeons who have had previous experience of the detail of orthopaedic work, both operative, manipulative, and educational. They plan the complete course of treatment.

2. Men with experience in operative surgery who, though not specializing in the work, are interested in it, and only need experience to fit them to take charge of wards in new centres as they are formed. We are always glad to hear of such men.

3. Still younger men who will ultimately go abroad. I cannot too strongly state the advantages which orthopaedic centres offer for the training of young men about to leave our shores. These centres might be made much more educational than at present with the greatest benefit to all concerned.

4. The hospital further consists of a series of auxiliary departments, each under a medical man who has experience of the particular methods of the treatment he directs. These departments are the electric, the massage, the hydrological, the gymnastic, and the curative workshops.

The successful working of an orthopaedic centre depends upon the coherent association of all departments in carrying out the plan of campaign mapped out by the surgeon when he sees the case.

Workshops.

Workshops have proved of considerable value in orthopaedic centres. They act directly and indirectly on the welfare and recovery of the patient. They act directly as a curative agent when the work done gives exercise to the injured limb, and can therefore be employed as agents in restoring co-ordinate movements. Equally valuable is the indirect effect of being put to useful work.

Discipline, however, was for long a difficulty. In orthopaedic hospitals a very large number of men can get about, and concerts, card-playing, and smoking soon cease to be interesting occupations for a man who is well in health except for a twisted hand, a disabled shoulder, or other disability. Some occupation was necessary, and the only one which presented itself was breaking rules and the mild excitement of coming before the commanding officer and the joy of having a grievance to grumble about. It is in this connexion that the curative workshop comes most actively into play.

Workshops are being instituted in every centre as part of the psycho-therapeutic treatment as well as for the purpose of re-educating injured limbs. Splint shops exist for making all the splints required by the hospital, carpenters' shops for making things needed in the hospitals, such as gymnastic plant, racks for x-ray negatives, and all the endless repairs and alterations required in a big and growing institution. Boot shops are required for making special boots and repairing those that are worn out, and electrical fitting shops for making and repairing apparatus required in the electrical department as well as keeping the ordinary light installation in order. To these manual occupations are added others, such as clerk orderlies

to the medical officers to help in keeping records of cases, the proper filing of x-ray photographs, and so forth. In all this a point of great psychological value is that the work is productive and useful, it is work that has to be done by somebody, and the wounded man feels that if he does it at all it is worth doing well.

In prescribing curative work in the workshops—that is, work directly exercising the disabled limb—care has to be taken not to fatigue it and so impede recovery. At first every man was told to use his injured limb, but once the fact was recognized that over-fatigue might result and that the indirect use of the limb was giving better results, the workshop became more curative. In such cases the necessary amount of exercise of the disabled limb is carried out daily in one of the special departments, and later in the gymnasium.

In all these arrangements for employing a patient the value of his work as a producer is secondary. The important point is that the work shall be curative of his physical disability, and especially keep him from becoming an incurable idler.

For the initiation and equipment of all these shops and departments we are deeply indebted to King Manuel, while the generous help of the British Red Cross Society has been of inestimable value. Means of getting to work quickly were promptly forthcoming, and the success of the first schemes at once led to the supply of means for expansion and development.

THE SURGICAL SIDE OF THE WORK.

In the earlier stages the work of our orthopaedic staff included the rectifying of many deformities which might have been avoided; to-day these are becoming fewer as the fundamental principles of treatment of deformity are being earlier applied. The successful anticipation and prevention of pestilences is the most conspicuously successful feature of our medical services. A similar anticipation and prevention of deformity and disability as the result of wounds has not yet been achieved, and only when it has will the number of cases we now call orthopaedic be lessened.

THE CAUSES OF DEFORMITY.

If the number of cripples and of cases of deformity is to be reduced we must examine into the causes of deformity and the difficulties which the surgeons in the field have to overcome. Thanks to the united efforts of pathologists, bacteriologists, and other workers, a partial victory has been won over sepsis, and now that the fear of death from sepsis is lessened, we must turn with greater assiduity to the problem of saving limbs and preventing deformity.

The orthopaedic problem can be divided, therefore, into two distinct parts—preventive orthopaedics and corrective orthopaedics. The latter is more especially the department of the trained orthopaedic surgeon, and I shall return to it briefly later. The preventive requires the help of every surgeon who has to treat wounded men at any stage, especially the early stage.

GUNSHOT INJURIES OF THE FEMUR.

Gunshot injuries of the femur constitute, in my opinion, the tragedy of the war, not only by reason of the fatality by which they are attended, but also because of the deformity and shortening so often associated with them. Recent convoys show a marked improvement upon earlier ones, but much more remains to be done, and the question is very urgent. From abroad I have received bitter complaints of the want of continuity of treatment in this country; and, from our experience here, we are forced to the conclusion that while cases arrive from certain hospitals abroad most admirably fixed, they arrive from other places leaving much to be desired.

The question of fractures of the femur is essentially one of preventive orthopaedics. Our centres are constantly dealing with deformities following this injury. Many cases come with four or five inches of shortening and with every variety of deflection. Is there no way in which the better results could be multiplied, and the bad results avoided? I venture very respectfully to suggest that there is. It may involve difficulties in administration, but they should easily be overcome. From all one hears, the present mortality is far too high, and every effort should be made to standardize the treatment of fractures of the

femur on the most efficient plan. The remedy consists of leaving these fractures in the hands of specially trained men, who should be retained for this work only. They should proceed in association on a common plan. This is more than ever necessary now that it has been decided to retain these fractures in France.

Now what is the plan? First and foremost, the concentration of all fractured femurs in special fracture hospitals at the base. I would suggest that a large hospital should be reserved for these cases at each base. Each hospital should be staffed by well-trained surgeons with mechanical aptitude, desirous of devoting themselves to this special work for the term of their service. They should have security of tenure for two reasons. In the first place, more responsible or urgent work could not be found for any surgeon, and, in the second place, experience in the fracture service would constantly increase the rapidity and efficiency of their work. They should have selected nurses and orderlies to help them in team work, and they also should be protected from the danger of frequent changes. These fracture hospitals should be visited by an inspector of fractures acting in conjunction with the consulting surgeons of the various districts. No case should be evacuated in opposition to his instructions, and he should have a deciding voice in the selection or removal of any member of the surgical staff.

One or more of these hospitals should be chosen as an educational centre, and all young surgeons who can be spared from time to time should undergo training there. Certain nurses and orderlies should also be trained, and in this way teams prepared to do rapid and efficient work at the casualty clearing stations.

At present, fractures of the femur are found distributed in various hospitals—many in tents. Under these conditions continuity of treatment is impossible. Like an orthopaedic centre, a fracture hospital needs a thorough equipment. Surgeons, however able and conscientious, cannot do justice to a fracture of the femur when short of equipment and located in a tent. Even surgeons of very special experience, and they are few, are rendered comparatively impotent in these conditions. If these suggestions are followed, the saving in personnel would be very appreciable, for the work would be organized. A trained surgeon, an orderly, and a sister would do more rapid and efficient work as a team than half a dozen most excellent surgeons who do not possess this special experience. The training school could in an incredibly short time supply regimental aid posts and casualty clearing stations with teams of surgeons and orderlies taught to fix these fractures efficiently and with astonishing rapidity.*

Two fundamental principles must be sacredly adhered to:

1. Efficient fixation in correct alignment at the earliest possible moment.
2. Continuity of treatment.

Death, when it occurs early, is usually due to shock, the result of direct injury, the shock being often increased by exposure and the movement of injured tissues during transport. Fixation, therefore, should not be delayed a moment. For the purpose of rapid, simple, and efficient fixation there is no splint to compare with a Thomas. I learn that in many divisions these splints have now been supplied to the regimental aid posts. They should be supplied to all. These splints can be rapidly applied over the trousers and extension made by a pull on the boot. Twenty or thirty cases can be dealt with in an hour by a trained team of orderlies; I allude, of course, merely to the mechanical fixation of the fracture.

The wound is next thoroughly overhauled in the casualty clearing station. When this can be done with the limb well extended in the splint it is an advantage. This extension of the limb undoes all kinks and folds wherein discharges may collect. When the wound is thoroughly dealt with, and the limb fixed for permanent treatment, the case is sent down the line whenever it is safe. Experience has proved that, since such cases cannot be kept indefinitely at the casualty clearing stations, they should be sent down at the earliest possible moment after the recovery from shock, before sepsis has had time to spread and before the danger of secondary hæmorrhage

has set in. Cases do best at the base hospitals when they are received there during the first three days.

This secures for us the second important principle—continuity of treatment. The teams at the regimental aid posts, the casualty clearing stations and the base hospitals will have a common understanding, and no unnecessary change of methods is likely to occur.

How are we at home to continue the work in its final stage? An Army Council instruction has been issued directing that all fractures of the femur which come to this country shall be sent to orthopaedic centres, and in case these centres are full, to specially selected hospitals. If this instruction is faithfully obeyed our results will be enormously improved. Certain cases, however, continue to gravitate elsewhere. When this happens, I would ask surgeons to remember that, after gunshot fractures of the femur, the bones remain soft for several months after so-called union has taken place. This means that body weight on the unsupported femur will make it yield. Cases are now coming from France beautifully fitted with caliper splints which should be worn for many weeks. Some of these have been prematurely removed and bowing of the femur has resulted. Gunshot fractures of bones take a considerably longer time to harden than we have been accustomed to in civilian practice.

Both at home and abroad the defects of treatment run on similar lines—namely, inefficient reduction, fixation and extension. These defects will be mostly overcome by segregation and a carefully selected personnel. The orthopaedic centres with their equipment offer very suitable facilities, but as the numbers of these cases increase other general hospitals should be selected and supplied with whatever equipment is needed. Now that fractures are being retained abroad until they can safely travel, the railway journey on this side need not be considered. We must never forget the difficulties our surgeons abroad have to contend with, and that they have shown greater initiative and progress than we have at home. If opportunities could be extended enabling young surgeons engaged in this work in France and England to exchange visits, it would prove of great educational value.

GUNSHOT FRACTURES OF OTHER BONES.

What has been said about fracture of the femur is true of fractures of other bones of the limbs. The danger to life is less, but the frequency of deformity is as great. There are one or two types of deformity which recur so constantly that some mention should be made of them.

In the lower limb, fractures of the bones of the leg are too often associated with a backward sagging at the site of fracture, due to inefficient support; or they present a valgus deformity at the seat of fracture, which is a very serious fault, for the body weight is deflected on to the inner side of the foot, thus producing the more serious disabilities associated with aggravated flat-foot. A bow-leg is a strong leg even if it is ugly, while a valgus leg is both weak and ugly.

Non-union, or delayed union, is far too commonly met with in fractures of the humerus. This is most frequent when the fracture is through the middle third. Two factors are mainly responsible for this—over-extension and inefficient fixation. If, for purposes of drainage and fixation, extension is used, it should never be excessive or prolonged; it is an easy matter to separate the fractured ends of the humerus by an inch or more if traction is severe. The other factor is inefficient fixation. Whatever splint is used, it should enable the dressing to be applied without disturbance of the fragments, and it should permit flexion of the elbow to considerably above the right angle. The prevailing deformity in fractures of the lower end of the humerus is a backward thrust of the elbow. This is best governed by flexing the elbow sufficiently. Fractures through the elbow-joint, in view of ankylosis, should be treated at right angles. It is in this fracture specially that care should be taken to keep the forearm about three-fourths supinated, for a pronated hand with ankylosed elbow is tragic.

In this connexion I may draw attention to two serious dangers in compound fractures of the forearm. One is vicious union between the two bones, and the other is sagging or convexity to the ulnar side. Both lead to impairment of pronation and supination. To prevent these deformities we should first make sure that the ulna is in

* I have been informed since delivering this address that many of the suggestions I have outlined have already been adopted at the front.

line, and then secure supination. Any theories we may hold in regard to the action of the pronator radii teres may be discarded, for pronation of the forearm is a direct invitation to cross union. It is a sound rule in all fractures of the upper limb to see that the *palm is towards the face when the elbow is flexed*.

GUNSHOT INJURIES OF JOINTS.

The results of primary excision of joints are filtering into the orthopaedic centres. I am not in the position to criticize the value of this procedure, but surgeons abroad should know that the functional results are very bad. Flail knees, flail elbows, flail shoulders—many of them suppurating—are constantly in evidence. They present a serious problem to the surgeon. We have been able to ankylose many of the elbows with good functional result. This is true to a lesser extent in the case of knees and shoulders. Some of the excisions of the knees well above the condyles and below the tuberosities leave very little in the way of bearing surface to work upon. Indeed, in those cases amputation is often justified. We must at once admit that any surgical procedure is welcomed which will save an amputation, and this is especially true of the arm. The artificial arm is a miserable substitute for a living one, however maimed, and to amputate an arm should be almost the heaviest responsibility a surgeon can assume. Primary excisions of joints or muscles are infinitely to be preferred to a loss of limb; but is amputation always, or often, the alternative? On that point we would like an authoritative pronouncement by the consultants abroad. If the conditions admit, it is obvious that the greatest conservatism in the treatment of joints should be practised, and, with the growing ascendancy which our surgeons abroad are gaining over sepsis, I cannot but think that routine excisions should be, and doubtless are, discouraged. A procedure which may have an exceptional value should be hedged by clearly defined instructions and limitations. Perhaps such instructions already exist. Do these excisions save life and limb? Is there not some way of so improving the fixation and drainage of these injuries that less drastic measures will suffice?

We constantly receive from certain sectors gunshot injuries to joints—especially knees and shoulders—where immediate excision of the *wound* (not the joint) has been practised. The results are often surprisingly good. At one hospital we had at one time five such cases of gunshot injuries through the knee, and in three of them a perfectly functioning joint resulted, while in both the others the wounds had healed without incident. If such joints had been subjected to primary excision, what a tragedy it would have been! Should these excisions be called for, an authoritative ruling on the matter is needed, clearly specifying the types that can be spared and those that must be sacrificed.

From the orthopaedic standpoint, I may offer a few suggestions as to the after-treatment of these excisions in order that we may secure a fair functional result. If the shoulder is excised, the arm should be placed in an abducted position at an angle of about 50 degrees. The elbow should be slightly in front of the coronal plane of the body, so that when it is at right angles and the forearm supinated, the palm of the hand is towards the face. The bones should be approximated by posture at an early date. If ankylosis occurs in this position, the arm can be lifted to a considerable height by scapular action. The arm should not be left hanging, as there is on the one side a danger of a useless flail shoulder, while on the other, should it become ankylosed, the movement will be very limited. If the excision should result in a flail shoulder, it should be ankylosed in the position I have just described.

The same principles govern our post-operative treatment of the elbow. Excision of the elbow-joint with complete removal of the condyles and of the olecranon generally leads to flail elbow—a most useless elbow to a working man. On the other hand, an elbow ankylosed firmly at nearly a right angle is very serviceable.

In treating such excisions of the elbow, I should advise that they should be kept extended and supinated during the early stages of drainage, then gradually flexed to a right angle, even if sinuses discharge. If the elbow is kept straight while a suppurating wound heals, there is a danger of ankylosis in extension. If there be no

suppuration the elbow can be flexed from the first. The worst cases, for reasons which are obvious should ankylosis result, are those which have been kept straight with the forearm pronated.

In all gunshot injuries about joints, where ankylosis is feared, the arm should be placed in a position most useful for the patient in after-life: the shoulder abducted, as I have already described; the elbow at an angle of about 70 degrees flexion from full extension; the forearm nearly two-thirds supinated; the wrist in dorsiflexion, and the hip in slight abduction and external rotation with full extension; the knee in full extension; the ankle at right angles, and very slightly varoid.

INJURIES OF MUSCLE AND NERVE.

The importance of position becomes evident again in injuries of muscles and nerves. Torn muscles must not be allowed to become puckered by dense scars; the limb must be put in positions which will prevent the formation of undue contractures. This matter is one which calls for great judgement, and the surgeon should at the earliest stage encourage voluntary action of the muscle—not necessarily movement of the limb. No muscle will move voluntarily while the seat of an acute injury; so soon, however, as the injury is healed, the muscle can make movements, provided it is not heavily loaded. This is one of the important factors in re-education methods.

The surgeon has, therefore, to watch whether in the injured muscle contracture or overstretching is taking place, and act accordingly. Generally speaking, contractures occur in flexors and overstretching in extensors; but a hard and fast rule cannot be laid down, especially in positions in which gravity plays an important part.

In recovering nerve injuries, whether after bruising of the nerve followed by spontaneous recovery, or after suture for a divided nerve, the muscles supplied by the nerve must be kept continuously relaxed by splinting the limb: first, because paralysed muscles are easily overstretched, and overstretched muscles cannot contract; secondly, because relaxed muscles are more susceptible to returning trophic influences and are in a state to respond to the first feeble motor impulses that come to them through the recovering nerve. It is then that voluntary re-education can be begun. For the same reason all deformities which would impede the action of the muscle should be corrected as a preliminary to nerve suture unless this subsequent correction can be easily secured without straining the fresh union in the nerve.

CORRECTIVE ORTHOPAEDIC SURGERY.

If I have shown that the most important side of orthopaedic surgery in relation to military surgery is preventive orthopaedics, and that preventive orthopaedic treatment should be consciously and definitely recognized and practised from the moment the wounded man is first attended to, and then continuously thereafter, according to definite recognized principles, I have not entirely failed.

The question is, How are we to establish recognized methods?

One means already in existence is within our orthopaedic centres by encouraging the staffs of the various hospitals to meet and discuss their difficulties, their methods and their results, and by holding conferences at the various centres.

The next is, that each centre should be used as an educational centre, open to all who wish to see the methods practised there.

Surgeons home from the front should not merely spend one day out of their precious leave in going to look at the work because they have heard it spoken of, but some system should be organized by which all the younger surgeons should be sent for a few weeks to work in these hospitals; first, that they may compare the results with their expectations when they treated similar cases in the first instance on the field; second, that by observing and assisting in the work of corrective orthopaedics they may learn how to practise preventive orthopaedics. It must be remembered that a part of corrective orthopaedics consists in deliberately inflicting the original injury by operation, and then treating the case over again.

This is especially the case in the treatment of malunited fractures, where the operative treatment consists in re-making the original fracture and then setting it in better

position. The orthopaedic surgeon has the advantage that he waits until the risk of recurring sepsis is practically absent, but he labours under the disadvantage that scars and contractures have occurred as the result of the original sepsis, which make it difficult to get the bones into correct position.

The treatment of stiff joints, again, presents a whole series of problems. In civil practice after a sprain or injury of a joint a few adhesions often occur which interfere with its free action, and, moreover, any movement which stretches these adhesions causes pain. The treatment as a rule is simple—forced manipulation to break down the little fibrous bands of adhesions. This class of case very rarely occurs in military surgery—so rarely that I would almost say a surgeon without considerable experience of manipulative methods, when he is tempted to move a stiff joint after gunshot injuries, had better pause, reflect, and refrain. I emphasize this because I have seen so many cases in which joints have been forcibly moved with disastrous results. As an illustration, let us very briefly consider a series of hypothetical cases, types of which occur over and over again as varieties of stiff knee.

1. First assume that a small fragment of metal has penetrated the front of the knee-joint, tearing the capsule and aponeurosis, but has been removed and the wound has healed without suppuration. The movement of the joint later is limited by pain, localized to near the wound and a definite stop to movement. The knee is flexed under an anaesthetic and one or two definite snaps are felt and all is well. This is a simple case of a few fibrous bands about the capsule which were stopping movements.

2. Next we will take a similar injury followed by effusion and a brief mild suppuration in the joint, relieved by cleansing and very temporary drainage. The movement of the knee is limited on attempting movement under anaesthesia; no great resistance is felt, but there is a soft tearing sensation. The experienced surgeon stops at once. He is not breaking one or two bands but is tearing a diffuse soft fibrosis extending all through the joint, and the result of his assault will be the formation of a more dense fibrosis. By waiting until the pathological changes are ended, movement may be restored in gentle stages of persuasively conducted alternate attack and rest.

3. In another case a piece of shell has torn the quadriceps above the patella and the muscle is firmly fixed down to the bone. If the surgeon attempts to flex the knee forcibly, he runs a big risk of fracturing the patella; but if he puts the limb on a back splint, so as to relax the quadriceps completely so that there is no strain on the scar, and massages the scar, it may loosen in a few weeks and become merely a fibrous intersection in the muscle, and then movement of the knee may be commenced.

4. There has been a septic fracture of the femur, and the quadriceps, especially the vasti, have become infiltrated first with toxic fluids and later by a matted fibrous tissue. Any attempt to stretch that by force is doomed to failure and will probably lead to a fracture of the patella. The best way of attacking such a case is to apply a splint which will allow of gradual flexion in stages. It may take two or three months to restore a range of movement of 45 degrees. With that range of movement the patient can walk with a little knee action and not merely with a stiff leg. After that, by use and help, he will gradually get more and more movement in the knee as the fibrous tissue in the muscle becomes absorbed.

There are other types of extra-articular obstruction which require operative attack. This is especially the case in the elbow and knee. The obstruction is usually found in a thickened capsule very much shortened, or in muscular adhesions. The extended elbow may require the free exposure of the capsule and its division, with perhaps a plastic elongation of the triceps. By similar methods the knee may be approached. The elbow or knee is then kept for a fortnight flexed. One rule must be strictly adhered to: If a stiff joint has to be moved under an anaesthetic, the bones above and below the joint must be protected. This is especially called for where a fracture has existed.

I have spoken of the reconstructive function of an orthopaedic surgeon, and to make this attitude clear we will take a hypothetical case.

A case is presented with an ankylosed shoulder, elbow, and wrist, with the potentialities of movement confined to the thumb and two adjoining fingers. The shoulder is adducted, the elbow extended, the wrist palmar-flexed, the muscles ischaemic. The question arises, Can any use be made of this apparently useless limb, or should it be amputated? On inquiry, the surgeon finds that the patient can shrug his shoulder—the scapular muscles are acting. The first procedure is to develop power in the thumb and two fingers, then to ankylose the wrist in dorsiflexion, and the elbow at the angle best suited to the patient. An osteotomy is next planned, in order to get the arm abducted. In a few weeks the scapula

carries the humerus through a long range of movement, and the patient has secured a limb much more useful than the best of artificial arms.

Time will not allow me to touch upon the interesting problems of scars, transplantation of bones and tendons, pseudarthroses, and many other allied themes. Enough has been said, however, to lay bare the orthopaedic mind. It strives for function rather than for form, but is more content if it can secure excellence in both: it is conservative and constructive, but it desires to take the most direct road to function—be it by knife, by hand, or by snasion.

I cannot conclude without paying the highest tribute to the loyalty and enthusiasm of my American and British staffs all over the country. If I sometimes try to direct their thoughts, I hope I shall never hamper them in their endeavour to solve the fascinating problems that surround them. Finally, I wish to express my deep gratitude to my professional brethren everywhere, who have neither by word nor deed done aught but encourage me in my work and lessen my labours. Without their help and confidence and kindness I should, indeed, be powerless.

ON THE SEPARATE SUTURE OF NERVES IN NERVE TRUNKS.

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THERE are a considerable number of factors which determine the degree of recovery from the effects of nerve severance. One of these factors is the accuracy of apposition of the central and peripheral ends of the severed nerve fibres. In man, all the nerve trunks consist of bundles of nerve fibres; each bundle has its own perineurial sheath, and is surrounded by epineurial connective tissue. The relative position of the nerve bundles alters gradually in their course in the nerve trunk. It is in the highest degree improbable that an exact apposition of corresponding bundles can be made even in a freshly cut nerve, and if a piece has been excised it is certain that exact apposition never occurs. Further, microscopic examination shows that after suture the nerve fibres growing out from the central end of any one bundle usually take a devious course, and run to several peripheral bundles.

In all cases, then, in regeneration after nerve suture, the connexion of the central nervous system with the peripheral tissues will differ to a greater or less extent from the normal connexion. The new arrangement caused by nerve fibres growing out of their course is spoken of as the distortion of the nerve pattern. The nerve pattern is distorted both on its efferent and on its afferent side. On the efferent side the central nerve cells which formerly in a limb controlled solely, say, a flexor muscle, may after regeneration control flexor, extensor, adductor, abductor or rotator muscles in varying proportion. On the afferent side cutaneous fibres normally giving rise to the different sensations of cold, heat, touch, etc., will run to muscle and tendon, and muscle and tendon afferent fibres will run to the skin. The straying of nerve fibres into others having a different function may possibly to some extent be lessened by the central fibres growing more readily into fibres of their own class than into fibres of a different class, but experiment shows that such selective direction of growth, if it occurs, is not sufficient to prevent nerve fibre of any one function growing into the peripheral end of a nerve fibre of any other function. Some readjustment of the processes in the central nervous system must, then, take place in order that reflex and voluntary movements may occur in a properly co-ordinated manner. The readjustment takes place fairly rapidly in the case of simpler movements, such as flexion and extension of the limb,¹ but finer movements are only gradually recovered and the sensory adjustment appears to take a still longer time.

In regeneration after nerve suture there is not only distortion of the nerve pattern, but a varying degree of loss of innervation. Besides the nerve fibres which grow into the connective tissue surrounding the nerve bundles of the trunk and surrounding the trunk itself, a more or less considerable number grow from efferent fibres into afferent fibres, and from afferent fibres into efferent. These can make no functional connexion with the nerve

endings to which they are diverted. The loss will tend to a decrease of muscle innervation and to a reduction in the delicacy of sensation. It may to some extent be compensated for by an increase in the number of nerve fibres in consequence of their division at the central end.

There is one other abnormality which occurs in regeneration. It was shown by Anderson and myself, by Kilvington, and by Osborne and Kilvington,² that if, after nerve regeneration, the nerve be cut above the point of union, and the central end of a peripheral branch stimulated, contraction may be obtained in the muscles innervated by other branches. This is due to the single fibres of the central end dividing into two or more fibres which pass to different peripheral nerves. Such reflected actions occurring in branching axis cylinders I have called axon reflexes. Axon reflexes may be produced not only from muscle nerve to muscle nerve, but also from cutaneous nerve to muscle nerve. In a recent case in a cat³ I obtained lively contraction both in the tibialis anticus and peroneus longus on stimulating the central end of the cutaneous branch of the musculo-cutaneous nerve, the peroneal nerve being cut above the point of suture. The effect of the division of the fibres, with divergence of the branches, will vary according to the nature of the fibres, and the nerve endings, if any, which they make. Thus, when a muscle nerve fibre divides and makes new nerve endings in different muscles, a nervous impulse passing down it will cause contraction in both muscles; and when an afferent fibre capable of giving rise to sensation divides and makes new nerve endings in different regions, we must suppose that a stimulation of either region will give rise to a sensation referred to both.

All the modifications of the original connexion of the nerve fibres spoken of above may be grouped together under the head of disturbance of nerve pattern.

From the facts given above we may conclude that any procedure which reduces disturbance of nerve pattern will make recovery more complete, and will shorten the time taken in attaining that degree of recovery which is possible in the circumstances. It must be noticed that the time at which voluntary movements are first made is to a large extent independent of disturbance of nerve pattern. The first voluntary movement occurs a short time after the nerve fibres of any muscle nerve make new nerve endings in any muscle. Although exact apposition of the nerve bundles in a nerve trunk never occurs in nerve suture, some motor nerve fibres always have an opportunity of growing into other motor nerve fibres. Now it is obvious that if each peripheral nerve ran a separate course in the nerve trunk, and these were sutured separately, the distortion of nerve pattern would be much diminished. It has, however, long been known that in the larger nerve trunks the bundles exchange nerve fibres and form a plexus, which may be spoken of as the internal nerve plexus.* It would seem, then, that in the larger nerve trunks no separation of the nerves for different muscles and for different cutaneous areas is possible. But, on the other hand, some observers have mapped out the nerve bundles of the trunk of the sciatic into anterior tibial, musculo-cutaneous, posterior tibial, gastrocnemius, and other nerve bundles. If this were so, there would be a possibility of suturing the nerves separately in the sciatic.

In view of the facts and deductions I have given above, an investigation was undertaken by Dr. Hashimoto and myself upon the connexion of the peripheral nerves with the internal plexus of the sciatic in various animals. The results have been published in the *Journal of Physiology*.³ As regards the possibility of separate suture in man, they were as follows:

The only peripheral nerves which have more than a short isolated course in the sciatic from the great trochanter to the popliteal space are the nerves to the hamstring muscles (with the nerve to the adductor magnus), the nerve to the short head of the biceps, the lateral cutaneous and external saphenous nerves, the nerve to the outer head of the gastrocnemius, and that to the inner head and soleus. All the others soon after joining the sciatic become connected with the internal nerve plexus and are mixed with nerve fibres of varied peripheral dis-

tribution. All the nerves mentioned above run for part of their course in the loose outer sheath of the sciatic before they enter the dense inner sheath. They may be regarded in this part of their course as being attached to the sciatic rather than as forming an integral part of it. When a nerve has penetrated the dense inner sheath it merely forms one of the many nerve bundles of the trunk; the cutaneous nerves and the gastrocnemius nerves can still be recognized by their relation to other bundles, but, naturally, to do so requires previous dissection on *post-mortem* specimens.

The most accessible nerves are the cutaneous nerves. They run, as mentioned by Compton,⁴ on the posterior surface of the sciatic. The lateral cutaneous nerve runs an isolated course nearly the whole length of the sciatic, but in its upper part it penetrates the thick epineurial sheath of the peroneal division of the sciatic. It is known that there is considerable variation in the relative number of nerve fibres which the external saphena receives from the tibial and peroneal divisions of the sciatic. In the cases dissected by Dr. Hashimoto and myself, the peroneal contingent arose from the mid region of the sciatic, and the tibial contingent from the lower third. Probably when the tibial contingent is larger, the additional portion, like the peroneal contingent, arises from the mid-sciatic region. The practical point is that the greater part of the cutaneous nerves given off by the sciatic to the leg can be isolated and separately sutured in a considerable length of the sciatic trunk.

The nerves to the inner and outer head of the gastrocnemius, as is known, run as separate nerves in the popliteal space and join the sciatic either separately or as a single nerve. The two nerves, or the conjoined nerve, have an isolated course in the sciatic for about one and a half inches.

The hamstring group of nerves and the nerve to the short head of the biceps run a long isolated course in the outer loose sheath of the sciatic, and in *post-mortem* specimens can be readily isolated. The latter, however, dips to the anterior surface of the peroneal division of the sciatic, and is in consequence not readily accessible in life. The hamstring nerves are embedded in a good deal of connective tissue, and a satisfactory union of their ends, whether they are left in position or sutured separately, is difficult.

As I have said, all the nerves so far mentioned are recognizable on simple inspection in more or less of their course in the nerve trunk. There are others in which the epineurium must be cut open in order to distinguish them. The posterior tibial nerve below its main muscle branches consists of two sets of nerve bundles, the bundles of each set having little or no connexion with those of the other. One consists almost entirely of the external plantar nerve and the other of the internal plantar. In the peroneal nerve there is a relatively short portion in which the anterior tibial nerve, the nervus peroneus longus (with which may be the n. peroneus brevis), and the cutaneous part of the musculo-cutaneous nerve are separate and fairly easily recognizable within the epineurial sheath. The musculo-cutaneous nerve consists of separate muscular and cutaneous portions.

Most of the muscle nerves arise close together from the internal nerve plexus, and run a variable but short distance in the trunk. They occupy definite positions in relation to one another. In the comparatively rare cases of clean severance and immediate operation, it is not outside possibility to distinguish the respective central and peripheral ends of one or more of the muscle nerves, and to suture them separately. The most promising region for this is the lower part of the peroneal nerve. Lastly, there are the peroneal and tibial divisions of the sciatic; between these there is so much connective tissue that it is a question whether in man nerve fibres spread out from one division to the other, and in most regions the separation of the trunks would interfere greatly with the blood supply to the central end. On the other hand, the relative position of the two divisions changes in their course, so that if much is excised, more or less of one division will be brought opposite the other.

All isolation of nerves causes some interference with blood supply in the isolated portions; this is of little importance when the nerves run in the outer loose epineurial sheath, but, if the inner dense sheath has to be

* A figure of the plexus of the median nerve was given by Monro in 1783 (*Observations on the Structure and Functions of the Nervous System*, Tab. xviii, Edin.). This reference I owe to Professor Thane.

opened, it may delay degeneration in proportion to the density of the sheath. It would probably be advantageous to cut away as much as possible of the epineurium. A few experiments on the sciatic of any large animal would determine whether the interference with the blood supply is serious or not.

There are, no doubt, cases similar to those mentioned above in the nerve trunks supplying the arm. The only one dissected by Dr. Hashimoto and myself was the musculo-spiral (radial); in this the muscle division and the cutaneous division ran for a considerable distance isolated from one another, a fact which suggests that in cases of severance of the musculo-spiral the epineurium should be cut open and the two parts sutured separately.

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ANTENATAL SYPHILIS: SUGGESTED ACTION OF THE CHORIONIC FERMENTS.

BY

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CONGENITAL SYPHILIS.

AFTER alluding to the discoveries of the *Spirochaeta pallida* by Schaudinn, the Wassermann reaction, and to the treatment by salvarsan, which can destroy the spirochaete without injuring the human tissues, Dr. Routh dwelt upon the serious nature of congenital syphilis as compared with primary infection, a positive reaction in a congenital syphilitic child hardly ever, according to Mr. Charles Gibbs, becoming negative under treatment. He alluded to cases of congenital syphilis transmitted to the third generation, as related by Dr. F. W. Mott, Mr. C. Gibbs, and Mr. J. E. R. McDonagh. He believed that not only is paternal infection of the ovum by the seminal fluid possible but that it is not infrequent, the mother becoming infected (1) either previously or at fertilization if she has a genital abrasion or erosion of the cervix, or (2) indirectly during the pregnancy via the embryo (conceptional syphilis), or (3) she is infected by spirochaetes in a granule stage, the mature organism being developed only after pregnancy.

More usually, he said, the embryo is infected by the already infected mother, either by the ovum being already infected, or by infection whilst embedded in the uterine mucosa, or by transplacental infection.

Sometimes there is a "mixed transmission" of infection from both parents. With very early abortions within two or three weeks of fertilization, following paternal infection of the ovum, it is possible that the woman may escape infection, owing to the absence of any true fetal circulation.

There is evidence (1) that infection can take place by the seminal fluid (F. W. Mott, etc.) even when the father has a negative Wassermann reaction, and (2) that the spirochaete has been found in the ovum in syphilitic women (Levaditi, Ball, and others). Dr. Mott has proved that syphilis is most contagious in its earliest stages, becoming less virulent each succeeding year owing to formation of maternal antibodies, the usual sequences of pregnancies being abortions, stillbirths, diseased children dying at birth or in early infancy, and children showing no signs of disease till puberty.

Dr. Routh believed that 25 per cent. of stillbirths and abortions in urban centres were probably due to syphilis, that if only 20 per cent. were caused by that disease in urban and rural centres in England and Wales, about 27,000 deaths would occur annually during the antenatal period and the first fourteen days after birth from that cause. The mortality of illegitimate children, both *in utero* and after birth, from syphilis was at least twice as heavy. The next most frequent causes of antenatal and natal deaths were toxæmia, *ante-partum* haemorrhage,

and dystocia. Macerated fetuses are, he said, now known to contain spirochaetes in over 80 per cent., though the mature organism is rarely found in abortions before the fourteenth week (Weber).

Many cases, both mothers and offspring, show no clinical evidence of syphilis till some weeks after the childbirth.

The Wassermann Reaction.

The Wassermann reaction, when first discovered, was expected to be positive when the individual was syphilitic and negative when uninfected or cured. Anomalies, however, have appeared and require explanation. Allusion was made to cases of syphilis during pregnancy with unexpected reactions, such as the negative reaction of some women when gravid with a syphilitic child, and for some time afterwards, and the negative reaction of some syphilitic children at birth, becoming positive a few weeks afterwards when the mature spirochaetes developed.

It is recognized, and has been especially stated by Mr. McDonagh, that pregnancy in some way or other often prevents the development of the mature spirochaete and that the disease is in these cases practically arrested in both mother and child during pregnancy. This, Dr. Routh believed, occurred more particularly in cases of paternal infection of the embryo. McDonagh even says that "repeated pregnancies have undoubtedly resulted in a spontaneous cure of the disease."

Some children may show no evidences of syphilis till they get tabes or general paralysis at puberty, whilst some mothers of these children may show no symptoms till after the menopause, or escape apparently altogether. The Wassermann reaction in these long latent periods has not been adequately observed.

All these cases require some other explanations than those usually given. The original words of Colles's law are true, though the numerous and varied explanations are often faulty.

Biology of Spirochaeta pallida.

Dr. Routh then reviewed the life-history of the spirochaete, giving extracts from Dr. Mott's article, in which O'Farrel, A. Balfour, and Noguchi are quoted, tending to show that under the action of salvarsan, etc., as well as spontaneously, the mature spirochaetal spiral becomes broken up transversely into granules, and that in a suitable environment these granules are capable of development into the mature organism after a short or long period of biological activity.

Noguchi had proved that after such granules have been transferred to a passive culture medium "spiral forms again sprout out." Dr. Mott has said:

The researches of Leishman on the spirochaete of tick fever suggest the possibility of an intracellular phase of the spiral organism, and its existence in the form of infective chromidian granules. Moreover, in support of this hypothesis I may mention that Neisser, in his experimental investigations on apes, has observed that the tissues of infected animals in which no spirochaetes were demonstrable, could nevertheless be used effectually for inoculation. The spirochaete may be one form of the syphilitic organism, but there may be other minute stages analogous to the spores of bacilli.

Infection by the granules can apparently occur during pregnancy, and if the granules are kept quiescent it is probable that the infected individual (mother or child) would give a negative Wassermann reaction after the birth so long as mature spirochaetes were absent.

If congenital syphilis is to be checked before the embryo is destroyed it must be dealt with locally at its source, and from the very first days after fertilization and infection. It seemed obvious that the embryonic tissues could not during the first few hours or days produce antibodies which could destroy spirochaetes.

Suggested Action of Chorionic Ferments upon Spirochaetes.

The great changes which occur in the maternal tissues, and especially in the ductless glands, Dr. Routh said, are only gradually produced, and are, therefore, not available in the early weeks to deal with spirochaetal infection. There are, however, locally present very powerful chorionic ferments produced by the syncytial cells of the fetal chorionic villi. These ferments are present in the early days of pregnancy at the point of interdigitation of the fetal and maternal portions of the placenta, and therefore

* Abstract of valedictory presidential address to the Harveian Society of London, January 10th, 1918.

are available as a powerful chemical filter for the protection of both mother and child. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa at the placental site, and to open up maternal blood vessels, so that the ovum may have a resting place with nutritive blood spaces round it. As a result of the destructive action of the ferments upon the maternal tissues, syncytio-toxins are formed, but appear to be normally at once neutralized by so-called syncytio-lysins, and it is believed that if either of these bodies is in excess maternal and fetal toxæmia may result, often with fatal results. These ferments have been demonstrated chemically by Abderhalden to be present in the maternal blood till fifteen days after labour, and syncytio-lysin, or a maternal antibody, is demonstrable between the sixth and fourteenth week of pregnancy.

Dr. Routh suggested that these trophoblastic chorionic ferments are not only able to break up the infective spirochaetes into granules, but can, by their continued action, keep the granules quiescent and powerless to develop into the mature organism till after pregnancy, when the ferments soon cease to be present. The biological activity of the granules, unless restrained by other substances, would then be resumed, and mature spirochaetes would be developed.

He proposed explanations of the four following problems, founded on the spirillolytic action of the chorionic ferments:

1. Why may a pregnant woman who in due course either has a stillborn or a living syphilitic child have a negative Wassermann reaction during pregnancy and for some time afterwards?

2. Why are some syphilitic children negative at birth, and for some weeks afterwards?

3. Why are spirochaetes so rarely found in abortions, even though alternating between stillbirths, in the tissues of which they are swarming?

4. How do these suggestions of the spirillolytic action of the chorionic ferments help to explain the truth of the original words of "Colles's law"?

His conclusions were as follows:

CONCLUSIONS.

My suggestions seem to point to the following conclusions, some of which are scientific facts, whilst others are non-proven, but I think logical.

1. The "granules" are the result of the "spirillolysis," or breaking up of the *Spirochaeta pallida*.

2. The "granules" are infecting agents, being in fact spirochaetes in the granule stage. They are able to develop into the mature spirochaete in a suitable environment, or may become biologically inactive and remain latent for short or long periods.

3. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces round it. As a result of the destructive action of the ferments upon the maternal tissues, so-called syncytio-toxins are formed, but appear to be at once neutralized by so-called syncytio-lysins. If not thus neutralized, maternal and fetal toxæmia may occur.

4. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties upon the *Spirochaeta pallida*, which may either be in the maternal intervillous, or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise.

5. This destructive action of the chorionic ferments upon the spirochaete breaks it up into granules.

6. I further suggest that during pregnancy it is the continued action of the chorionic ferments upon the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them.

7. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochaetes.

8. The success or failure of the chorionic ferments to protect the mother and child from spirochaetal infection would depend upon (a) the virulence of the infection,

which tends to diminish, owing to the presence of more maternal antibodies, with each successive pregnancy; and (b) upon the source of the infection. Infection is probably most difficult to arrest in a "mixed transmission," or in a true maternal infection, where attempts at infection of the embryo would be constantly proceeding throughout the pregnancy. It is probably least severe, and most easily countered by the ferments, when the primary infection is paternal, for it may then be a single infection only, and probably not capable of repetition if the primary infection be arrested.

9. The Wassermann reaction in mother and child appears to be negative if infection has been only by spirochaetes in the granule stage, so long as the granules remain biologically inactive and the mature organisms are absent.

THE COURSE OF INSTRUCTION IN VENEREAL DISEASES.

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IN view of the recommendations of the Royal Commission on Venereal Diseases, medical schools are faced with the problem of providing their students with special instruction on the diseases popularly included under the term "venereal disease."

The recommendations of the Commission as to teaching are summarized as follows in their Final Report (Sect. v):

(27) Whether by means of compulsory attendance at a course of instruction in venereal diseases or otherwise, it should be rendered certain that every medical student has adequate practical instruction in these diseases. Every medical student should attend a course of practical instruction in skin diseases.

(28) Questions relating to syphilis and gonorrhoea should be systematically set in medical and surgical examinations, so that the knowledge acquired in these diseases by candidates for examination may be tested.

As there is no class at present in the curriculum to which it would be possible to refer the teaching of this subject, the establishment of a new class will be found necessary, and the course will require to be compulsory, otherwise only a percentage of the students will attend. No expedient, such as including a question on the subject in one of the medical or surgical papers of the final examination, especially when such question is neither set nor checked by the teacher, will succeed in ensuring the attendance at a voluntary class of the majority of students. The General Medical Council may solve the question in one of the three following ways: (a) The establishment of a new compulsory class on the venereal diseases; (b) the inclusion of the teaching of the whole subject in a compulsory dermatology class; (c) the division of the subjects between a dermatology class and a new class of genito-urinary surgery, both compulsory. The last method would be the ideal one, but, unfortunately, in addition to imposing two new classes on the student, it is a plan which it would be possible to realize at present in few medical schools owing to the paucity of genito-urinary clinics. If medical education had been allowed to follow its natural process of evolution we would doubtless have found the teaching of syphilis allocated to the dermatologist and that of gonorrhoea to the genito-urinary surgeon. But circumstances have combined to force the pace in another direction, and with attention focussed on venereal disease while genito-urinary surgery lags behind, it must be recognized that the attempt to carry out this plan would involve intolerable delay.

Of the remaining alternatives there is much to be said in favour of the venereal diseases being included in an enlarged dermatology course. By this procedure the interest of the patient, the student, and the teacher would seem to be best served. The students' curriculum is extended by the minimum, while both recommendations in Clause 27 are complied with, the patient escapes the stigma of attendance at a purely venereal clinic, and the teacher is released from an undesirable curtailment of his sphere of work. On the other hand, it will doubtless appear to the governing bodies of many medical schools that the simplest and most direct way of dealing with the question

as it stands to-day is to institute voluntary classes on venereal disease while awaiting the considered action of the General Medical Council, and certainly no divergence of opinion exists as to the desirability of conducting post-graduate classes on venereal diseases at all suitable centres.

In these circumstances it may be of service to give a short sketch of a venereal disease clinic and its course of teaching, based on the experience gained at Glasgow, where a university lectureship was established some years ago.

The lecturer has charge of a venereal department at the Royal Infirmary and also of the Lock Hospital for Women, and the instruction is given at these institutions. In each there is both an outdoor and an indoor department; in the indoor a treatment room is attached to each ward and there is a central operating theatre. The outdoor department (which should have an evening hour of attendance) consists of a waiting room, an examination room, a treatment room, and a bacteriology room, all in series.

The examination room is divided into compartments by screens or otherwise, each containing an examining table; the work is thus expedited without sacrificing privacy. An instrument cabinet, dressing tables, wash-hand basins, and a sink complete the furnishing of the room. In addition to the usual surgical instruments and sterilizer, the special instruments include cystoscope, urethroscopes, storage battery; urethral probes, knives and cauteries; catheters, Watson's sounds, flexible bougies (filiform, acorn-tipped, and olivary), hot sounds, syringes, irrigating stand, neurological basins, and salvarsan apparatus.

The bacteriology room should be supplied with a good microscope, having an oil immersion lens and dark ground illumination, an incubator at 37 C., and also stains and apparatus. Tubed media can be obtained from the regular bacteriological department as required. Wassermann tests are performed only in the regular pathology department.

The treatment room in the department for male patients should have a number of cubicles each containing a urinal, and, at a height of 4½ ft. above the urinal, a two quart glass reservoir with attached rubber tubing for the irrigating solution. The most efficient means of treating gonorrhoea we have at present at our command is the *grand lavage* method of Janet. This can quite well be carried out by the patients themselves in a standing posture, but a trained attendant must be in attendance at treatment hours. He supplies each patient with a sterilized cannula, explains the details of the procedure, sees that the whole process is properly completed, and keeps a record of attendance. With this provision, a patient suffering from acute gonorrhoea can, during the first week, attend twice daily for treatment and with decreasing frequency thereafter, at hours to suit his own convenience, and he is only required to see the medical practitioner in charge at stated intervals.

The course of instruction includes at least twelve lecture-demonstrations. By a selection of cases systematic teaching and clinical instruction can be combined. In addition each student is given the opportunity of practising the technique of the various methods of diagnosis and treatment, the class being divided into sections of not more than six for this purpose. Prominence is given to the clinical and practical features of the course.

Syllabus of Course: Twelve Meetings.

1. Historical and general survey. Acute gonorrhoea in the male: anatomical and physiological data: bacteriology and pathology. Each student collects specimens for bacteriological examination.
2. Diagnosis of anterior and posterior urethritis: treatment of gonorrhoea, practice of *grand lavage*, etc.
3. The complications of gonorrhoea and their treatment: the preparation of vaccines, etc.
4. Chronic gonorrhoea, its diagnosis and treatment: use of bougies, sounds, urethroscopes, etc.
5. Gonorrhoea in women and children.
6. Urethritis simplex: venereal sores; balanitis: technique of examination to prove patient free from infectivity: prophylaxis.
7. Syphilis. Pathology: primary syphilis: classification of chancres: demonstration of the *Spirochaeta pallida*. Each student secures and examines specimens.
8. Systemic invasion: skin and mucous membrane manifestations: Wassermann reaction: methods of taking blood and serum specimens practised.
9. Late appearances of syphilis: syphilis of internal organs.

10. Syphilis of the nervous system: withdrawal of cerebro-spinal fluid for examination.

11. Congenital syphilis: syphilis of eye and ear.

12. Treatment of syphilis. Each student during the course administers kharsivan intravenously, and also practises intramuscular mercurial injections, etc.

It will be noticed that in the above synopsis almost half of the course is devoted to gonorrhoea. This, I believe, is not an undue proportion. In no other class is there more than a passing reference to gonorrhoea, while this does not hold good of syphilis. A considerable knowledge of technique is required, particularly for the treatment of chronic gonococcal infections, and a corresponding amount of time must be assigned to its teaching. Gonorrhoea is a much more common disease than syphilis, and its after-effects are hardly less important.

In so limited a course the teaching on syphilis has to be concentrated mainly on practical points in diagnosis and treatment, and on subject matter either neglected or not fully considered by the teachers in other classes. While syphilis has to be portrayed as a complete whole, and all its manifestations displayed in perspective, the lecturers on medicine are not relieved of their responsibility for giving detailed instruction on syphilitic disease of the circulatory and nervous systems, nor the ophthalmologist with reference to syphilitic disease of the eye. Patients with nerve and eye symptoms are examined, discussed, and treated, and the knowledge of the students on these cases tested, and, when necessary, reinforced; but little more than a summary is attempted. The relative value of the Wassermann reaction in the diagnosis, and the proper place of kharsivan in the treatment, of such cases can well be demonstrated in this class.

SUGGESTIONS TOWARDS A SYSTEMATIC OPERATIVE TREATMENT OF GUNSHOT WOUNDS OF THE MANDIBLE.

BY

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The problems connected with gunshot fractures of the jaw, in spite of the attention they have received and the special provision that is now made for dealing with them, do not seem to have been carried so far towards solution that we can yet regard the treatment of these injuries as wholly satisfactory. Their clinical course is still long, painful and uncertain; in the earlier stages it is not without danger, in its intermediate stages it is apt to be distressing and disgusting to the patient and chequered by recurrent abscesses and operations, and ultimately it is still apt to leave a residue of more or less permanent deformity and disability. Doubtless much is being done for the improvement of treatment in the special institutions set apart for such cases, and it is common knowledge that notable advances in technique have been made.

One does not, however, altogether escape the impression that fractures of the mandible have perhaps been regarded somewhat too exclusively as essentially problems of dental surgery, though the skill and ingenuity of dental surgeons in attacking them undoubtedly support such a view. The very success of the specialist in securing by ingeniously contrived apparatus fixation of the fragments in the most unpromising cases tends to overshadow the difficulties still remaining in dealing with sepsis and the plastic reconstruction of the jaw.

These very problems, however, are those with which the general surgeon will necessarily have been forced to contend in treating in civil practice diseases implicating the mandible. As far as can be judged from the considerable number of gunshot wounds of the jaw that reach the London general hospitals, the difficulties both as to asepsis and plastic work met with in these cases are closely similar to the difficulties in the same departments that are met with in the treatment of malignant disease in this region. The infective processes seem in the traumatic cases to be almost exclusively of buccal origin and to display clinical and pathological characters closely similar to those that are so familiar and so comparatively easily controllable by adequate measures as incidents in the

treatment of malignant disease. It is possible, therefore, that it may be of some interest to discuss the difficulties presented by war injuries of the mandible in the light of experience gained in dealing with tumours implicating this bone.

The surgical problems met with in serious wounds involving the lower jaw may be arranged in three groups in the order of their appearance.

1. Complications Following Soon After the Wound.

Haemorrhage—especially from the soft tissues of the floor of the mouth and tongue. It may be seriously persistent or recurrent, and is notoriously difficult to control.

Acute sepsis, having the characters peculiar to infections originating from the upper alimentary tract—namely, an acute course of about a week, an invariable tendency to cause sloughing, and a liability to spread as a deep cellulitis if there is the least restraint of drainage. These infections bear some direct relation to the amount of oral sepsis, but the mere presence of teeth, however healthy, makes it possible that a considerable wound will be seriously attacked.

Secondary haemorrhage—peculiarly liable to appear from about the seventh to the tenth day on account of the limited acute course of oral infections and the tendency for sloughs to begin freely separating about that time. The fact that infections from the mouth always cause sloughing makes secondary haemorrhage an appreciable risk.

2. Complications during Healing (Chronic Suppuration, Recurrent Abscesses, and Necrosis of the Jaw).

These complications are apt to drag out the case for an indefinite period, and are doubtless to a large extent due to the special density of the bone that renders the separation of sequestra a peculiarly tedious process.

3. Difficulties of Plastic Reconstitution of the Jaw.

Relapses of sepsis after bone grafting. These may be due to the impossibility of exposing the bone on either side of the gap without opening the buccal cavity, or to the implantation of the graft in the septic scar which has resulted from prolonged suppuration. Such septic scars, as is well known, are particularly prone to cause failure of bone-grafting operations.

The opinion has already been ventured that attention has perhaps tended too exclusively to be concentrated on the fixation of the fractured ends of the bone. Now it is perfectly clear that when—as is lamentably common—there has been a large loss of bone substance, no amount of fixation can lead to reconstitution of the bone, and that it is towards the latter purpose that all treatment must be directed. If, by fixation, displacement of the fragments can be prevented until reconstitution can be undertaken so much the better, but the reconstitution must be regarded as the essential purpose and nothing be allowed to prejudice it. The prevention of displacement is certainly less important than the attainment of sound union of the reformed jaw, and there can be no doubt that if there is any clash of interests between the two objects, a strong and solid bone, even if somewhat deformed, is worth a good deal more to the patient than an insecurely united but shapely one.

For considerations of treatment, cases may be conveniently divided into three classes: (1) Fractures without considerable loss of substance, actual or probable; (2) fractures with considerable loss of substance, either actual from immediate destruction or probable from necrosis, but with the superficial soft parts more or less intact; (3) fractures with considerable destruction of bone and of the overlying soft parts—cases where the bone and lower part of the face are “blown away.”

The first class obviously lends itself to treatment by intrabuccal fixation, and may be expected to give results almost as good as those of the ordinary fractured jaw of civil practice. The third class would lead us into too detailed a discussion of technique for the purposes of this paper, and so will not be entered upon. It is the second class which particularly interests us here; it seems to be an especially common and troublesome type, and perhaps to lend itself to a more radical and systematic treatment than it usually receives.

In a case of this class, with, for example, considerable destruction of the bone in the incisor or premolar region, and extensive wounding of the floor of the mouth and tongue, while the lower lip and cheek remain intact, one of the outstanding features of the early treatment is the extreme inaccessibility of the wounded soft parts. Should serious haemorrhage occur, the ordinary methods of control are almost helpless, and the surgeon may even be tempted

by the desperate—and here more than ever valueless—expedient of distant ligature. The same inaccessibility is apt to baffle him in attempting to deal radically with sepsis either by way of prevention or cure.

Now in the treatment of malignant disease in this region there is one measure which has thoroughly justified itself when it is practicable, as means of preventing both haemorrhage and sepsis, and that is the complete closure of wounds. By this is meant not the mere bringing edge to edge of mucous membrane, but the complete obliteration of cavities by bringing raw surfaces into contact by means of large mattress sutures. To do this properly, of course, full access to the parts is essential, and this will always have been obtained by the preliminary exposure of the tumour, which is indispensable before the proper removal of it can be begun.

There appears to be no valid reason why the treatment of gunshot wounds of the jaw and mouth should not have the benefit of the same free access, and there certainly is no other means of preventing haemorrhage and sepsis with the same precision that is attainable in the treatment of malignant disease.

Free access to the whole wound by uncompromising division of the overlying soft parts in order to allow of such excision of the wound surfaces as seems necessary and subsequent suture is the first suggestion, then, which a consideration of general surgical principles provides.

When a segment of the mandible has been removed for a growth the only method of securing the ends of the bone from infection and necrosis—unless the mouth has long been edentulous and is therefore comparatively aseptic—is to seal off the raw surfaces of bone by stitching the soft parts over them. To do this effectively it is necessary to bring the soft parts on the inner side of the jaw into firm contact with those on the outer side by large mattress sutures passing deeply into the floor of the mouth and tongue and tied externally on the cheek. If part of the tongue has already been removed, an adequate raw surface will be ready. Otherwise the mucous membrane is stripped off the side of the tongue to make a surface to meet the inner surface of the cheek. The soft tissues are thus brought into and completely close the gap in the jaw. In order to get the jaw thoroughly covered by soft parts it is usually necessary to bevel off the alveolar margin on each side of the gap so that no sharp angle of bone projects upwards here and is difficult to cover in. By these means haemorrhage is arrested, sepsis in the soft parts and bone is controlled and rapid union is secured, so that the resulting scar shall be comparatively aseptic and tolerant of a bone graft. No attempt is made to close the gap in the bone at the primary operation, and the surgeon concentrates his attention on getting the quickest possible healing of the wound.

The Primary Operation.

It seems probable that the same technique could be applied to certain gunshot wounds. This would involve radical operative treatment at the earliest possible moment. If it were established by x-ray examination that considerable destruction of bone had occurred and possibly that further loss by necrosis was probable, it would be clear that no attempt to secure union by ordinary methods was possible, and that everything must be done to favour the success of the necessary plastic operation.

A preliminary puncture laryngotomy should be done—a matter of a few seconds—and the pharynx plugged, or an intratracheal anaesthetic given. The fracture should be exposed either by a free incision over it or by turning back the soft parts in a flap from the middle line, and thus avoiding paralysis of the lower lip, loose fragments of bone should be removed, the wound in the soft parts excised, a clean surface given to the fractured ends by a saw cut, and the alveolar border cut back at an angle. The cheek and the floor of the mouth and side of the tongue should then be brought together with numerous large mattress sutures so as completely to obliterate any cavity between the ends of the bones. A large opening should be left for drainage below the jaw. If intrabuccal fixation of the fragments is possible now, it should, of course, be used, and will doubtless favour healing and the comfort of the patient. If such treatment were successfully carried out and healing were reasonably rapid, the necessary plastic operation should be possible within a few weeks.

The Plastic Operation.

Plastic operations on the mandible are rendered especially difficult by irregular scars in which it is impossible to bury a graft without opening the cavity of the mouth, and by septic scars in which operative interference precipitates a relapse of infection. We have considered the possible means by which these difficulties may, perhaps, be combated.

Aseptic union will, however, probably always be exceptionally difficult to attain, and it thus seems a reasonable precaution to make special efforts to maintain the vitality of a graft implanted in the jaw. To attain this object an obvious method is the use of pedunculated grafts. Such grafts can be provided by excising a piece of bone to which a muscle is attached and using the muscle as a pedicle. Parts adapted for such a purpose within reach of the mandible are the attachment of the sterno-mastoid, splenius or trachelo-mastoid to the skull, the trapezius and the levator anguli to the clavicle or scapula, but especially the attachment of the sterno-mastoid to the inner end of the clavicle. The bone here closely resembles the mandible in texture, the upper half of it with the broad attachment of the muscle lends itself to detachment and to displacement without undue difficulty into the gap in the jaw. It is unnecessary to indicate the technical steps of such an operation; the graft should obviously be measured exactly and drilled for screws before detachment. In a presumably aseptic scar there would clearly be no objection to the use of a Lane's plate if thought desirable. In a suitable case where the anterior part of the jaw had been destroyed I should not hesitate to make use of a graft from each clavicle, joined in the middle line by a suitable bent plate.

Conclusion.

In this very summary sketch it has been attempted merely to apply principles gathered in a prolonged experience and study of operations upon the jaw undertaken in civil practice in cases where large parts of the bone have had to be removed. In such cases the plastic reconstruction of the jaw has not proved to present insurmountable difficulties as a rule, and grafts, taken almost invariably from unaffected parts of the jaw itself, have been found an easy and satisfactory method of re-establishing the continuity and stability of the bone. It should be added that as in these cases some part of the thickness of the bone usually is available for use as a graft, even in the affected region, the two-stage operation is not often necessary; it is, in fact, only quite recently that one has become interested in its possibilities and in the development of its technique.

One cannot, of course, do more than suggest the technique that might be found applicable by those who have opportunities of dealing with gunshot wounds on a large scale. It seems certain, however, that the primary and immediate operation giving full access to the fracture with the purpose of limiting hæmorrhage, sepsis and necrosis and attaining a limited and relatively aseptic scar, is an indispensable preliminary to a systematic application of plastic bone surgery to large destructive lesions of the mandible. It would obviously be irrelevant in a more or less speculative paper such as this to attempt to embody all the many minor details of practice one has found useful in what I have called the primary operation as carried out for tumours. If the surgeon keeps clearly in mind the principle that protection of raw surfaces in order to secure rapid union must be the first consideration, the minor procedures that facilitate this will suggest themselves readily.

SOLVENTS FOR DICHLORAMINE T.

BY

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AND

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(Report to the Medical Research Committee.)

DICHLORAMINE-T is a slightly yellowish solid, readily soluble in most organic solvents with the exception of the paraffin hydrocarbons. It is a powerful antiseptic, and when dissolved in oily media has found useful application in the treatment of infected wounds¹ and for nasopharyngeal disinfection.² Although, as first stated,

dicloramine-T readily dissolves in most organic solvents, the majority of these solutions are of no value for practical purposes, since the dicloramine-T contained in them is rapidly decomposed. Among the few solvents which give reasonably stable solutions many had to be rejected on account of their proving too irritating, so that it will be realized that the selection of a suitable solvent for dicloramine-T is a somewhat difficult problem.

In our earlier experiments we made use of eucalyptol which had been previously lightly chlorinated to reduce its avidity for chlorine. The solution thus prepared was diluted with paraffin oil which had been chlorinated in similar fashion.³ Eucalyptol prepared as described is a good solvent for dicloramine-T, and the solution is reasonably stable if protected from light. Thus an 11 per cent. solution after standing in a corked amber bottle for six months still contained 6 per cent. of unchanged dicloramine-T. The addition of paraffin oil to the mixture is apt to reduce its stability, especially if care is not taken to select a suitable oil. It appears worth noting that liquid paraffin oils vary greatly in their suitability as diluents for dicloramine-T solutions. The Russian oils containing much naphthenes are unsuited for this purpose, while some grades of American oils contain considerable quantities of olefines as well as naphthenes.

The best oils with which we are acquainted are Pennsylvanian oils which have been well purified by agitation with fuming sulphuric acid and then washed and dried. Such oils are readily obtained in the open market, and on light chlorination, as previously described in this JOURNAL, furnish a very satisfactory diluent.

The use of eucalyptol has two disadvantages. In the first place, it is not as bland and innocuous a substance as might be desired, and its use is occasionally followed by a rash. Secondly, pure eucalyptol is not available in indefinitely large amounts, and at the present time its high price is a definite consideration. The same disadvantages apply to a more highly chlorinated eucalyptol, which was introduced by Lewis and Kraus, obtained by chlorinating eucalyptol with chlorine gas until the oil has a specific gravity of about 1.2. This oil, moreover, occasionally liberates traces of hydrochloric acid on standing, which causes a rapid deterioration of the dicloramine-T solution.

We therefore undertook a systematic survey of other possible solvents for dicloramine-T with the object of finding a cheaper and blander substitute for eucalyptol. This we believe we have accomplished, at least in part, and a description of the new solvent is appended. Early in our quest it became clear that most compounds containing oxygen gave unstable solutions of dicloramine-T unless the oxygen were in an ether-like combination, as in eucalyptol. Many esters, chlorinated aldehydes, acetals, alcohols, and glycerides were tried and abandoned. Chlorinated phenolic ethers, such as dichloranisol, were tried and found too irritating. It appeared improbable that compounds containing oxygen were likely to prove successful, since they usually abstracted chlorine from the dicloramine-T too readily. The choice then practically resolved itself into halogen derivatives of other hydrocarbons of the aromatic, aliphatic, and other series. The chlorine derivatives of aromatic hydrocarbons in most cases were found too irritating for practical use, and the same is, of course, true of some of the lowest members of the aliphatic series, such as chloroform. We therefore turned to the chlorine derivatives of the higher aliphatic hydrocarbons. Heptyl chloride, obtained by the chlorination of purified heptane from petroleum ether, gave encouraging results, and the same was true of many of its homologues; but it soon became clear that the stability of the dicloramine-T solution depended to a considerable extent on the purity of the solvents, and the preparation of these substances in an approximately pure condition is a difficult and costly matter. On attempting to chlorinate higher hydrocarbons, such as those in gasoline, kerosene, vaseline, and purified liquid paraffin oil, we found that with restricted chlorination poor solvents were obtained, while on more extensive chlorination deep-seated decomposition occurred with the formation of thick oils which were unusable. This latter decomposition we believe to be largely due to the presence of cyclic hydrocarbons, so-called naphthenes, in these oils, for these substances do not give simple stable derivatives on chlorination, but undergo far-reaching decomposition.

We therefore experimented with the chlorination of paraffin wax, since this substance is free from naphthenes

and is almost entirely composed of the saturated aliphatic hydrocarbons of the $C_n H_{2n+2}$ series. We found that paraffin wax could be readily chlorinated under easily regulated conditions, and that the product when prepared as described below was an extremely bland rather viscous oil, which readily dissolved dichloramine-T, and that the solutions so prepared were stable over long periods if kept under suitable conditions. As was to be expected, the product is not a single individual compound, but a mixture of isomeric and homologous chlorine derivatives. It is therefore impossible to give a systematic name to the product, and, as the descriptive name "chlorinated paraffin wax oil" seems unnecessarily clumsy, we have provisionally chosen the name "chlorosane," since the systematic names of most of the hydrocarbons in paraffin wax end with the suffix "cosane."

Preparation of the Solvent "Chlorosane."

Paraffin wax, preferably melting at 50° C. or higher, is placed in round bottomed flasks and heated to about 120°. Two flasks connected in series, each containing a half kilo of the wax, may be conveniently used. A rapid current of chlorine from a cylinder of the liquefied gas is then passed through the molten wax in the flasks, each of which is provided with a thermometer and the necessary glass tubes. The temperature should be controlled within the limits of 125-140°. The first flask in which the reaction is most vigorous will require but little heating. Chlorination is continued until the contents of the flasks have increased in weight 45 to 55 per cent. of the weight of wax taken. It will be found convenient to complete the chlorination of the first flask and then remove it, and transfer the second to its place, putting a fresh flask of paraffin wax after it. In order to avoid undue discoloration of the product, a minimum amount of rubber tubing should be used for the connexions. Wide glass tubing should be used for passing the gases, and the ends of the delivery tubes are preferably blown into bulbs provided with a number of fine orifices to promote good contact between the gas and oil. Hydrochloric acid is, of course, evolved freely during the reaction. After the requisite amount of chlorine has been absorbed, the oil, while still warm, is shaken vigorously with 5 per cent. of its weight of dry sodium carbonate and then filtered through a dry fluted paper. The clear oil, which has a light yellow or sherry colour and is slightly heavier than water, is then ready for use. It possesses a viscosity intermediate between that of olive oil and castor oil, has almost no odour, and is perfectly bland when sprayed up the nose or placed on skin or wounds.

It will be noted that the materials necessary for making the new solvent are all easily available at very cheap rates.

We have been unable to find any references in chemical literature to a product of the kind described. Lippmann and Hawliczek¹ heated paraffin wax with phosphorus pentachloride and obtained evidence of the formation of mono- and dichloro- derivatives, while Bolley,² by the exhaustive chlorination of paraffin wax, obtained solid products of varying composition. The chlorine in "chlorosane" is mostly in a firmly bound condition not readily removable by treatment with boiling alkaline solutions. It does not react with metallic magnesium suspended in ether, but on heating with soda lime to 250° unsaturated hydrocarbons and a little fatty acid are formed. Boiling with aniline removes most of the chlorine with formation of complex bases which have not been closely characterized. "Chlorosane," itself containing all its chlorine united to carbon, has, of course, no appreciable antiseptic action.

Preparation and Stability of Solutions of Dichloramine-T in Chlorosane.

Chlorosane at room temperature can dissolve from 8.5 to 10 per cent. of dichloramine-T. For wound treatment a 7.5 to 8 per cent. solution is strong enough for all purposes and is most conveniently prepared as follows: A portion of the oil—for example, a quarter—is heated to 75° or 80° C. and the weighed amount of solid dichloramine-T is then added. The latter substance will promptly melt and dissolve in the warm oil, which is then at once diluted with the remainder of the oil and the whole well mixed. If necessary, the solution can be filtered, but with pure materials this is not required. The clear solution should be at once stored in small amber corked bottles and not exposed to unnecessary heat.

Direct sunlight causes the most rapid decomposition of dichloramine-T solutions, and it should also be noted that blue glass bottles afford no protection. If kept in amber bottles, the solutions remain clear and retain their activity practically unimpaired for many weeks or possibly months.

Two preparations containing initially 8.7 and 8.9 per cent. dichloramine-T, kept for one month in corked amber bottles at laboratory temperature, contained 8.2 and 8.4 per cent. respectively at the end of that time. A similar oil exposed to direct sunlight for four days was completely decomposed, while another sample incubated at 40° C. fell from 8 to 3 per cent. in a month. Under ordinary conditions solutions which are protected from light by amber bottles and from contact with water or excessive heat may safely be used for two months or possibly longer.

The clinical results of dichloramine-T dissolved in the new oil are similar to those already recorded by Lee, Sweet, and others, and the same is true of its disinfecting action in the nasopharynx. The only difficulty that we have thus far encountered is the fact that the high viscosity of the oil prevents its being readily sprayed with a hand spray, though this is easily accomplished with a power spray. The addition of about 10 per cent. of carbon tetrachloride will reduce the viscosity of the mixture to a point at which it can be readily sprayed in an ordinary oil "atomizer." This dilution has no deleterious effect on the stability of the solution and is unobjectionable for wound treatment. It appears desirable to add the carbon tetrachloride only to the oil used in the hand spray and to use the thicker oil undiluted for other modes of use.

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A SKIN INK FOR RADIOGRAPHY.

BY

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RADIOLOGISTS have long been troubled by the thorough way in which some nurses endeavour to remove localization skin marks as soon as the patient returns to the ward; hence the need for a substance which will make an indelible mark on the skin, proof against rough treatment, has been acutely felt in this war. The properties required in such a substance are as follows:

1. It should stain the skin such a colour that it will show up against iodine.
2. The mark should be unaffected when rubbed with spirit, acetone, ether soap, or tincture of iodine.
3. The mark must last, when covered up with dressings, at least five days, and longer if possible.
4. The mark should be quickly and easily made, and making it should not hurt the patient, for it must often be placed on a part that is acutely inflamed and tender.
5. The substance used for the mark must not damage or inflame the skin.
6. The mark should be visible immediately it is made.
7. The materials used must be obtainable.

Condition 4 practically requires the use of a liquid applied with a brush, as the pressure of a pencil often causes considerable pain. The liquid should penetrate the skin well, and evaporate quickly, so that watery solutions are ruled out; and it is advisable, in order to save time, to have a single-solution marking fluid.

Silver nitrate forms a good mark, but it turns white with iodine and is not easily seen. It cannot be seen when first applied, it must be used in aqueous solution, and it may cause a good deal of inflammation when developed *in situ* by photographic developer. This substance cannot therefore be regarded as at all suitable.

I experimented with a number of dyes without finding a thoroughly satisfactory one. A solution of ferric chloride in alcohol, followed by a solution of haematoxylin in alcohol and ether, as suggested to me by Captain C. E. S. Phillips, formed a satisfactory mark, but being in two solutions took some time to apply, and, as haematoxylin is no longer obtainable, it need not be further considered. The least unsatisfactory aniline dye was a solution of methyl violet in acetone and water 50 per cent. followed by a painting with tincture of iodine. Aniline green also gave a fairly satisfactory mark when applied in the same way.

I eventually found that ferric chloride followed by pyrogallie acid gave a grey mark, which gradually turned a

* The ordinary indelible pencil appears to contain this dye.

fine black after five or six hours, and this mark lasted more than double as long as the iron-haematoxylin mark when exposed to the same conditions. Further, the mark was unaffected by iodine, acetone, ether soap, etc., and could, in fact, be scrubbed with a nail-brush and ether soap two days after it was made without being completely removed.

Experiments were next carried out in order to obtain the fluid in one solution, and it was found that a mixture of the two solutions was quite satisfactory and seemed to keep well, showing no great tendency to oxidize even when kept in an open test tube. This is possibly due to a small amount of acid in the liquor ferri perchlor. from which it was prepared. The next points to find out were a satisfactory concentration and the best proportion of the ingredients. The latter was determined by painting the skin with a mixed solution of known constitution, and then, when dry, painting marks on it of solutions of pyrogallie acid and ferric chloride respectively. If one or the other improved the result the mixture was amended accordingly. The former point was disclosed by a series of comparative marks with different strengths.

Different skins seem to vary in the degree to which they take stains and as to the durability of the resulting marks. Experiments with different solvents showed that acetone and methylated spirit gave little difference in result on my own skin, the latter, however, was better than rectified spirit. Owing to the greasiness of some skins it seems advisable to make the fluid, at any rate in part, with acetone, though if this is not obtainable, methylated spirit may be substituted.

The formula I finally arrived at was—

Acid, pyrogallie.	...	...	1 gram
Spirit, vini meth.	...	...	10 c.cm.
Liq. ferri perchlor. fort.	...	...	2 c.cm.
Acetone	...	...	ad 20 c.cm.

This gives a concentration of 5 per cent. pyrogallol and 2 per cent. Fe. The solution is best kept in a bottle with a camel's-hair brush attached to the cork so that it can easily be painted on. The mark is a brownish-grey at first, but after a few hours turns a brilliant black. It fulfils the conditions set forth above.

DRAINAGE v. SCRAPING IN THE OPERATION OF CURETTAGE OF THE UTERUS.

BY

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THE object of this paper is to protest against the recent modification of an old and good operation, which is nothing but bad and is tending to bring a good operation into discredit. The new-fangled procedure is to dilate the cervical canal by a three-bladed dilator just sufficiently to allow the passage of a small curette, the dilatation being often to about the calibre of a lead pencil. In the original operation the canal was dilated as much as possible, and safe, to the size of the largest Hegar dilator. I shall give my reason for thinking that this is the proper procedure.

Any benefit derived from the so-called operation of "curettage" is not from the scraping, but the drainage which dilatation to introduce the curette involves. Apart from removal of soft breaking down and loose mucous membrane by gentle use of the curette. I suggest that the results of the "curettage" operation would be at least as good if no scraping were done. The persistency of leucorrhoea is due to the inadequacy of the lower opening of the uterine cavity to permit drainage of what is virtually an open abscess cavity. For the same reason it is absurd to treat whites with douches: the drainage of the uterus (without artificial interference) through the tightly-closed cervical canal into the vagina being inadequate, the discharge tends to find its way along the path of least resistance to tubes and ovaries. If the condition is analogous to the persistent discharge of an inadequately drained abscess cavity and a condition demanding prolonged drainage, it seems obvious that to dilate the vent to such a slight degree that it rapidly closes again is absurd. We must revert to the old Hegar method, amplify it and not worry too much, if at all, about scraping; drainage is the important thing, and dilatation

must therefore be thorough, must be maintained for an adequate time, and the surgical principle of making the drainage opening at the most dependent part must not be disregarded. The cervical tissues must be rendered soft or the operation commenced after preliminary use of a laminaria tent, or following the period. The cervical canal must then be dilated to the full Hegar size. If the curette be used, it must be gently. I have found that application of iodized phenol makes little difference; if it is of benefit, I imagine it acts not by destroying germs but by determining blood to the part, and thus favouring the flow of serum. The cavity of the uterus being wiped out, one of the tubes illustrated should be inserted to maintain the dilatation and be used for a few days or a week. A thioline pessary is inserted in the vagina, and then a little gauze, and the patient put to bed; the top end of the bed is raised on blocks to facilitate drainage from the uterus. As soon as the patient is able she gets up and remains up, so as to place the drainage opening at the most dependent part. Using this operation for drainage instead of scraping I have had the most gratifying results. If the drainage tube tends to fall out, a small amount of iodoform gauze is placed at the top of the vagina. Every night for about two to three weeks, when the patient goes to bed, a thioline pessary is placed in the vagina.

The tube is a modification of a tube for which I am indebted to a previous contributor to the JOURNAL. It is about 2 inches long, slightly flanged at the vaginal end. At the upper third (uterine end) there is a slit to allow of the escape of exudation, and about three-eighths of an inch from the end around the tube is a ring to prevent the tube coming out of the cervical canal. At the flanged end is a small aperture for a silk thread to allow of easy extraction. Tubes have been made in five sizes, uterine diameters 3/16, 4/16, 5/16, 6/16, 7/16 of an inch, by Messrs. Allen and Hanburys. The smaller tubes could be used for drainage in leucorrhoea without an operation after preliminary dilatation by a laminaria tent. Many cases of whites can be cleared up or improved by such procedure if the drainage is maintained for a suitable time. Instead of curettage we might call this operation drainage of the uterus. It is a valuable prophylactic operation against damage of ovaries and tubes and the necessity for their mutilation and removal later. The tubes will also prove of value in maintaining dilatation for spasmodic dysmenorrhoea.



A, Slot. B, Retention ring. C, Flange. D, Opening for silk. E, Interior tube.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MILK SUBSTITUTES FOR THE SICK.

IN view of the present scarcity of milk it seems urgent that we should reconsider our present custom of feeding sick adults on a diet more or less composed of milk. There are, of course, many for whom it is essential. On the other hand, there are great numbers for whom it is not necessary and some for whom it is not even desirable. Indeed, there are not a few to whom it is repugnant.

In a hospital dietary before me the diet of every patient contains 1½ to 3 pints of milk daily, unless specially ordered otherwise. Now, is there any real difficulty in giving a digestible and sufficient diet without milk to a large proportion of these invalids—let us say, to many surgical, cardiac, and mild febrile cases? The fashion is to a great extent only of recent origin, and a peculiarly British one. We have not, indeed, the advantage our Continental friends possess in their light and harmless bouillons, potages, and ptisanes, nor are our patients (unfortunately) accustomed to them, nor have they the mild non-intoxicating breakfast beers of our forefathers, but the chief reason for the popular use of milk as a staple food for the sick, apart from its harmlessness and digestibility, is the ease of preparing it, which saves so much work to friends and nurses in a sick house. In many cases

it involves no troublesome prescription or cooking at all. However, it is neither a perfect food for adults nor is it always well digested, and the dangers of contamination are considerable. Patent foods we have in abundance, but their cost is serious and, to poor patients, often prohibitive. They are very well as an addition to the staple food or in special cases.

I recently asked an educated Chinese gentleman what they fed their patients on in China, where, as in many countries, milk was unobtainable. His reply was briefly, "Rice boiled to a liquid and suitably flavoured." To some extent only would this meet our needs.

The ordinary sick person requires a food which is liquid, and therefore easy to take, one very easy to digest and without a strong flavour, one especially which is cheap and easy to prepare, but it need not in many cases supply a very large amount of nutriment, particularly in brief illnesses or where the patient is allowed to supplement it with bread, farinaceous puddings, eggs, butter, meat juice, or fish. The use of milk for children, or for tuberculous, renal, and miasmatic cases is another matter, and to such as these it might be restricted.

Pulped rice can be made very similar to milk in appearance and flavour, but the protein and fat are extremely low. One of the best substitutes for milk in this country is a preparation of oatmeal with or without maize. If 4 oz. of rolled oats are thoroughly boiled and then—a little diastase having been added—allowed to stand in a warm place, some 5 to 10 per cent. of the starch is converted into maltose. If they are then strained, and water is added to a pint or a pint and a half, we get a liquid very like milk. The bitter flavour of gruel is to some extent got rid of by the malting process, and the slight sweetness renders it palatable. If we get the whole full value of the oats in liquid form we should have 460 calories, or more than that of a pint of milk, but in any case we have a nutritious and easily digested liquid food.

Ground rice treated in the same way is even better in colour and flavour, but we cannot expect the same nutritive value. The same may be said of wheaten meal when boiled, malted, and strained. Under the present regulations it is impossible now to obtain ready malted oatmeal which would shorten the process of making oatmeal.

However, this is only one of many ways in which we might obtain a substitute for milk for many of our sick. If some satisfactory method was agreed on, it should be easy to get it ready-made from a communal kitchen or private firms at a price much less than that of milk to-day.

Clifton, Bristol.

GEORGE PARKER, M.D.

TWO CASES OF FILARIASIS.

THE interest of the following two cases lies in the fact that they are, I believe, the first recorded from the Hedjaz or Red Sea littoral of Arabia, and that they are samples of cases which, on inquiry, I find to be very common in that area. One informant told me that in Jeddah there were hundreds of people with enlarged testicles and swelling of the scrotum.

Mosquitos (*Culex*, *Stegomyia*, and *Anophelines*) abound in Jeddah, and, apart from the local reservoir of infection, fresh sources become available each pilgrim season, when many pilgrims from Central Africa, where filariasis is rife, pass through.

It is curious that at Suakin, on the Sudan Red Sea littoral, where the conditions are practically identical with Jeddah, even to it being a town through which many pilgrims pass, the disease is unknown.

CASE I.—A male Egyptian, aged 40, a greengrocer, who had lived in Jeddah all his life, except for a visit to Egypt eight years ago, complained of a swelling in the right side of his scrotum, which, when it first appeared five years ago, was painful, but subsequently only caused inconvenience on account of its weight and size. There was a history of two attacks of gonorrhoea twenty-three years ago, and of attacks of fever lasting for a few days at a time. The patient, who appeared in good health, was found to be suffering from a large right hydrocele with some thickening of the cord; the left testicle and cord appeared normal. At the operation the parietal and visceral tunica vaginalis testis was found thickened, indurated, and ecchymosed, and the contained fluid was blood-stained and cloudy.

CASE II.—A male Jeddawi, aged 35, a porter, who had lived at Jeddah all his life, complained of what he thought was a right inguinal hernia of seven years' duration. Patient appeared in

robust health, and in the right inguinal region, extending from the interior abdominal ring to within an inch of the top of the testis, was found a tense swelling with no impulse on coughing. On lying down the swelling got smaller but did not disappear; it then seemed to be fluid confined in a thin-walled half empty sac. The remainder of the scrotum and contents appeared normal. No obviously enlarged lymphatic glands were felt, the urine was normal, and there was no swelling of lower extremities. A lymphocele was diagnosed, and patient advised that no operation was advisable unless a hernia should develop later.

The blood of both these patients when drawn at night-time was found to contain embryos of *Filaria bancrofti*—in that of Case I about three to four to a drop, in that of Case II as many as ten to fifteen. No embryos were found in the blood drawn during the day.

Two other patients from Jeddah came for treatment at the same time as the above, one with a double hydrocele with thin-walled sac and clear fluid, and the other with a large right lymphocele, small right hydrocele, and some epididymitis of the left testis due to a recent attack of gonorrhoea. The lymphocele had been noticed for twelve years. The patient was operated on, as the nature of the condition was not recognized previous to operation.

No filariae were found after repeated examinations of the blood of these patients, although, at any rate in the case of the lymphocele, I suppose that at some time or other they must have been present.

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DIFFICULT LABOUR CAUSED BY DISTENDED FETAL VAGINA.

I AM indebted to Dr. Young (Masselburgh) for permission to publish the following note:

A primipara, aged 21, eight and a half months pregnant, complained of swelling of the legs, and stated that she had not "felt life" for about a fortnight. On examination the abdomen appeared satisfactory and fetal heart sounds were made out; the urine contained 9 parts per 1,000 albumin. Two days later she was confined. The labour was simple as far as the head was concerned, but it seemed impossible to deliver the body on account of the large size of the child's abdomen. However, after using powerful traction, the difficulty was at last overcome, the distended abdomen producing an incomplete tear of the perineum. The child was stillborn. The mother made an uneventful recovery, and the albuminuria rapidly cleared up.

Post-mortem Examination of Fetus.

Unfortunately this had to be carried out very hurriedly a few minutes before the funeral. The anus was imperforate. On opening the abdomen a mass about the size of a child's head presented in the incision; this represented the pelvic organs, which were bound together by adhesions. The peritoneal cavity contained a considerable quantity of clear amber fluid. On incising the protruding mass at least 6 oz. of clear deep amber fluid escaped with a few flakes. The liver, kidneys, and spleen were healthy; the mass of pelvic organs was removed for examination. The specimen was found to consist mainly of a very greatly dilated double vagina, a bicornuate uterus, and the bladder and rectum. The two uterine bodies were distinct, somewhat dilated, and each had a Fallopian tube and ovary attached, the appendages being normal. The two cervixes and vaginae were separated by a septum. The former were not well developed, but were represented by a sort of pocket at the upper part of each vagina, the position of the os being marked by a crescentic "shelf" in each case. The urethra was buried in the septum between the two vaginae, and a narrow passage from the rectum was found running down in the septum; the vaginal walls showed distinct rugae. Unfortunately the external genitals had not been removed with the specimen, but from the fact that the vaginae were so greatly distended with fluid it is reasonable to suppose that they were imperforate.

The case is of interest principally from the rarity of a fetal vagina being so distended as to produce difficulty in parturition, and also in showing completely separate development of each of Müller's ducts. The lack of development of the cervixes is curious, as they are usually developed out of proportion to the body of the uterus in the fetus.

Edinburgh.

SYDNEY B. FAULKNER, M.B., Ch.B. Edin.

AT a meeting of the American National Academy of Science, held at the University of Pennsylvania recently, Dr. Simon Flexner announced that a substitute for salvarsan had been prepared at the Rockefeller Institute. The new drug, which is at present known as "A-189," is an organic arsenical compound which is said to be free from some of the disadvantages of salvarsan, and in particular to be less poisonous. It can also be produced very economically, the cost being about 5 cents a dose.

Reviews.

WOUNDS OF THE SKULL AND BRAIN.

Among the recent additions to the Collection Horizon is a volume¹ dealing with wounds of the skull and brain by MM. CHATELIN and DE MARTEL. It is based on an experience of 5,000 cases treated at the Salpêtrière at Paris, an experience probably quite unique not only in the numbers treated, but also in the facilities for careful examination, diagnosis, and treatment. The authors lay great stress on the minute and accurate examination and record of the wounded man, starting with the exact circumstances in which the wound was received and the first symptoms noticed, followed by a detailed account of the progress of the case and the nervous symptoms presented. After summarizing the signs common to all wounds of the skull, a description is given of those produced by wounds of the frontal lobe, of the Rolandic area, of the temporal, the parietal, and the occipital lobe, and of the cerebellum, and the anatomy of the various structures of the brain is described. Such complications as meningitis, cerebral abscess, and epilepsy are next dealt with, and the effects of the presence of foreign bodies discussed. The chapters dealing with treatment are excellent, and will well repay careful study. The authors hold that urgent operations such as are so often necessary for abdominal wounds are rarely required, and that gunshot injuries of the skull should be moved to a station where they can remain continuously under the care of the surgeon who performs the operation. Local anaesthesia is advocated, the advantages claimed being (1) that the sitting posture, which is the ideal, is practicable in the majority of cases; (2) that haemorrhage is diminished; (3) that post-anaesthetic vomiting is abolished. Anaesthesia is produced by novocain combined with adrenalin. The patient sits in a special chair with a head rest. The authors' method of avoiding haemorrhage is ingenious, and is stated to be effective. Quadrilateral flaps are made, an assistant presses the scalp on one side of the proposed incision vigorously against the bone with the ulnar border of his hand, and the surgeon does the same on the other side. After the incision is made and before the pressure is removed, the external aspect of the wound is seized in special forceps with a T-shaped end capable of grasping about 1 in. of tissue; the same procedure is repeated on the other two sides of the flap; the fourth side, on which, of course, there is no incision, has previously been underlaid with a haemostatic suture, and thus all bleeding is avoided. The authors insist that a craniectomy, to be satisfactory, must be carried out quickly without undue concussion or shaking of the patient's skull, and without any injury to the brain or dura mater. To carry out these principles they make use of several ingenious instruments. No mallet or chisel is employed. They make their bone section from within outwards. First, four small holes, 14 mm. in diameter, are made with a special form of perforator, then a grooved steel elastic band (Marion's protector) is passed from one corner to another, along this a Gigli's saw is guided, and the bone sawn through. This is done on three sides, and the fourth is raised without being actually broken by means of an instrument called *le Brise-base*, which consists of male and female parts fitting into one another, and worked by means of a screw. The female piece ends in a flat portion, which is slipped under the top of the bone flap; the male blade, which terminates in a point, is placed on the skull just above the bone flap. When the screw is turned sufficient force is exerted to break the bone away at the base. The authors insist on the greatest care in avoiding further injury to the brain when removing splinters of bone and pieces of metal. Minute fragments are sometimes best removed, they say, by simple prolonged irrigation with warm physiological serum. Full details of the treatment of all conditions likely to be met with and of the accidents and complications of operation are described. The book can be highly recommended as a most valuable treatise on this particular branch of war surgery. It bears the impress of skilled and practical observers and operators.

¹ *Blessures du Crâne et du Cerveau*. By Ch. Chatelin and De Martel. Paris: Masson et Cie. 1917. (Demy 8vo, pp. 275; with 100 illustrations. 4 francs.)

NEUROLOGY.

At the present time, when the attention of practitioners is continually directed to fresh problems in the diagnosis and treatment of nervous disorders, it is essential that the student of medicine should obtain a thorough grasp of the principles and practice of neurology. The appearance of *A Manual of Nervous Diseases*,² by Dr. IRVING J. SPEAR, is, therefore, particularly opportune. The book, designed for the use of the general practitioner and student, begins by a systematic description of the anatomy and physiology of the nervous system. The section on anatomy is excellent and deserves especial praise, the more so as most writers on nervous diseases are apt to give but scant attention to the subject. The busy practitioner who wishes to obtain an insight into some special condition can hardly be expected to delve into the dusty volumes of his student days to look up a point of anatomy. The author has appreciated this fact and given him the help he needs.

For the proper understanding of the science of neurology three things are necessary: First, a knowledge of structure, that is, anatomy; secondly, ability to correlate pathological signs and symptoms with damage to a particular structure; and, lastly, familiarity with the diseases met with in neurological practice. The author rightly insists on the fundamental importance of anatomy, but we wish that he had seen fit to devote a little more space to the study of function. The few paragraphs on physiology contain scarcely more than may be found in any textbook on that subject. What is wanted, and what is especially valuable to the student, is the translation of physical signs into pathological lesions. We want to be told that spasticity, increased deep reflexes, and extensor plantar response are characteristic of lesion of the pyramidal tract; we would fain know something of the diagnostic significance of diplopia, or of how to distinguish the paralysis of a cranial nerve from lesion of its nucleus. True, a certain amount of information of this nature is given scattered in various sections of the book, but usually only in incidental fashion, and not in a manner calculated to call the student's attention to its importance.

The description of the various diseases of the nervous system is well done, the chapters being short and to the point. The work is eminently practical, theories being left out as far as possible. Diseases of simpler structures, such as peripheral nerves and muscles, are dealt with first, the more complicated disorders of ductless glands and vasomotor system, and the trophic neuroses being left till the end. This arrangement, although in many respects good, occasionally leads to anomalies in classification. For instance, the author includes progressive bulbar paralysis under diseases of the muscular system, while progressive muscular atrophy and amyotrophic lateral sclerosis, which he describes as separate diseases, are placed under the heading of spinal cord. The subjects of hysteria and neurasthenia are ably and fully dealt with, the vexed question of psycho-analysis being treated in a sane and rational manner, and the dangers of this method in inexperienced hands insisted on. A detailed account of treatment is given wherever possible, and should prove of much value to the practitioner.

The publication of a second edition of *Diagnostic Symptoms in Nervous Diseases*³ is proof that the volume holds a place of its own among textbooks of neurology. Dr. HUNT's aim is to give as shortly as possible the salient points and leading symptoms of the principal nervous diseases. This being so, we venture to think that the first chapter, containing over thirty pages of instructions for the examination of a nervous case, is somewhat unnecessarily detailed. For example, with reference to the previous history of the patient, he says: "Begin with the mother's pregnancy, labor, and delivery. Make a careful study of the infancy, the age at which the patient walked, talked, and teethed; the mode of feeding and bringing up

² *A Manual of Nervous Diseases*. By Irving J. Spear, M.D., Professor of Neurology at the University of Maryland, Baltimore. Philadelphia and London: W. B. Saunders Co. 1916. Post 8vo, pp. 650; 172 figures. 12s. 6d. net.

³ *Diagnostic Symptoms in Nervous Diseases*. By Edward Livingston Hunt, M.D., Assistant Professor of Clinical Neurology, College of Physicians and Surgeons, New York City, etc. Second edition revised. Philadelphia and London: W. B. Saunders Co. 1917. (Demy 8vo, pp. 292; 64 figures. 8s. 6d. net.)

the child; the progress of the child at school; then the home life of the individual, together with the bringing up, diseases and incidents of the next twenty years." This is but a small portion of the investigation we are directed to make. The book consists very largely of lists of diseases in which some special symptom occurs. Unfortunately, this method of instruction, useful as it undoubtedly is for examination purposes, is open to the objection that it does not give the student any real insight into the origin and cause of the symptom described, and that often diseases are grouped together which have nothing in common. The author is apt to sacrifice accuracy to brevity. The symptom of dwarfism, for instance, is dismissed in the one sentence: "Dwarfism usually means cretinism." Achondroplasia, which in England, at any rate, is the commoner condition, is not mentioned. Again, we do not think that muscular dystrophy should be grouped as a disease of the spinal cord. These defects are unfortunate, for when the author turns from his lists and tables to a more descriptive style he gives us some really good reading. The chapters on tremors, aphasia, and cerebro spinal fluid are excellent. We wish that he had brought the whole volume up to this level, and so made it a work of scientific value rather than a cram-book for examination candidates. The illustrations are clear and well chosen and are an attractive feature of the book.

ARMY GENERAL HOSPITALS.

LIEUT. COLONEL P. MITCHELL has edited, and partly written, a useful little work on the administration of *Army General Hospital Administration* under active service conditions.⁴ The information which it conveys is based upon the experience of the present war, which has made necessary the revision of much that was thought to be accepted knowledge. While the general principles have largely held good, their practical application has had to be constantly modified under the stimulus of new methods of treatment and new conditions of warfare. The notes compiled by Colonel Mitchell and his colleagues serve a double purpose: they furnish a short guide to the administration and hygiene of a hospital camp, and they indicate to those who are already experts in these matters certain possibilities of improvement upon the present high standard of efficiency.

A critical attitude, when not overdone, is to be welcomed in a work of this kind: the usual fault is reverence for the established order of things. No manual on hospital administration by an officer of the regular army would be likely, for instance, to state bluntly that "the first military reason in determining the rank of a clinical officer should be his fitness from experience to perform specialized duties and not length of service in the army"; nor perhaps would such an author, whatever his private opinion, lay down the proposition that "No medical officer should have duties which can be performed by a N.C.O. or a non-medical officer; nor should medical duties of a commonplace nature, or of only clerical medical value, be performed by medical officers possessing valuable clinical experience—for example, M.O. i.e. of dépôts of medical stores, registrar in a general hospital." But Colonel Mitchell is not deterred by respect for authority from saying such things. The same note of implied criticism is apparent in Major G. H. Colt's suggestive contribution on the organization and equipment of the surgical division. The section on camp sanitation, by Captain Robert Richards, gives an excellent summary of the subject within the small compass of thirty pages; while Major A. W. Falconer's short chapter on the medical division has some sound remarks on the importance of case sheets. Both he and Major Colt protest against frequent changes of medical personnel—always a thorn in the side of administrative officers.

On this subject Colonel Mitchell goes even further: "Junior officers possessing specialized clinical experience," he maintains, "ought not to be reposted from ward duties to regiments or field medical formations, where their clinical value is not exercised, simply because they happen to be young; and if transferred on the plea of urgency, they should be returned as soon as possible." In another chapter he says that general practitioners are relatively of

more value to the civil community than to the army, and ought, therefore, to be the last group to be enlisted in numbers. Even those most disposed to accept the truth of this may be left wondering how Colonel Mitchell would maintain the supply of regimental and field ambulance medical officers in face of the demand.

THE PRINCIPLES OF RATIONAL EDUCATION.

In the reconstruction after the war education will be in the melting-pot, and it is only right that, among other voices, that of the medical profession should be heard. From his ripe experience of Cambridge, Sir Clifford Allbutt expressed his views on the aims and objects of education in the educational supplement of the *Times*, and thereby stimulated Dr. MERCIER to expand an intended magazine article into a small book on *The Principles of Rational Education*.⁵ The main aim of education is to fit the child for his life by the formation of character, by inducing clear thinking and accurate expression, and by imparting a knowledge necessary to action. While freely admitting that, as tested by the ordeal of the war, the character of British manhood and womanhood has generally come out admirably, Dr. Mercier trenchantly condemns our system of education in some of its aspects. He is merciless in his condemnation of the classical routine as a means of teaching English, holding that it is a fallacy to say that it engenders a good literary style, and forcibly insists that the public schools do not furnish boys with any knowledge at all. His criticism is highly destructive, but he is careful to be constructive also, and after a study of the child a reasoned account is given of how he should be progressively taught movements, speech, writing, and be shown first how to do things, and only later to know details. Children should be taught to think, and incidentally John Hunter's "Don't think, try," is converted into "When you have thought, try," and the sound maxim inculcated, "It is no use trying to teach a child anything unless you can interest him in it." The natural tastes and abilities of children should be seriously taken into account in deciding on the course of instruction, and, most important of all, the method of teaching should be reformed. Dr. Mercier writes very strongly because he feels very strongly, and, as it is impossible to make an omelette without breaking eggs, it is unlikely that he will escape hostility from the teaching profession, whom, it must be admitted, he does not go out of his way to conciliate. His conclusions are keen, refreshing, and, if iconoclastic, still essential, true, and wholesome.

NOTES ON BOOKS.

THE Ministry of Munitions has issued a small handbook entitled the *Health of the Munition Worker*.⁶ It is founded upon a series of memoranda issued from time to time during the last two years by the Health of Munition Workers Committee. Sir George Newman, the president of the committee, in a preface to the handbook, says that its purpose is to state in a brief categorical and somewhat dogmatic form the principal steps which must be taken to maintain the health and efficiency of the worker. It is intended to serve as a guide to directors, managers, foremen, and others in authority in munition works, but many of the suggestions it contains have a bearing on problems arising in other industries. It contains a number of photographs showing the costumes for use in particularly dangerous trades, the general appearance of kitchens, storerooms, and serving rooms in canteens, and a works surgery. It also contains a number of plans for canteen buildings and sketches of various fittings, including a set showing a variety of types of seats for use while at work. The appendices contain a list of canteen equipments, an order made last September with regard to the provision of first aid, a copy of the "rules for the use of trinitrotoluene," and some other official information. The book, which is provided with an index as well as a table of contents, will be found very useful for consultation by persons having any responsibility with regard to the health and welfare of munition workers.

⁵ *The Principles of Rational Education*. By Charles A. Mercier, M.D., F.R.C.P., F.R.C.S. London: The Mental Culture Enterprise, 1917. (Cr. 8vo, pp. xi + 87. 2s. 9d. net.)

⁴ *Memoranda on Army General Hospital Administration*. By various authors. Edited by P. Mitchell, M.D., Aberd., Lieut.-Colonel R.A.M.C. (T.F.). London: Baillière, Tindall, and Cox, 1917. (Demy 8vo, pp. 109; 8 illustrations. 5s.)

⁶ *Health of the Munition Worker*. 1917. London: H.M. Stationery Office. (Pp. 158. 1s. 6d. net.)

The British Red Cross Society has issued a small *Manual of Splints and Appliances for the Treatment of Bone and Joint Injuries*,⁷ prepared for the use of the United States army, and formally approved last September. It was compiled by a board of medical officers. It is primarily intended to enumerate, describe, and illustrate certain simple types of apparatus all very generally applicable, and to encourage standardization. In this matter of the provision of splints the administration is in a dilemma; on the one hand it would be very undesirable to discourage ingenuity in the devising of improvements in splints, and on the other the multiplication of types of splints causes serious difficulties in supply. In an introductory note, written for the edition issued by the British Red Cross Society, Surgeon-General Sir George Makins says that "no advance or new procedure in military surgery has contributed in a greater degree to the well-being, comfort in transport, and general success in results attained, than the extended adoption of splints of the H. O. Thomas type," and our readers will remember a paper by Major Osgood, a member of the committee who prepared this handbook, published in the JOURNAL of October 13th, 1917, in which he described some adaptations of the Thomas splints to special conditions, remarkable for their ingenuity and simplicity. The committee expresses the belief that "with the three types of wire-ring traction and counter-pressure fixation splints embodying the Thomas principle, the Jones 'cock-up' 'crab' wrist splint, the long interrupted Liston splint with adjustable footpiece, an anterior thigh and leg splint, Hodgen type, the Cabot posterior wire splint, the wire-ladder splint material, light splint wood, and plaster-of-Paris bandages and Bradford frames, treatment of all bone and joint battle casualties may be efficiently carried out at the front, and if necessary in base hospitals."

A portfolio containing a description, copiously illustrated, of No. 7 (Queen's) Canadian General Hospital has been issued. The hospital has had the support not only of the Red Cross Society in general but of the branch in Kingston, Ontario, and the Queen's University in particular. The offer to raise it, made in November, 1914, by Colonel Etherington, C.M.G., at present in command of it, was not at once accepted, but at the end of March, 1915, the medical faculty at Queen's University resolved to give its support and assistance, and students from all faculties offered themselves. The unit left Canada in May, 1915, with an establishment sufficient to provide for 200 patients. Shortly after arriving in England the accommodation was doubled, and the necessary additional personnel was raised in Kingston, and joined the unit in July. On August 14th a 600-bed hospital was opened at Cairo, and the additional personnel was again recruited in Kingston. At the close of the Gallipoli campaign the hospital moved to France and conducted a hospital of 1,040 beds under canvas during the Somme offensive. In November, 1917, the hospital, on another site in France, provided accommodation for 2,300 patients, and had apparently come to the end of its travels.

The essay on *The Psychology of War*,⁸ by a lecturer on medical psychology at Cornell University, was mainly written in 1916, but there is a short chapter on "America at War." Dr. MACCURDY is convinced that peace will be accelerated by a more widespread understanding of the psychology of war, which is compared to insanity and, like it, occurs explosively after periods of quiet. Freud and Trotter are probably the only psychologists whose hypotheses are not essentially tautological, and accordingly psycho-analysis and the herd instinct only need serious consideration. Freud considers that civilization has repressed man's primitive instincts, which are constantly striving for an outlet in war; whereas, according to Trotter, man is instinctively a herd animal, and when his gregariousness becomes aggressive war is imminent. The author combines these two hypotheses to explain war: as a result of the herd instinct, which makes man accept the opinions of those immediately around him—herd or mob suggestion—the actions of his group only seem right, and antagonism to the other groups occurs; and then man's primitive instincts assert themselves. Education is, he thinks, the remedy for war, just as preventive psychology is for insanity; instincts act unconsciously, but if a man is so educated as to know himself and recognizes and controls his instincts, there is hope that in the future war may be prevented.

The fourth edition of Professor SAYRE'S *Manual of Organic Materia Medica and Pharmacognosy*,⁹ a work that has been used in America for nearly thirty years, is a handsome and well arranged volume in which the materia medica of the ninth revision of the United States Pharmacopoeia is discussed from what may be described as primarily a botanical point of view. The volume is divided into four parts. The first of these gives a classification and conspectus of the various drugs employed, official and unofficial; the second, extending to 410 pages, gives a description of these drugs, and is illustrated with many botanical pictures; and the third contains an account of the insects injurious to drugs, a matter of no little importance to the druggist whether wholesale or retail. The fourth part describes the methods of recognizing powdered drugs, largely by the use of the microscope.

⁹ *A Manual of Organic Materia Medica and Pharmacognosy*. By Lucius E. Sayre, B.S., Ph.D. Fourth edition (revised). Philadelphia: P. Blakiston's Son and Co. 1917. (Med. 8vo, pp. xviii+606; 302 figures, 4.50 dollars net.)

PNEUMONIA AND ITS SERUM TREATMENT.

For some years the special study of pneumonia, which has been in progress at the hospital of the Rockefeller Institute, New York, under the direction of Dr. Rufus Cole, has added much to knowledge and has inspired work on the same lines elsewhere in the United States. A number of reports on the subject have appeared recently and deserve attention.

Analysis of 454 cases of lobar pneumonia in the Rockefeller Hospital during the past five years is of interest in connexion with the types of pneumococci which, as will be seen later, have an important bearing on the treatment by antipneumococcal serum; Type I was responsible for 33 per cent., Type II for 29, Type III for 13, Type IV for 20, and atypical forms of Type II for the small remainder (Stillman). At the Johns Hopkins Hospital, Baltimore, 54 cases of lobar pneumonia, investigated by Clough,¹ between February, 1915, and September, 1916, showed that the percentage incidence of the types of pneumococci agreed very closely with those at the Rockefeller Hospital and elsewhere in America, except for the low percentage of Type II and the correspondingly high percentage of atypical Type II strains, which have only been recognized during the past two years. Incidentally it may be noted that the strain of pneumococcus most frequently found in the pneumonia among the blacks in the Rand, South Africa, appears to belong to Type IV, and that F. S. Lister,² who independently and practically simultaneously (1913) with Dochez and Gillespie in America separated out four types of pneumococci, has now described four more types of pneumococci in South Africa in addition to those of the American observers.

With regard to the pneumococci found in the mouths of 50 per cent. or more of normal persons, Stillman shows that Type IV predominates, that Type III is frequent, that atypical forms of Type II are occasionally present, and that Types I and II are rare unless the carriers have been in contact with cases of pneumonia due to these types; thus among 184 normal persons intimately associated with Type I or II infections 11 per cent. carried pneumococci of these types, whereas among 297 persons without any history of contact, pneumococci of Types I and II were present in 0.8 per cent. only.

The occurrence of pneumococci in the dust of houses, though of significance in the incidence of the disease, has hitherto attracted little attention. From the dust of rooms inhabited by patients or carriers of Types I or II pneumococci of the same type may be recovered, whereas in the dust of rooms not so inhabited the predominant pneumococcus is Type IV. Types III, IIb and IIc being also present, whereas Types I and II are very rare. These data justify the conclusion that infection with Types I and II depend upon contact with a case or carrier of these types, the contact being either direct or indirect, that is to say, air-borne from dust.

An intensive study of blood cultures has been carried out at the Johns Hopkins Hospital by Sutton and Sevier,⁴ who made daily cultures in 65 cases of pneumonia from the day of admission until the rectal temperature fell below 100° F. A striking correspondence was thus brought out between the percentages of the positive blood cultures and of the mortality; in cases of pneumonia due to Type I the percentage of positive blood cultures was 45.8, and that of

⁷ Published for the British Red Cross Society. London: Hodder and Stoughton. Oxford University Press: Henry Frowde. (2s. 6d. net.)

⁸ *The Psychology of War*. By John T. MacCurdy, Lecturer on Medical Psychology, Cornell University Medical School, New York. London: William Heinemann. 1917. (Cr. 8vo, pp. ix+68. 2s. 6d. net.)

deaths 41.7, and in pneumonia due to Type IV both percentages worked out at 18.2. Among the cases with persistently negative blood cultures there were three fatal cases only, and two of these had very extensive consolidation. From observation of eleven cases of pneumonia (Type I) treated by antipneumococcal serum at the Johns Hopkins Hospital, Bloomfield⁸ found that the serum prevents the occurrence of haemic infection, and that it sterilizes the blood when septicaemia has already arisen.

In an investigation into acidosis and acid excretion, W. W. Palmer⁹ showed that in many severe cases of pneumonia the urine contains a large quantity of an organic acid, the nature and significance of which are being made the subject of further research, but that acidosis as determined by the combined CO₂ in the plasma is seldom, if ever, grave.

In a paper containing several points of great interest Dochez and Avery⁷ find that the pneumococcus, which is not known to produce a soluble toxin, and the pathogenic effects of which are supposed to be due to an endotoxin, or to split protein products liberated on its death and disintegration, during its active growth throws out into the blood of experimental animals and pneumonic patients a soluble substance, possibly analogous to Bail's agglutinins. This soluble substance, which the authors are careful not to call a toxin, as they have not as yet been able to prove with certainty that it is responsible for the intoxication accompanying pneumonia, gives a specific precipitin reaction with the antipneumococcal serum corresponding in type to that of the pneumococcus infecting the patient. In cases persistently excreting the precipitable soluble substance in the urine resolution of the pneumonia is delayed, and its amount serves as an index of the severity of the infection; cases with large amounts prove fatal, whereas most of the cases that fail to show it recover. This precipitin test is not only of considerable prognostic importance, but it provides a rapid diagnosis of the type of pneumococcus responsible for the patient's pneumonia. Cole,¹⁰ writing, like Dochez and Avery, from the Rockefeller Hospital, but without making any reference to their conclusions, shows that in pneumococcal infection soluble substances (virulin or antiphagin), found especially in pleuritic exudates but also in the blood, may fix and so remove from the blood the antibodies contained in antipneumococcal serum injected intravenously. In such cases the serum becomes effective only when the soluble substances have been neutralized, and hence in severely infected patients the serum should be injected early and the initial dose should be large. Agglutinin curves, which appear to be an index of any other specific antibodies in the blood, before and after the intravenous administration of serum may explain why in some instances antipneumococcal serum fails to do good. Other and most important limitations of the antipneumococcal serum treatment are (1) that, as the types of pneumococci have in general a high degree of specificity, a homologous serum is necessary; and (2) that while the immune serum against Type I is of great therapeutic value, the serums corresponding to Type II and others have as yet proved ineffective. The use of antipneumococcal serum should, therefore, be confined to cases of pneumococcal infection proved to be due to Type I. Cole and Moore⁹ describe in detail the method of manufacturing this serum. Blake's¹⁰ observations throw some light on the mode of action of antipneumococcal serum. As the serum retards the growth and metabolic activities of the corresponding type of pneumococcus, it has been thought that it does so in virtue of an antizymotic (or antiblastic) effect on the surface of the bacteria. But Blake shows that the inhibitory and agglutinating powers run parallel, and that with the removal of the agglutinins the inhibitory influence of the serum disappears. The inhibition of the metabolic activity of pneumococci, therefore, appears to be due to their agglutination and consequent inability to grow in intimate contact with the whole medium.

In a number of instances intravenous injection of antipneumococcal serum was followed by a sharp reaction and chill, after which the temperature fell, but rose again; this sequence might be repeated after a further injection. Dochez¹¹ refers to 65 cases of pneumonia due to pneumococcus Type I treated by the homologous serum with a mortality of 7.5 per cent., or a reduction of 17.5 per cent. as compared with the mortality of 25 per cent. in cases of

pneumonia (Type I) treated on ordinary lines. Serum disease is frequent after this treatment; it occurred in 7 out of Bloomfield's 9 cases that lived long enough, was severe in 5, and in a case that received 1,100 c.cm. a well-marked reaction persisted without intermission for thirty-seven days, in another case for twenty, and in a third for fourteen days. In two cases alarming anaphylactic shock occurred immediately after injection, although no evidence of hypersensitiveness had been given by the preliminary desensitizing injection. Among fifteen patients given antipneumococcal serum at the Peter Bent Brigham Hospital by Alexander¹² three were known to be subject to horse asthma and had asthmatic symptoms after the serum but did not manifest serum disease, even after 350 c.cm., whereas the non-asthmatic patients nearly always showed serum reactions.

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- ⁵ A. Bloomfield, *ibid.*, 1917, xxviii, 371-306.
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- ⁷ A. R. Dochez and O. T. Avery, *ibid.*, 1917, xxvi, 477-493.
- ⁸ R. Cole, *ibid.*, 1917, xxvi, 453-475.
- ⁹ R. Cole and H. P. Moore, *ibid.*, 1917, xxvi, 537-561.
- ¹⁰ F. G. Blake, *ibid.*, 1917, xxvi, 563-580.
- ¹¹ A. R. Dochez: Serum Treatment of Pneumococcus Infection, in Musser and Kelly's *Practical Treatment*, 1917, iv, 225.
- ¹² H. L. Alexander, *Arch. Int. Med.*, Chicago, 1917, xx, 636.

A DIETARY WITHIN THE RATIONS.

THE actual construction of diets conforming to the Food Controller's wishes and at the same time providing adequate energy at prices within the means of working class families is extremely difficult. The accompanying table is a suggestion. The amounts of rationed articles are based upon the voluntary ration for an adult man on ordinary industrial work. The diet provides 3,258 calories with 88 grams of protein and would cost at controlled maximum retail prices (tea at 4s. per lb.) 1s. 1½d. daily.

Daily Amounts.	Calories.	Prices (in pence).
Breakfast:		
Bread 6 oz.	441	0.84
Margarine 4 oz.	56	0.19
Oatmeal 1 oz.	116	0.31
Milk 2 pint	51	0.50
Sugar 4 oz.	57	0.19
Tea 4 oz.	—	0.37 — 2.40
Dinner:		
Bread 2 oz.	147	0.28
Meat 3 oz.	195	3.04
Margarine 3 oz.	111	0.38
Potatoes 1½ lb.	641	1.50
Rice or flour 1 oz.	103	0.16
Jam or syrup 2 oz.	30 — 1,227	0.28 — 5.64
High tea and supper:		
Bread 8 oz.	688	1.13
Meat 1½ oz.	97	1.52
Margarine 3 oz.	167	0.57
Potatoes 1 lb.	320	0.75
Milk 2 pint	51	0.50
Sugar 4 oz.	67	0.19
Jam 2 oz.	30	0.28
Tea 4 oz.	—	0.37 — 5.31
Totals	3,258	13.35

This diet as it stands is hardly sufficient, and no provision is made for green vegetables. If a margin of sixpence daily is allowed to cover the cost of cabbages and other greens and the addition of small quantities of fish, more jam, eggs, and cheese, when these articles are available, it would seem that 1s. 7½d. a day is sufficient to cover the cost of food alone. It is hard to see how the cost can be reduced further save by the substitution of more potatoes.

BRIGADE-SURGEON JAMES DAVIDSON of Aberdeen, who died on July 26th, 1917, left personal property of the value of £49,763. He left £100 each to the Aberdeen Royal Infirmary and the Aberdeen Sick Children's Hospital, and £50 each to the Maternity Hospital, Aberdeen, and the Royal Medical Benevolent Fund, London.

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SATURDAY, JANUARY 12TH, 1918.

THE INDIAN MEDICAL SERVICE.

THE visit of the Secretary of State for India to that country, which is, we believe, an unprecedented incident, has been generally accepted as evidence that the British Government has come to the opinion that the system of administration in India needs overhauling. During the past generation or two it has become more and more centralized, owing partly to greater rapidity of communication so that the authority of a central department is more easily exercised, but partly also to the growth of the power of the central bureaucracy. These two influences have combined to stereotype methods and discourage originality.

The old idea, not peculiar to this country or to India, was that in its policy a national government need concern itself only with such matters as taxation and expenditure, the franchise, and the prevention and making of war. But the public at home now requires a cabinet to have a policy of social reform, and is beginning to recognize that a part of this must be a well-informed and comprehensive health policy. Consequently one of the first works of reconstruction, to be carried through if possible even before the end of the war, is the establishment of a Ministry of Health, whose function it will be to stimulate the study of large general principles and to direct and encourage local efforts to apply them in detail. In India there has been no settled health policy, owing, we take it, to the circumstance that the Indian bureaucracy, able as so many of its individual members are, has not reached the stage of political development when this obligation of good government is recognized.

Two recent instances of the unfortunate result of the absence in India of a well-informed and comprehensive health policy are afforded by the failure to control the outbreak of plague, and the story of the early stages of the Mesopotamia campaign. In neither case did the Government of India at the outset call in experts to ascertain the facts; in both it was content, at first, to work by rule of thumb, and only sought the knowledge that would have prevented the mischief after part of the mischief was done. The patent failure of bureaucratic methods to stay the plague had this good effect at least, that it put into the hands of the late Sir Pardey Lukis a lever to move the Government of India to give practical recognition to the importance of scientific research in epidemiology and pathology as implements of good government. No man could have used his opportunity more wisely, but he would have been the first to admit that his achievement, great as in the circumstances it was, was only a beginning, though a promising beginning.

The Indian Medical Service, and the two Government medical departments in India which are rather unhappily named subordinate, have suffered many things at the hands of the Indian bureaucracy. We propose now only to deal with the premier service, reserving what we have to say of the two departments for another occasion. The Indian Medical Service has a splendid record in clinical medicine and surgery, and in research, but it has fallen

on such evil times that its sincerest friends are tempted to despair of it. Before Mr. Montagu started for India he had been asked to receive a deputation to speak on behalf of the British Medical Association. There seems to have been some delay in bringing the request to his notice, and there was then no time for him to arrange the interview before he started. It has been considered advisable to send to him a memorandum, which is published in the SUPPLEMENT this week, on certain defects in the constitution of the Indian Medical Service, in anticipation of the interview which is to take place on his return to this country. The memorandum is not intended to deal with every detail which must be adjusted by the Secretary of State and the Government of India if the Indian Medical Service is to be put on a satisfactory footing to enable it to do the best possible for the peoples of India, but it is believed to touch all these matters of principle by which details must be determined. The preamble sets out some truisms which it would seem are not understood by the secretariats at home or in India. The first three sections of the body of the memorandum are concerned with the position the advisers of the Secretary of State, of the Government of India, and of the Provincial Governments on medical and hygienic research and administration should hold in order to ensure that expert advice shall always be available to the governments in framing a sound health policy and in carrying it out in practice.

The remainder of the memorandum deals broadly with education and recruitment and with emoluments. If Great Britain is to provide an Indian Medical Service at all it must attract the best. Less now than ever does India want the second-rate. The attraction by which the Indian Medical Service drew the right sort of young medical men was that it offered a career where the recompense for the hard work which must go to the acquisition of skill would be found in the immense opportunities for the exercise of that skill, in the respect of the peoples benefited by it, in the recognition of the value of such work by the Government, and, finally, in the winning of the pecuniary reward which justly attends the successful practice of a learned profession. The glory of the Indian Medical Service has been the number of men it has produced eminent in clinical medicine and surgery, including the various specialities, particularly, perhaps, ophthalmology, and in scientific research. A wise Government would do everything possible to foster their succession. That the contrary policy is being pursued by the ruling class in India is to be attributed to want of imagination due to the causes indicated at the beginning of this article, and in part, it is to be feared, to hierarchical exclusiveness and an unworthy jealousy. We trust to Mr. Montagu to put the matter right.

THE PROBLEM OF CONGENITAL SYPHILIS.

DR. AMAND ROUTH, in his recent address on antenatal syphilis, of which we print an abstract this week, propounded an interesting explanation of anomalies found in certain syphilitic children and their mothers in respect of negative Wassermann reactions, and the absence of spirochaetes in the tissues. He suggests that the chorionic ferments have a destructive action upon the infective agent, tending to protect the mother and child from infection during pregnancy, by breaking up the spirochaete into granules which are biologically less active than the mature organism.

This view, if confirmed, would account for the fact that congenital syphilis is so often not apparent at birth, and sometimes even remains quiescent until puberty, while the mother may show a like latency of symptoms.

But apart from the interesting field for speculation and research which he opens out, Dr. Routh's address comes as a timely reminder of the havoc due to congenital syphilis. He estimates that 25 per cent. of stillbirths and abortions in the urban centres of this country are probably due to syphilis. When to such figures are added the number of children dying from marasmus and other deadly manifestations of inherited syphilis, the wastage of life due to this poison is seen in something like its true perspective. Evil as are the effects of acquired syphilis in the adult, those of congenital syphilis are still more disastrous. And this is not to be wondered at, since throughout prenatal existence and early life the tissues invaded by the syphilitic virus are in course of active development, with a correspondingly greater susceptibility to grave and lasting damage. The congenital form of syphilis is constitutional from the outset, and exerts a profound influence for ill upon nutrition, growth, and vitality. After an investigation of 516 cases of congenital syphilis Hoehsinger came to the conclusion that only about 25 per cent. of the infants thus infected grew up into comparatively normal adults.¹ There is no reason to suppose that that was an overstatement of the position a few years ago; though we may hope that early and adequate specific treatment of the mother throughout pregnancy and of the child in the first years of life will before long lead to better results. Nevertheless, a more recent report by Veeder² upon 331 pregnancies in 100 syphilitic families, indicates that among the 161 surviving children only 33 were free from infection at the time of the investigation.

In recent years the movement of medical opinion has been towards an increasing recognition of the serious nature of congenital syphilis in the light of modern diagnostic methods. Thirty years ago so high an authority as Jonathan Hutchinson wrote: "In hospital practice and amongst the poor the mortality from syphilis in infants is large. This, however, is to be explained by the disadvantageous conditions as regards feeding and treatment under which the infants are placed rather than by the severity of the disease itself. Amongst the richer classes the malady is, I think, rarely fatal." This, of course, was written before the discovery of the spirochaete and the introduction of the Wassermann test; and Sir Jonathan Hutchinson happily lived long enough to revise in the light of new knowledge a number of opinions formed when he was ploughing a lonely furrow.

The national campaign against venereal disease has made considerable progress during the past year. The Act now in force prohibits treatment by unqualified persons, and local schemes for diagnosis and treatment have been set up in an increasing number of districts; while the educational work of the National Council for Combating Venereal Diseases continues to supplement municipal efforts. We may here mention, as of particular interest in relation to the problem of congenital syphilis, the venereal centre for pregnant women which the Guardians of the City of London Union have established at Thavies Inn, under the charge of Dr. John Adams. The results of this experiment will be watched with interest, for the grouping together of in-patients for observation and treatment may perhaps lead in time to the

drawing up of therapeutic rules applicable to such cases generally. In the Dominions also the need for action has been recognized. Thus, in Australia, the State of Victoria, under the powers conferred by the Venereal Diseases Act, 1916, has issued drastic regulations making it obligatory upon every person suffering from, or suspecting that he is suffering from, venereal disease to seek qualified advice, to follow the instructions given, and to remain under treatment until he has received a certificate of cure; while the parents or guardians of infected children are under a similar obligation in respect of their charges.

It is clear that such measures, and, indeed, all organized efforts for checking venereal disease, will be of little avail unless medical students are trained in the modern technique of diagnosis and treatment. This was recognized by the Royal Commission on Venereal Diseases, which recorded its conviction that every medical student ought to receive adequate practical instruction, and that his knowledge of venereal disease ought to be systematically tested at the final examination. Up to the present, however, as Dr. David Watson points out in a paper which we publish this week, the General Medical Council has taken no steps to enforce compulsory teaching of either venereal diseases or of the germane subject dermatology. Dr. Watson puts the matter in a concrete form by describing the venereal disease clinic of which he is in charge, and its course of teaching. His sketch should prove helpful and suggestive to the authorities of other medical schools which have not as yet provided their students with special instruction in this most necessary branch of medical practice.

THERAPEUTIC IMPORTANCE OF BACTERIAL STRAINS.

WE publish elsewhere in this issue an analysis of recent American researches into the bacteriology and serum treatment of pneumonia, which, in spite of the mass of rather technical details it contains, will well repay the study of all engaged in the practice of medicine whether as general practitioner or physician. Pneumonia—raised by Osler to the rank of "captain of the men of death," the title conferred on consumption by John Bunyan—is as dreadful a disease for adults as diphtheria used to be for children. It knocks a man down in the prime of health and life, inflicting a blow which, when not fatal, as it so often is, cripples him for months. Bacteriology has robbed diphtheria of many of its terrors, but hitherto has done little for the other disease. The well directed researches carried on for several years past at the Hospital of the Rockefeller Institute and more recently at the Johns Hopkins Hospital, have given a clue which, when followed up, may be expected to afford most important practical results.

It must be admitted that the doctrine of strains of pathogenic organisms introduces a complexity into the practical application of pathological bacteriology that to the plain man may well seem bewildering. But it would be useless to revile the bacteriologists, for that is to quarrel with the facts of nature: and we should rather examine the new facts in order to see if thereby we may extract some explanation of past failure and some hope of future success.

Lobar pneumonia apparently consists of infection by strains of pneumococci which are distinct from one another as regards their serological reactions; and from the point of view of serum treatment pneumonia due to pneumococcus Type I is a different condition

¹ Marshall: *Syphilology and Venereal Disease*.

² *American Journal of Medical Sciences*, 1916, ciii.

from pneumonia due to pneumococcus Type II. It follows that any reasonable certainty of successfully treating pneumonia by antipneumococcic serum depends on the bacteriological diagnosis of the type of pneumococcus present; if it is Type I, the corresponding or homologous serum should do good, but unfortunately this is all that can be said at present, for the antipneumococcic serum for Type II is ineffectual, and the serum homologous to Type I has no effect in pneumonia due to Type II. This example emphasizes what every medical man should, and probably does, know—namely, that in the employment of serums and vaccines it is important, if not essential, to employ one corresponding to the strain of the causal organism. With the advance of bacteriological knowledge the existence of different species and subspecies of organisms formerly regarded as one species has been established. Thus the original *Bacillus typhosus* was shown to have included the *B. paratyphosus* A and B, and the diseases due to these three organisms are now universally known by the names of their causal organisms. This separation, recognized for some years, carries with it the practical application that to protect against enteric fever—the clinical name covering these three diseases—a vaccine of typhoid, paratyphoid A and B bacilli, or T.A.B. for short, must be employed. Similarly, bacillary dysentery may be due to several strains of *Bacillus dysenteriae*, of which the Shiga and Flexner types are the best known, and in practice a multivalent serum containing antibodies for these organisms is often employed.

In addition to the separation of bacteria by their cultural and fermentative characters into species, a further distinction into subspecies or strains can be effected by their serological reactions, as has been shown in the case of pneumococci. But much remains to be learnt as to the fixity of the strains thus isolated and of the practical deductions to be drawn with regard to specific treatment. Thus many strains of the *Bacillus typhosus* have been isolated, and S. B. Hooker has urged that antityphoid vaccine should be multivalent—that is, made from several strains—and yet the ordinary antityphoid vaccine made from a single strain appears to be successful. A great deal has been written about the different strains of the meningococcus; Mervyn Gordon has isolated four types, and serums corresponding to them have been manufactured; and F. W. Andrewes has recently put forward the view that the meningococcus, which is a single definite species recognizable by cultural tests, is divisible into two main types owing to its protein containing two antigens which vary in their amounts. It further appears that the occurrence of strains may to some extent depend on their environment—for example, old typhoid cultures contain different strains from young typhoid cultures, and during epidemics virulent strains of meningococci may arise. With our present experience the best results appear to have been obtained by the use of Flexner's antimeningitis serum, which contains antibodies for thirty-two strains of meningococci.

The practical conclusion is that unless the particular strain of organism present can be determined and its corresponding serum at once be given, it is better—on the principle of a shot gun, in virtue of its diffusion, being more effective than a rifle—to give a multivalent serum than a univalent serum or a serum of unknown origin. In the case of vaccines, an autogenous vaccine, which can be obtained in a few days, is obviously always preferable to a stock vaccine, which may or may not hit the mark. But a serum corresponding to the infecting organism, unless already

available, may take so long to manufacture that its use is possible only in chronic diseases, and in such cases a multivalent serum or a mixture of serums should be employed.

GUNSHOT FRACTURES OF THE FEMUR.

IN the address on the orthopaedic outlook in military surgery, which is published this week, Sir Robert Jones gives fuller expression than in any previous utterance to the great principle that there are two aspects of military orthopaedics—the preventive and the corrective. He illustrated his point by various instances, but that which will probably appeal most to surgeons, both abroad and at home, who are responsible for the treatment of the wounded at the present time, is that afforded by gunshot wounds of the femur. This subject has been actively engaging attention for some time, and a general understanding seems to have been reached that improvements were possible in the treatment of these injuries, so distressing at the time, and so apt to be disabling in their after-effects. They test the skill of the surgeon, the devotion and patience of the nurse, and the organizing power of the administrative officer as perhaps no other class of injury does. It is no exaggeration to say, as he says, that they are the tragedy of the war, not only because they produce many deaths, often after much suffering, but also because shortening and other deformities so frequently ensue, leaving a man incapable of following any but a sedentary occupation. Bitter complaints have been received from abroad of the want of continuity of treatment in this country, while experience here has forced the conclusion that though from certain hospitals abroad cases have arrived most admirably fixed, from others they reach this country in a state leaving much to be desired. Sir Robert Jones says that the mortality has been far too high, and the number of cases showing four or five inches shortening, with every variety of deflection, far too numerous. The remedy, he says, is to put the treatment of these fractures in the hands of specially trained surgeons in special hospitals. There should be one large hospital reserved for them at each base, officered by specially trained surgeons with a mechanical aptitude, prepared to devote themselves to the work, and assured of security of tenure. In addition there should be an inspector of fractures acting in conjunction with the consulting surgeons of the various areas. Moreover, one of these hospitals could be used as an educational centre to which young surgeons could be sent as opportunity occurred. Here again we have the idea of the "team" arising. Sir Robert Jones says that a trained surgeon, an orderly, and a sister would do more rapid and efficient work together than could be done by half a dozen most excellent surgeons not possessing the special experience and trained assistance. He believes that such a training school would in a short time supply regimental aid posts and casualty clearing stations with teams of surgeons and orderlies taught to fix these fractures efficiently and rapidly. The two fundamental principles are efficient fixation in correct alignment at the earliest possible moment, and continuity of treatment. The importance of early fixation, even in the regimental aid posts, seems now to be generally acknowledged. Thomas's splint, which is supplied to the regimental aid posts in some divisions, should, it is urged, be supplied in every division; it can be readily applied over the trousers, and extension made by a pull on the boot, the whole process being accomplished so rapidly that twenty or thirty cases can be dealt with in an hour by a trained team of orderlies. When the man reaches the casualty clearing station he is, we understand, taken to the operating theatre with this splint, trouser and boot still in position, so that the surgeon only begins his examination and treatment of the wound after the patient has been

anaesthetized. It is obvious that this method must contribute to diminish shock, which is the common cause of early death. It is understood that the plan suggested has, at any rate in its main features, now been adopted at the Western front; with regard to the continuity of treatment at home, an Army Council instruction has been issued directing that all fractures of the femur shall be sent on their arrival in this country to orthopaedic centres, or, if these centres are full, to specially selected hospitals. The difficulties with which the surgeons abroad have to contend are acknowledged, and also that they have shown greater initiative than has been displayed at home, but it seems clear that an organization on the lines indicated, administered in a spirit of cordial co-operation, may be expected to have a very beneficial effect on the death-rate, on the sufferings of the individual patients, and finally, on the number of crippled men who are discharged from the army to civil life.

A GAS GANGRENE ANTITOXIC SERUM.

A DEMONSTRATION of an antitoxic serum for the prevention and treatment of gas gangrene was given by Major Carroll G. Bull, U.S.M.C., at the Royal Army Medical College on January 8th, on the invitation of the commandant, Surgeon-General Sir David Bruce, K.C.B. Major Bull's experiments, which were begun in America and are now being continued in this country, have been made with *Bacillus welchii*, which appears to be the organism chiefly concerned in the production of gas gangrene. Cultivations were started from cases occurring in the United States and on the Western front, and also from saprophytic sources, and care was taken to establish the identity of the organism.¹ Its growth in culture is attended by the production of acid, and one explanation that has been offered of the effects produced clinically is that the acid liberates proteolytic ferments; another explanation is that the production of gas leads to the introduction of toxic proteins into the general system; a third is that the process known as gas gangrene is capable of spreading only after the death of the tissues involved. Major Bull, however, has produced strong evidence that the pathological process is produced by a bacterial toxin. He has obtained such a toxin in cultures of twenty-four hours. This toxin, when injected into animals (pigeons and guinea-pigs), produces local oedema and necrosis, and a general effect characterized by haemolysis and degeneration of the red cells, which, in the kidneys, for instance, choke the tubules. An experimental inoculation of the toxin in animals was found to lead to the production of antibodies. The culture medium used was beef broth with 0.2 or 0.3 per cent. glucose, to which fragments of fresh muscle were added at the time of incubation. After eighteen to twenty-four hours the tubes were centrifuged, and the fluid, subsequently passed through a suitable filter, was bacteria-free. The toxin used was so powerful that 2 c.cm. of the fluid would kill a horse after producing local lesions; the potency of the filtrates declined when the period of incubation was prolonged beyond twenty-four hours. For the production of an antitoxic serum a dose of 1 c.cm. was used in a horse, producing a reaction which had subsided in about four days, when the injection was repeated. It was found that the toxin could be exactly neutralized by the antitoxin *in vitro*, so that injection produced no effect. After gas gangrene has been set up experimentally by inoculation with a culture a suitable dose of antitoxin will neutralize the toxin in the tissues, thus enabling them to check the further growth of the organism. Experiments on guinea-pigs showed that preventive injection of antitoxin will prevent infection developing when the active organism is subsequently inoculated, and that the

progress of an infection already started could be arrested by the injection of antitoxin after marked local lesions and general symptoms had developed; a case was related in which a boy suffered a severe injury of the forearm, followed by gas gangrene with very marked constitutional symptoms. The injection of a dose of antitoxin caused immediate improvement in the general symptoms, the temperature falling from 105° to 101°, and the pulse, which had been uncountable, improving to a corresponding extent. The local process was checked and amputation was successfully performed. Major Bull concluded by saying that he believed the evidence to be sufficient to justify the use of this antitoxin in man as a means of cure, and that in the severest cases so much general and local improvement would be brought about that an operation could be undertaken without fear of local extension. At the present time six horses have been immunized at the Rockefeller Institute for the purpose of producing gas gangrene antitoxic serum, and experiments of the same nature have been begun in this country; but, as Major Bull pointed out, if the serum is to be used as a preventive or curative agent on the Western front, it must be produced either here or in France on a large scale.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE position of this Fund was fully set out in the balance sheet which, accompanied by a certificate of the chartered accountant and auditors, was appended to the appeal published in the JOURNAL of December 29th, 1917, p. 863. The Fund was started at the end of 1914, when the deplorable facts with regard to German rapacity and brutality in Belgium first became known in this country. It was started in response to the appeal brought to this country by representatives of the medical profession in Belgium who had been deprived of their means of living, denuded of the implements of their practice, and who had, like the pharmacists, often had to see their houses destroyed. By the first week in February, 1915, over £5,000 was received, and by the end of the first year of working over £18,000 had reached the treasurer's hands. Further contributions and the proceeds of judicious temporary investment of the moneys in hand raised the total by the end of the second year's working to £20,000. The expenses of administration down to the present time have been £62 only, owing to the fact that all services have been given gratuitously. A sum of £800 was transmitted monthly to Belgium during 1917, and the Fund has now been reduced to less than £1,500. A second appeal is therefore now made to the medical and pharmaceutical professions in this country to come to the assistance of their much-tried brethren in Belgium. That the need is great is known not only from general statements recently published with regard to the situation in Belgium—which has grown worse instead of better—but also from specific information supplied by Mr. W. B. Poland, director in Europe of the Commission for Relief in Belgium. Writing on November 20th, 1917, to the Treasurer of the Fund (Dr. H. A. Des Vœux, 14, Buckingham Gate, London, S.W.1), he said that if the supporters of the Fund knew how much actual suffering they had allayed, and how much potential, moral, and physical suffering they had prevented, they would not cease to continue their support, many as are the claims now made upon them. Mr. Poland quoted from a letter written recently by a Belgian still in that country that "the misery has become terrible and increases every day. It pursues us wherever we go." But Mr. Poland's letter ought to be read in full (page 864). It should be added that the monthly contributions are paid to a committee of members of the medical and pharmaceutical professions in Belgium, and the committee in this country has good reason to know that the Belgian committee is extremely prudent and careful in the distribution of the moneys which reach it. The response to the appeal

¹ Two papers on the subject, by Major Bull and Ida W. Pritchett, will be found in the *Journal of Experimental Medicine*, 1917, xxvi p. 119 and p. 857. From the later paper it appears that twenty-seven strains of *B. welchii* from widely different sources had been studied, and were found all to produce a toxin in common.

made two years ago was so spontaneous and liberal that there seems every reason to hope that the members of the medical profession in this country will again give liberally in spite of the fact that this is only one of the many calls upon their benevolence. It can only be said in conclusion that if the response is not liberal and prompt, the committee of the Fund in this country will be compelled at once greatly to diminish, and before long wholly to suspend, the monthly payments to the committee in Belgium. We publish at page 71 a preliminary list; lists of further subscriptions will be published from time to time.

A NEW PORTABLE X-RAY TUBE.

A new development in x-ray tube construction, which was compared by one speaker to the advent of the kodak in photography, was brought before the Röntgen Society on January 1st. Like the hot-cathode tube which was introduced three or four years ago, this new arrival is also associated with the name of Mr. W. D. Coolidge and his Schenectady laboratories. It has been developed in America specifically for use with portable x-ray outfits in the United States army, but its characteristics are such that it may supplant ultimately the earlier types of hot-cathode tubes for all radiographic work. This new tube is based on the same essential principles as the older Coolidge, but its bulb is no more than $3\frac{3}{4}$ in. in diameter. The target, which receives the cathode-ray bombardment, consists of a very small wrought tungsten "button," 0.1 in. thick, set in a solid block of copper, and this block is electrically welded to a copper stem extending right through the glass anode arm to an external copper radiator. The target with stem and radiator has a heat capacity several times greater than that of the solid tungsten target of the earlier models of the Coolidge tube, and therefore, for a given heavy load, it must take several times as long to heat to redness. What is still more important, unlike the solid tungsten target, it cools rapidly between exposures owing to the radiator, to which is conducted the larger proportion of the energy imparted to the tube. The glass bulb may, therefore, be small, for the glass is not heated to the same extent as in the ordinary tube; each exposure also can be started with a relatively cool target, while, as a further result, the focal spot, although very small, is kept from reaching a temperature high enough to allow inverse current to pass through the tube. The first model of the tube has been designed to carry 10 milliamperes at a 5 in. parallel spark-gap for sufficient time to make the longest ordinary exposures, and, for screening, to carry a load of 5 milliamperes at the same spark-gap indefinitely. A radiograph of the knee is obtainable in four seconds, and exposures for other parts are in proportion. The idea has been to make a tube suitable for portable outfits in the field which can be used directly from the secondary of a high-tension transformer without any auxiliary rectifying device; a portable generating unit, built round this tube, was also exhibited. The advantages claimed for the tube in diagnostic work were that it could be used to rectify its own current under much severer conditions of service than would be permissible with the ordinary type, that the bulb could be very much smaller while handling the same amount of energy, and that on either alternating or rectified current it would carry the maximum available energy for a much longer time. In the portable field x-ray outfit of the United States army, a petrol electric unit supplies alternating current at 110 volts to a transformer arranged to give both high tension and heating currents for the new radiator type of Coolidge tube. For simplicity of control the tube is worked at a constant potential of 5 in. equivalent spark-gap, and the current is adjusted to 5 milliamperes for continuous running of the tube, or to 10 milliamperes for short periods. An electrically actuated control on the throttle of the engine maintains constant output. The small size of the bulb enables a close-fitting lead-glass

shield to be employed; this is made in two parts, and completely surrounds the tube, a suitable aperture permitting egress of the rays.

CANTHARIDES POISONING.

ALTHOUGH the symptoms of cantharides poisoning are generally thought to be well known, the condition of the blood has not attracted any attention. Lipsitz and Cross¹ report a case of a man who accidentally swallowed two drachms of tincture of cantharides, and soon after had strangury and haematuria, followed by vomiting. The haematuria disappeared after two weeks, and the patient was discharged in good condition on the twentieth day. It might naturally be anticipated that this occurrence of severe haematuria would be attended by a secondary anaemia; but on the third day the red blood count was 10,430,000, haemoglobin 80 per cent., and the leucocytes 24,000. On the eleventh day the red cells had fallen to 5,550,000. The possibility that concentration of the blood due to vomiting was the cause of the polycythaemia is not considered, and vomiting was not mentioned after the second day, so it is impossible to be sure if this factor was really important. In conjunction with Fuerth,² the authors investigated the influence of cantharides on twelve rabbits. The drug was introduced into the rabbit's stomach by means of a soft rubber catheter, and polycythaemia appeared within twenty-four to seventy-two hours, and lasted up to eight days; there was also a relative though in no way constant or characteristic leucocytosis. This polycythaemia differs from the transient form following intravenous injection of epinephrin, which has been thought to be due to vaso-constriction of the hepatic vessels and the consequent transference of the red corpuscles to the peripheral circulation. The authors incline to the view that cantharides stimulates the blood-forming organs, possibly by causing haemolysis and a secondary formation of red cells, or brings about a concentration of the blood.

FIRST AID, HOME HYGIENE, AND NURSING IN NATIVE INDIA.

Nor the least valuable outcome of Indian administration has been the awakening and quickening of a sanitary conscience among native communities, commencing with cities and towns and gradually extending to villages and hamlets, spreading from territory under British rule to fensatory native states. Of the latter very satisfactory development the important State of Baroda furnishes a conspicuous example. This territory is fortunate in possessing in the present Gaikwar an enlightened and progressive ruler, and in Mr. Dhanjibhai H. Mehta, L.M. and S., a medical officer whose devotion and energy in the cause of public health are highly commendable. Mr. Mehta has recently published in a pamphlet an address to high school students on the necessity of studying ambulance, nursing, and home hygiene, which he has delivered at various colleges and schools in Western India. In it he emphasizes the duty of correcting conditions and habits which are detrimental to health and adopting measures and precautions conducive to the avoidance of disease and the prolongation of life. He adduces statistics which indicate that sanitary science and practice have in India reduced sickness and mortality among soldiers and prisoners, and contrasts Indian and European death-rates to show how much remains to be done in this direction, and quotes in support of his views extracts from a speech made by the Gaikwar to the Bombay Sanitary Association. Apart from commending public and domestic sanitation, the special object of this address to students and pupils is to impress upon them the advantage of studying first aid and home nursing by joining the St. John Ambulance

¹ S. T. Lipsitz and A. J. Cross: *Arch. Int. Med.*, Chicago, 1917, xx, 1, pp. 389-391.

² S. T. Lipsitz, A. L. Fuerth, and A. J. Cross: *Ibid.*, pp. 915-918.

centres, undergoing instruction, passing examinations, and obtaining certificates and medals. He points out that hygiene and ambulance are compulsory subjects in the university curriculum, and that two important objects may be attained by one course of study. He mentions that "these subjects are taught all over the Baroda Raj since 1901, and 1,500 persons have passed the different examinations." Self-help, both domestic and communal, cannot assume a more commendable, safe, and profitable aspect than that advocated in this address.

SOURCES OF POTASH.

SIR T. E. THORPE, F.R.S., contributed to the last issue of *Nature* an interesting paper on the sources of potash. At one time the world's requirement was obtained from seawater, either directly or indirectly from sea plants (kelp); from wood ashes; from the residue left on distilling fermented beetroot molasses; from the washings of sheep's wool; and from a few other minor sources. In 1839 the Prussian Mining Office ascertained that in a brine area at Stassfurt (near Magdeburg) there were considerable potash formations; they have been worked ever since, but in 1909 large deposits of sylvine, yielding from 10 to 68 per cent. potassium chloride, seldom less than 20 per cent., were discovered in Upper Alsace, near Mulhouse, over an area of about 200 square kilometres. The deposits are in two layers, the lower being the larger and richer. The discovery was made more or less accidentally while boring for coal; the deposits have not yet been fully worked, but in 1912 they were yielding daily 300 tons of sylvine. The product of the factory in which the sylvine is treated is from 40 to 50 tons of pure potassium chloride daily. The amount raised in Alsace was limited by the German Government to about one-tenth of the total German production, the object being to control and strengthen the monopoly Germany had acquired. Spain possesses deposits of potash in Catalonia, but Germany has hitherto been able to prevent their utilization. Italy possesses deposits in Abyssinia, which are now furnishing about 20,000 tons a year; this, however, is only a small fraction of the German output. Stassfurt and other potash beds are derived from primitive rocks, and are due to such minerals as potash feldspar and mica, and certain silicates. Feldspars are estimated to form 48 per cent. of the earth's crust, and their predominant constituent is potash feldspar. Many efforts have been made during the last ten years to devise a process for obtaining potash from the feldspars which contain it. It is stated that large deposits of suitable material are to be met with in this country, notably in Cornwall, and in various parts of Scotland, Wales, and Ireland. A few have been worked for pottery purposes. It is believed that the Scottish deposits could be worked on a commercial scale by a new process described recently by Mr. E. A. Ashcroft, and that potassium chloride, which is the raw material of the potash trade, could be produced at least as favourably in this country as in Germany. Potash salts are needed for munitions of war, for chemical industries, and are essential constituents of manures. Incidentally, if the industry can be established, we may hope to see the price of potash salts, which was artificially high before the war, and has become higher since, substantially reduced.

SYPHILITIC INFECTION OF DOCTORS' HANDS.

DR. H. N. COLE, of Cleveland, Ohio,¹ analyses sixty-one cases of extragenital chancres. In ten the hand was the seat of the primary sore, and in five of these cases the patients were doctors. Infection was traced in the first subject to a small crack between the skin and the external border of the nail on the left thumb. It refused to heal, and at the end of a month the patient felt vague rheumatic pains and dosed himself with aspirin, an eruption which developed a week later being ascribed to that drug; but though it

was discontinued the rash did not disappear, and was seen to be syphilitic. In another instance an open wound at the base of the right index finger became infected during manual removal of the placenta; flooding being severe, the doctor did not put on gloves. The hand was washed with exceptional care directly afterwards, but secondary symptoms developed; then specific treatment was commenced. In the third and fourth cases there was characteristic infection of the right forefinger. In the fifth case the site of the primary lesion was overlooked, but the cubital gland of the right arm became enlarged. The patient had removed the tonsils from a hospital subject under a general anaesthetic a few weeks previously, and noticed immediately afterwards that a syphilitic eruption complicated the tonsillar enlargement. The doctor, not having worn gloves, at once scrubbed his hands vigorously, yet forgot all about the incident until reminded by the appearance of the glandular enlargement. A generalized secondary eruption developed, making the case clear.

MILK IN THE SICK ROOM.

MANY will agree with Dr. George Parker, of Bristol, whose note on the need for a cheap and easily prepared substitute for milk in the dietary of sick adults during the present shortage is printed at p. 53, that the British custom of giving large quantities of milk to almost all invalids without discrimination has little to be said for it except on the score of convenience. The existing scarcity of milk gives a good opportunity for reconsidering the habit of regarding milk as a staple food for the sick. It has grown up in recent times only, but has now become very much a matter of routine especially in hospitals. The malted oatmeal drink suggested by Dr. Parker may or may not prove an ideal substitute, but it will serve at least as a basis for further experiment. The general use of a palatable and easily digested thirst-quenching beverage, easily made at low cost, would release for butter-making large quantities of milk, now consumed in hospitals and sick rooms. Apart from this aspect of the matter, there is the curious delusion common in nurseries and wards that milk quenches thirst. How many thirsty children and fevered patients have been made miserable by cloying draughts of undiluted milk, when all they asked for, or needed, was a drink of cold water! Milk given as a food to infants and young children is, of course, quite another matter.

THE MEAT SHORTAGE.

SOME months ago we pointed out the advantages and disadvantages of a meat diet, and we can by no means be accused of underestimating the value of animal foodstuffs. Nevertheless, we cannot but think that the prominence given in the lay press to existing difficulties in obtaining meat supplies grossly exaggerates their significance, and helps to encourage the enemy and to dishearten our own people. Instead of publishing sensational accounts of butchers' queues, newspapers would do well to mention that the people of this country, like of the inhabitants of many other countries, can adequately supply their need for energy and protein with a very much smaller ration of meat than has been customary in the past. Most people who live sedentary lives will certainly be all the better for the reduction.

THE American Women's Hospitals have sent through the Red Cross some twelve women who will work independently in different places in France. The founders of the American organization were inspired by the example of the Scottish Women's Hospitals. The American women doctors will give civilian as well as military relief both in the United States and in other countries. It is hoped to establish in the devastated parts of the allied countries a system of dispensaries subordinate to central military hospitals. Men not needing hospital care will be attended to at the dispensaries, while serious cases will be taken by ambulance to the nearest general hospital.

¹ *Journ. Amer. Med. Assoc.*, December 16th, 1916, p. 1803.

THE WAR.

TYPHUS FEVER: LABORATORY DIAGNOSIS.

THE so-called Weil-Felix reaction as a method of diagnosis of typhus fever has been widely accepted by German workers, especially on the Eastern fronts, where, in the Balkans especially, cases of typhus fever have been numerous. The earliest observations on the subject would appear to have been made by Dr. W. James Wilson¹ in Belfast. He published two papers on the subject in the *Journal of Hygiene* in 1909 and 1910 respectively. He showed that in typhus fever the blood serum often agglutinates intestinal bacilli—for example, *B. coli*, *B. typhosus*, and especially a coliform bacillus isolated from the urine in certain cases. In dealing with the etiology of typhus fever he pointed out that the presence of these agglutinins did not necessarily imply that the bacillus in question was of etiological significance, and he inclined to the view that such cases were instances of secondary infection. As the reaction now known in Germany by the name of "Weil-Felix" would appear to be applied there on a large scale it seems well to give some account of the original communication of these authors. So far we have published only brief references to the subject, for hitherto, fortunately, the British armies have been spared this disease. But we cannot be certain that this immunity will continue, and if the louse is indeed the carrier of the infection, one element in its dissemination is not absent. It seems advisable therefore to give some account of their original communication.

Weil and Felix² were investigating a group of cases thought to be enteric fever, but in whom the Widal reaction against typhoid, paratyphoid A, and paratyphoid B was negative even in the uninoculated cases. One of the cases was a Rumanian doctor, who gave completely negative Widal reactions to the enteric group of fevers. From his urine was isolated an organism which was agglutinated by the patient's own serum in a dilution of 1 in 200. It was then found that the serums of nine other patients agglutinated the same organism.

The organism was a short, delicate, Gram-negative bacillus of *proteus* type, and actively motile. On Conrad-Brigalski medium bluish colonies developed, which persisted for weeks. On Endo's medium the colonies were colourless after twenty-four hours, but later became reddish. Glucose and lactose were fermented with production of acid and gas. Milk was coagulated in forty hours. Litmus whey was reddened in twenty-four hours to a greater extent than with *B. typhosus* and to a less extent than with paratyphoid organisms. Gelatin was liquefied in forty-eight hours. The colonies on ordinary plates closely resembled *B. proteus*.

The organism was tested against agglutinating serums for *B. typhosus*, *B. paratyphosus* A, Gaertner's bacillus, Shiga's bacillus, and Flexner's bacillus, and gave negative results with all of them in dilutions of 1 in 100. A serum agglutinating the organism 1 in 2,000 was prepared from a rabbit by injecting 2 c.cm. of an emulsion of the organism on two occasions. In the first place 33 cases diagnosed clinically as typhus were tested against this organism; all of these cases gave a positive agglutination with the organism as follows:

Serums from 16 cases	gave a positive agglutination of 1 in	50.
" "	" "	1 in 100.
" "	" "	1 in 200.
" "	" "	1 in 500.
Serum from 1 case	" "	1 in 25.

Weil and Felix suspected that some of the cases were mixed infections of typhoid and typhus, and in one case typhus fever developed during convalescence from typhoid fever. In 5 of the 33 cases the Widal reaction for typhoid was positive up to 1 in 75, but *B. typhosus* was not recovered. In 5 other cases typhoid bacilli were cultivated from the blood or urine. All the other cases were fully negative to the enteric group.

The specific agglutinin to this organism develops in typhus fever at an early stage of the disease, and has already reached its height when the rash appears (about the fifth day of illness). The high titre remains during the fourteen days or thereabouts of pyrexia, and falls

away quickly after the fever falls. Two months after the end of pyrexia no patient's serum gave a higher agglutination than 1 in 25.

Later Weil and Felix were able to extend their research further afield. In Russia, at a place 200 kilometres from where their first observations were made, two Russian prisoners, not inoculated against typhoid, and giving completely negative Widal reactions to the enteric group of fevers, agglutinated the *proteus*-like organism in dilutions of 1 in 100 and 1 in 200. Three Russian civilians from one family were also examined. One gave a specific agglutination with the organism of 1 in 100 on the second day after the rash appeared. At autopsy in this case the pathological lesions were of typhus fever and not of typhoid. The other two members of the family were already convalescent before they could be examined, but both gave positive results. Eleven cases were also examined in a military typhus hospital in Russia. Only two of these were active cases, the remainder being convalescents. The two active cases (tenth and twelfth days of illness) gave the strongest reactions (1 in 200), two cases were completely negative, and the remaining seven cases all showed gradually decreasing positive reactions depending on the period of convalescence.

As controls, the serums of 169 men were tested, chiefly cases of enteric fever, which is the most difficult disease to distinguish from typhus. Of 95 serums of cases which were clinically typhoid, but in only 11 of which the causative organism was isolated, the test with the *proteus*-like organism was applied. Ten of these cases gave agglutination reactions, but never above 1 in 25. Two cases which were suspected to be typhus fever gave completely negative reactions, and both of these were later shown to be typhoid by the finding of *B. typhosus*. Twelve cases of relapsing fever, in which the causative spirochaete of Obermeyer had been found, gave no agglutination with the bacillus. Sixty-two other men suffering from diseases such as dysentery, enteritis, pneumonia, bronchitis, pleurisy, and erysipelas, gave negative results, but eight gave a reaction in a dilution of 1 in 25.

During the course of the work a similar organism was isolated from the urine of one other case only. The identity of this second strain with the first was fully established by cultural tests and agglutination by the specific serum prepared in a rabbit to the first strain found. During this research organisms were got from the urine of twenty-eight other cases, with cultural characters on Brigalski's medium very similar to the *proteus*-like bacillus, but none of these were agglutinated by the specific rabbit serum or by the serums of positive cases of typhus. This seems to indicate that the organism used for the Weil-Felix reaction is not a common saprophytic infection in man. The authors agree with Wilson that the bacillus is not the cause of typhus fever, but they regard it as an important aid in diagnosis.

This concludes an account of the work done by Weil and Felix in 1915 on which the reaction for the diagnosis of typhus fever has been based. Later, they discovered a second strain of the same bacillus, and to this strain the name *X₁₉* has been applied, the first strain being called *X₂*. The essential difference between the two strains is that *X₁₉* is agglutinated up to a very much higher titre by the serums of typhus cases, up to a dilution of 1 in 2,000, or even higher. Thus the reaction with this strain is much more easy to work with than the much less agglutinable original strain *X₂*. The very agglutinable strain (*X₁₉*) has been found in the urine of cases by a number of later observers (Dienes, Gergely, etc.).

A few of the latest pronouncements in German literature on the value of the Weil-Felix reaction may be mentioned in conclusion. Felix, in a summary of further work, states that his original observations with Weil have been confirmed by numerous observers, to which references are made, in different war areas in Asia and Europe. E. Friedberger⁴ sums up the position of the Weil-Felix reaction as follows. The test is absolutely specific for typhus fever, and an agglutination is not given by any normal serum or the serum in any other febrile disease in a greater dilution than 1 in 100 with the more agglutinable strain (*X₁₉*). In cases of typhus a positive result is given in 90 per cent. of all cases. The agglutination occurs in two hours at 37° C.,

¹ BRITISH MEDICAL JOURNAL, June 16th, 1917, p. 825.

² E. Weil and S. Felix. *Wien. med. Woch.*, January 13th, 1916.

³ *Munch. m-t. Woch.*, September 25th, 1917.

⁴ *Deut. med. Woch.*, No. 42, October 16th, 1917.

and reaches 1 in 1,000 to 2,000, or even higher. The reaction begins very early in the disease, being already 1 in 25 to 50 in the first week. Thereafter the agglutination curve rises rapidly to a pinnacle, and gradually falls during convalescence. Frequently the reaction is quite 1st three or four weeks after all febrile symptoms have passed off. Friedberger considers that the reaction is more marked and specific than the Widal reaction for typhoid fever.

Much discussion has circled round the problem of whether this organism is to be considered in any way as the cause of typhus fever. The general consensus of opinion is that it is not, and this is the belief of Weil and Felix themselves. The most generally accepted opinion is that the organism is a specific secondary invader of the body which always accompanies the unknown virus of typhus fever.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN J. McK. FERGUSON, R.A.M.C.

Captain James McKee Ferguson, R.A.M.C., was reported as killed in action, in the casualty list published on January 3rd. He was educated at Belfast University, where he graduated M.B., B.Ch., and B.A.O. in 1914, took a temporary commission as lieutenant in the R.A.M.C. on December 14th, 1914, and was promoted to captain on completion of a year's service.

Died on Service.

CAPTAIN A. ROBB-SMITH, R.A.M.C.

Captain Alec Robb-Smith, R.A.M.C., was reported as having died on service, in the casualty list published on January 2nd. He was educated at Glasgow University, where he graduated M.B. and C.M. in 1892, and after filling the posts of medical superintendent at Paisley Infirmary and Fever Hospital, at Gockston Small-pox Hospital, and at Croydon Borough Hospital successively, went into practice at Chislehurst, Kent. He joined the R.A.M.C. as a temporary lieutenant in 1916 and was promoted to captain after a year's service.

Captain R. S. Smith, Canadian A.M.C.

Lost at Sea.

Dr. John Edward Lionel Johnston, of the West African Medical Staff, was lost at sea in a ship torpedoed by enemy action, on or about November 9th, 1917. He was the youngest son of Mr. J. C. Johnston, of Bath, and was educated at St. Mary's Hospital, where he gained an open entrance scholarship in 1903. He graduated M.B. and B.S. Lond. in 1909, also taking the M.R.C.S. and L.R.C.P. Lond. in the same year, and the Cambridge diploma in tropical medicine and hygiene in 1912. After acting as junior clinical ophthalmic assistant, as house-physician, and as house-surgeon at St. Mary's, he entered the West African Medical Staff, but had recently been seconded as one of the special investigators under the West African Yellow Fever Commission. He was the author of numerous papers on tropical medicine.

Prisoner of War.

We are informed that news has been received that Captain F. B. Ryan, R.A.M.C., who was reported missing, is a prisoner of war at Heidelberg.

Wounded.

Captain J. H. Barry, D.S.O., R.A.M.C. (temporary).

Captain H. N. Collier, R.A.M.C. (T.F.).

Captain T. M. Crawford, R.A.M.C. (temporary).

Captain H. Dolman, Australian A.M.C.

Captain G. R. Grant, M.C., R.A.M.C. (S.R.).

Captain F. M. S. Hulke, R.A.M.C. (temporary).

Captain J. H. Jordan, R.A.M.C. (T.F.).

Captain F. B. Julian, R.A.M.C. (temporary).

Captain J. F. Matheson, R.A.M.C. (temporary).

Captain A. Ramsbottom, R.A.M.C. (T.F.).

Captain S. H. Seccombe, Australian A.M.C.

Captain L. Zealand, R.A.M.C. (temporary).

Captain and Quartermaster C. J. Fraser, R.A.M.C. (T.F.).

Lieutenant W. H. Newton, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Elliot, Wilfrid E., Second Lieutenant 5th Battalion Dorset Regiment, killed at the taking of Thiepval on September 26th, 1916, aged 24, younger son of Dr. E. A. S. Elliot, Kingsbridge, Devon.

Flanagan, Lionel Christopher, Lieutenant Tank Corps, late Essex Regiment, only son of Dr. Flanagan, of Clacton-on-Sea and of Eyrecourt, co. Galway, killed November 20th, 1917, aged 21. He entered Sandhurst in May, 1915, got his commission in the Essex Regiment in October, 1915, and went to the front soon after. In December, 1916, he transferred to the Tank Corps, and after training went to the front again in July, 1917.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE following is a continuation of the list given in our last issue (p. 31) of the New Year awards conferred upon officers of the R.A.M.C., I.M.S., and Dominion medical corps for gallantry and distinguished service in the field:

Bar to the Military Cross.

Temporary Captains: Robert Briffault, M.C., Manrice Smith Bryce, M.C., George Beatty Burwell, M.C., James Macgregor, M.C., Bernard Charles Tennent, M.C.

Military Cross.

Captains (now Majors): John Connor, N.Z.M.C., Wilfred Evans, A.A.M.C., Richard H. Hudson, A.A.M.C., Arthur L. Jones, C.A.M.C., Leonard May, A.A.M.C., Ernest K. Parry, A.A.M.C.

Captain (temporary Major) William W. Greer, M.D., F.R.C.S. Captains: Herbert C. Allison, C.A.M.C., John G. Anderson, William G. Borrie, N.Z.M.C., Charles G. Brentnall, Charles D. M. Buckley, Neil Cantlie, Thomas J. Costello, Thomas McN. Davie, Ian D. Dickson, Keith McK. Doig, A.A.M.C., George S. Elliott, A.A.M.C., Charles P. Fenwick, C.A.M.C., Robert J. Gardiner, C.A.M.C., Kenneth F. Gordon, N.Z.M.C., Frederick J. Green, John C. Grieve, Haji S. G. Haji, I.M.S., Alfred C. Hammond-Searle, Richard T. W. Herald, C.A.M.C., Ernest Hill, S.A.M.C., Leslie E. Hughes, Thomas D. Inch, Frederick N. Johns, N.Z.M.C., Tom R. Kenworthy, William H. Laslett, Reginald H. Leigh, Norman V. Lethian, Henry E. McCready, Thomas McEwen, Kenneth MacLennan, Frank D. Marsh, Henry F. Mandley, A.A.M.C., John Miller, William Murdoch, Charles W. C. Myles, Ivan M. Pirrie, Robert E. Pitts, Leopold T. Poole, Adam Rankine, William L. Robertson, Maurice J. Roche, I.M.S., Cecil J. Rogerson, Edmund U. Russell, Colin C. Simson, A.A.M.C., Evelyn C. Sprawson, Cecil S. Staddon, James Swan, Alan L. S. Tuke, Bernard Varvill, Edmund W. Vaughan, Joseph K. Venables, N.Z.M.C., Joseph Walker, Joseph H. Ward, Robert M. W. Webster, A.A.M.C., William J. Webster, Harry W. Whytock, C.A.M.C., Alexander F. Wilson, William F. Wilson, William V. Wood.

Temporary Captains: Robert R. Archibald, Bertram F. Bartlett, Maurice F. Bliss, Philip R. Boswell, Angus Campbell, George M. Campbell, William T. Collier, Ronald C. Cooke, Alexander K. Cosgrave, John P. Davidson, Henry S. de Boer, Joseph H. Elliott, Herbert Emerson, John C. Fergusson, Lawrence U. Geraty, Edward Gordon, Leonard L. Hadley, John F. C. Haslam, Arthur J. Hawes, Harold G. A. Haynes, Hugh G. Hobson, Gerald Holroyde, John N. Humphrey, Douglas M. Hunter, David L. Hutton, Alick E. Knight, Alexander C. W. Knox, Alec. A. Lees, Kenneth T. Limbery, Percy C. Litchfield, Conrad Loddiges, Reginald H. Lucas, William McConnell, John M. MacFie, William K. McIntyre, Magnus R. Mackay, Eric S. Marshall, James F. Matheson, Archibald U. Millar, Montagu T. Morgan, Reginald S. Morshead, Guy W. Parry, Montgomery P. Paton, George R. B. Purce, Gordon W. R. Rudkin, Walter H. Scott, Leslie H. Skene, Henry J. H. Symons, George L. Thornton, Robert Tindall, Edward C. Wallace, Hugh E. Warwick, Gwilym D. Watkins, D.S.O., John D. Watson, Wm. B. Watson, Llewellyn McI. Weeks, George P. White, Alan Wilson, Charles Witts.

Lieutenant (temporary Captain) John H. Pendred.

Lieutenant William Donald.

Temporary Lieutenants: Ernest H. R. Atounyan, Richard D. Passey.

Quartermasters and honorary Captains: Thomas J. Tilbrook, Herbert E. B. Ware, John F. Murray, A.A.M.C., Richard P. Wheeler, A.A.M.C.

Quartermasters and honorary Lieutenants: James E. H. Anderton, James Davis, Arthur E. Glass, John H. Maunders, James T. Starkie.

The Military Cross has also been conferred upon one non-commissioned officer of the R.A.M.C. and A.A.M.C. respectively.

The D.C.M. is bestowed upon 7 warrant and non-commissioned officers and privates of the R.A.M.C. and 2 of the A.A.M.C. The Meritorious Service Medal is awarded to 53 warrant and non-commissioned officers and privates of the R.A.M.C., 8 of the A.A.M.C., and one each of the C.A.M.C. and N.Z.M.C.

* The announcement of the award of the Military Cross to this officer has not yet appeared in the *London Gazette*, but will be published early this month.

NEW YEAR HONOURS.

ORDER OF THE BRITISH EMPIRE.

IN the New Year's list of promotions in and appointments to the Most Excellent Order of the British Empire appear the following names of members of the medical profession:

To be Knights Commanders.

Colonel Sir George T. Beatson, K.C.B., M.D., Chairman, Scottish Branch, British Red Cross Society.

James Cantlie, M.B., F.R.C.S., Member of Council and of Executive Committee, British Red Cross Society.

Walter Morley Fletcher, M.D., D.Sc., F.R.S., Secretary of the Medical Research Committee.

James Galloway, C.B., M.D., F.R.C.P., Chief Commissioner for Medical Services, Ministry of National Service.

Kenneth W. Goadby, Member of War Office Committee for the Study of Tetanus.

William Henry Thompson, M.D., D.Sc., King's Professor of Physiology, Trinity College, Dublin, Scientific Adviser to the Ministry of Food.

To be Commanders.

Lieut.-Colonel John H. Anderson, Assistant Director of Medical Services, Australian Imperial Force.

Lieut.-Colonel John T. Lewtas, Commissioner for Medical Services, Ministry of National Service.

Colonel Robert Dawson Rudolf, Consultant in Medicine, Canadian Army Medical Corps.

Colonel J. Scott Riddell, M.V.O., Red Cross Commissioner for North-Eastern District of Scotland.

Dr. Lockhart Stephens, County Director, Hampshire, British Red Cross and Order of St. John of Jerusalem.

Dr. T. H. C. Stevenson, Superintendent of Statistics, General Register Office.

Lieut.-Colonel David Wallace, C.M.G., Red Cross Commissioner for Eastern District of Scotland.

Dr. John H. Yolland, Chief of Staff of County Director, Kent, British Red Cross and Order of St. John of Jerusalem.

To be Officers.

Dr. Henry Barnes, LL.D., J.P., Honorary Secretary and Treasurer, Cumberland Branch, British Red Cross Society; a past President of the British Medical Association.

Major Lionel O. Betts, A.A.M.C.

Dr. Herbert E. Cuff, Principal Medical Officer to the Metropolitan Asylums Board.

Dr. Thomas C. Dillon, H.M. Consul, Porto Alegre, Brazil.

Dr. Richard H. Grimby, Assistant County Director, Ashburton Division, British Red Cross and Order of St. John of Jerusalem; Deputy Commissioner of St. John, Devonshire.

Major Hugh B. Lewers, Assistant Director of Medical Services, Australian Imperial Forces.

Arthur F. MacCallan, F.R.C.S., Director of Ophthalmic Hospitals, Egypt.

Dr. Finlay M. Mackenzie, J.P.

Captain Edmund Distin Maddick, F.R.C.S.

Major Thomas McKibbin, Deputy Assistant Director of Medical Services, New Zealand Expeditionary Force.

Dr. Sarat K. Mullick, Honorary Secretary, Bengalee Regiment Committee.

Dr. George Reid, M.O.H. Staffordshire County Council.

Dr. John Robertson, M.O.H. Birmingham.

Dr. John Russell, Vice-President of Burslem and Tunstall Division, and Assistant County Director for the North Staffordshire Area, British Red Cross and Order of St. John of Jerusalem.

Dr. Charles Stein, Commandant and Medical Officer, Park House Auxiliary Hospital, Shipston-on-Stour, Warwickshire.

Lieut.-Colonel Edward N. Thornton, South African Hospital, Richmond Park.

Brevet Colonel G. Sims Woodhead, V.D., R.A.M.C., Professor of Pathology, Cambridge.

Joseph Ainsworth Woods, Senior Dental Surgeon, Mürren, Switzerland.

Lieutenant-Commander Eric Worsley Gandy, R.N.V.R.

To be Members.

Lieut.-Colonel Harry H. Balfour, South African Hospital, Richmond Park.

Lieut.-Colonel William J. Bentley, Assistant Director of Dental Services, Canadian Forces.

Dr. Francis R. Cassidy, Officer-in-Charge, Transport of First Line Hospitals, Derbyshire.

Dr. Arthur V. Davies, Assistant County Director, representing the Order of St. John of Jerusalem, East Lancashire.

Captain Percy T. Remington, Dental Officer, Australian Army Medical Corps.

Herbert L. Rutter, F.R.C.S., Officer in Charge of Wounded Convoys, Northumberland.

Major Thomas L. L. Sandes, South African Hospital, Richmond Park.

Captain Arthur F. Sutton, Senior Dental Officer, Australian Army Medical Corps.

Major Walter H. Tofft, Australian Army Medical Corps.

Mrs. Ella G. A. Webb, M.D., Lady District Superintendent, St. John Ambulance Brigade, Dublin.

RED CROSS WORK.

Work for the Red Cross is recognized by the dignity of Dames of the Grand Cross conferred upon Lady Amphill, Mrs.

Benyon, Lady Dawson, the Duchess of Montrose, and Viscountess Northcliffe, and Dames Commanders on Mrs. Godman (Horsham), Lady Jekyll, Mrs. Locke-King Surrey, Mrs. Ker Pryse-Rice (Carmarthen), and Mrs. Webster (British Women's Hospitals). Mr. Kenderdine's work for the Hospital for the Limbless, Rochampton, is recognized by K.B.E., and Sir John Furley's Red Cross work by his appointment to be Companion of honour.

Scotland.

THE EDENHALL HOSTEL FOR LIMBLESS SAILORS AND SOLDIERS.

THE Edenhall Hostel for Limbless Sailors and Soldiers, established near Kelso in June, 1915, and therefore second in date only to Rochampton, is about to be removed to Musselburgh. A house standing on a site of thirteen acres has been acquired, and the change will have two main advantages: first, that it will be possible to increase the accommodation to one hundred beds and the facilities for making artificial limbs; and, secondly, that the new situation, being near Edinburgh, will be in many respects more convenient. The hospital was founded by the Countess of Home, the commandant is Lady Isobel Douglas Home, the matron in charge Mrs. George Henderson, and Dr. Henderson of Coldstream, a member of the committee of management, has voluntarily given his services. Lieut.-Colonel Cathcart, R.A.M.C., has superintended the fitting of the artificial limbs, and will now become a member of the committee. The establishment of the home for limbless sailors and soldiers at Erskine House, near Glasgow, has made it desirable to allocate different areas to the two institutions. The Edenhall Hostel will in future serve for limbless men domiciled in the east of Scotland, while Erskine House will receive those from the west. In order to provide accommodation for one hundred men on the new site considerable extensions are necessary, and these are already in hand. The cost of the alterations, extension, and equipment is estimated at £12,000, and the whole of this sum will be provided by the Scottish Branch of the British Red Cross Society, but an appeal is made for contributions to meet the general expenses, for extra comforts for the men, and for additional equipment. The financial secretaries and treasurers are Messrs. William Home, Cook, and Co., C.A., 42, Castle Street, Edinburgh.

THE UNIVERSITY OF EDINBURGH IN 1916-17.

The annual report for the academic year 1916-17 shows that the matriculated students number 1,201 men and 686 women; of the male students, 152 matriculated for the purpose of joining the Officers' Training Corps, in addition to those who in the ordinary course were in attendance at classes. In the faculty of medicine there were 709 men and 240 women. Of the students of medicine, 465, or nearly 50 per cent., belonged to Scotland, 144, or over 15 per cent., to England and Wales, 30 to Ireland, and 281, or 29½ per cent., to British Dominions, including 76 from India. There were also 29 from foreign countries. The number of graduates, officials, and students, past and present, serving in H.M. Forces is now considerably over 5,000, and more than 400 have died. Many of the departments in the faculties of science and medicine have been occupied with work which has a direct bearing upon the war. It is noted that the funds transferred to the University Court by the Royal Victoria Hospital Tuberculosis Trust for the foundation of the Chair of Tuberculosis amounted to £18,000.

EDINBURGH ROYAL INFIRMARY.

During the year ending October 1st, 1917, the number of in-patients admitted to the Royal Infirmary, Edinburgh, was 11,181, of whom 847 (7.04 per cent.) died. Of the patients admitted 5,039 lived in Edinburgh and Leith, and 6,142 in other parts of Scotland. Three large wards with 116 beds have been held constantly at the disposal of the military authorities for the treatment of men from the expeditionary forces, and during the year 36 sailors and 663 soldiers were treated therein. The managers have entered into agreements with the Edinburgh and East Lothian War Pensions Committee for the treatment of discharged sailors and soldiers other than those suffering from diseases for which special hospitals are provided.

England and Wales.

THE INCORPORATED SOCIETY OF TRAINED MASSEUSES.

At the second annual general meeting of the Institute of Massage and Remedial Gymnastics, held at Manchester on December 7th, 1917, with Sir William Cobbett, president, in the chair, Sir William Milligan, chairman of the executive council, made an important statement with regard to the future of the institute. Since July, 1916, negotiations have been in progress between representatives of the institute and of the Incorporated Society of Trained Masseuses, which now has a membership of over 4,000. The points of difference in the constitution of the two bodies were discussed, and notes were made of changes which the institute considered essential in the working policy of the society before any common ground of action could be reached. As the outcome of a conference a scheme for the reconstitution of the society was approved by both councils. This includes provision for the admission of male certificate holders to membership and representation, a change of title to show that the society is not confined to masseuses, and the setting up of local boards in order to decentralize the growing general work of the society. Sir William Milligan, on behalf of the council, urged members of the institute to accept amalgamation, by which both bodies hoped to secure what was essential in the interests of massage generally—namely, a uniform training, and a "one portal" examination system. This course was unanimously agreed to by the meeting. The suggested reconstitution and amalgamation, if carried into effect, should enlarge the scope and strengthen the position of the Incorporated Society. We learn from the *Journal of the Incorporated Society of Trained Masseuses* that the proposals will be laid before the members thereof at special general meetings to be called early this year.

MATERNITY AND CHILD WELFARE.

There are at present five voluntary infant welfare centres in operation in the Metropolitan Borough of Wandsworth, and a sixth will commence work this month. Steps have been taken to link up the work of each of these voluntary centres with the work of the council in connexion with home visiting, and in January, 1917, the council decided to contribute to the funds of the five centres then in operation to the extent of 25 per cent. of their annual expenditure on condition that the total contribution of the council did not exceed £250 in any one year (that is, 25 per cent. of a gross annual expenditure of £1,000 in the borough). In March, 1917, the council decided to enter into arrangements with the various nursing associations in the borough for their nurses to attend cases of measles when requested by the medical officer of health, and payment is made to the associations at the rate of eightpence a visit. In May, 1917, this work was extended to include cases of ophthalmia neonatorum. In July, 1917, the council resolved to enter into an arrangement to pay for the services of medical practitioners when called in by registered certified midwives in cases of emergency amongst necessitous women, and the following is the scale of fees paid for such services:

1. For all cases necessitating operative assistance or exhibiting special difficulties, and subsequent visits for next ten days ...	£	s.	d.
2. For attendances in cases without operative assistance and subsequent visits for next ten days ...	1	1	0
3. For attendance for administration of an anæsthetic ...	1	1	0
4. For any visit not covered by Nos. 1, 2, and 3 ...			
Between 8 a.m. and 8 p.m. ...	0	3	6
Between 8 p.m. and 8 a.m. ...	0	7	6

Canada.

THE HALIFAX EXPLOSION.

The number of deaths in the Halifax tragedy is now given officially as 1,226. It is probable, of course, that other deaths will occur as the result of exposure; the explosion and consequent fire were followed by an icy blizzard with terrific wind, heavy snowfall, and rain, culminating in zero weather, all of which made it often impossible to continue the work of rescue. Almost every pane of glass in Halifax

was smashed by the explosion, and numbers of people sustained injury through the bits of glass that were sent flying in all directions. It is stated that from two to five hundred persons have been partially or totally blinded. Among the buildings destroyed were the Rockhead Military Hospital, situated on the pier, and the infectious diseases hospital, from both of which, however, the patients escaped; also the Home for the Deaf, and the Protestant Orphanage, where a number of children were killed. The loss of property, of course, is very great, and it is estimated that from twenty-five to thirty million dollars at least will be required to provide for the homeless and to rehabilitate the destroyed area. The presence in the city at the time of the explosion of a number of military units facilitated the maintenance of order, and command of the relief work was taken by Lieut.-Colonel McKelvie Bell, C.A.M.C. It was fortunate also that the Camp Hill Hospital had just been completed, and could be used to accommodate some of the wounded. Upon receipt of the news of the explosion a number of doctors went at once to the scene of the disaster. A medical unit sent from Boston, Massachusetts, was of the greatest service.

ESTABLISHMENT OF MILITARY HOSPITALS.

A number of military hospitals are in process of construction by the Military Hospitals Commission. One is now being built on a site adjacent to the Macdonald College at Ste. Anne de Bellevue, about twenty miles from Montreal. Macdonald College comprises a School of Agriculture, a School of Domestic Science, and the Protestant School for Teachers of the Province of Quebec, so that it offers excellent facilities for vocational education. The new hospital will be beautifully situated on the banks of the Ottawa River, near its junction with the St. Lawrence. Plans have also been prepared for a hospital of 1,000 beds at High Park, Toronto, on the plan of the Ontario Hospital at Orpington. Other hospitals are being built at Kingston and London, Ontario, and one was recently opened at Moose Jaw, Saskatchewan.

In connexion with the work of the Military Orthopaedic Hospital at Toronto, which is the centre of this work in Canada, research is being conducted at Hart House, Toronto, into devices for the treatment of cases of functional loss or impairment, and arrangements are being made for standardized equipment, which will be installed in each of the military convalescent hospitals. Each case is treated individually and, when necessary, a special appliance is adapted or made to suit the requirements of that particular case. A device is attached to each appliance to register the progress made by the patient from day to day, an arrangement which has been found to be of great benefit to the patient, as it encourages him to make every effort to improve. A survey of all the convalescent hospitals established by the Military Hospitals Commission was recently made by Major Tait McKenzie for purposes of co-ordination and standardization of methods.

Correspondence.

A WHOLE-TIME SALARIED MEDICAL SERVICE.

SIR,—There is one point of view, difficult to express, which many must see more or less clearly, which seems to me the most essential problem to be considered when a whole-time medical service is under discussion, and that is the ability or inability of the medical man to give a correct and definite opinion to any given patient.

It is one thing to be a free man taking no further responsibility towards one's patients than saying, "That is my best advice and you can follow it or else consult someone else," and it is another thing to say, "That is my advice and I expect you to be guided by it." When we consider seriously the mistakes we have made, and those we have observed made by better men than ourselves, are we really prepared to say that medical science is sufficiently exact in practice to be put into a general State system?

It is normal for the newly qualified to feel pretty confident; it is more or less natural that the public health service should make rather light of the responsibility of taking over such things as the treatment of tuberculosis; and no doubt private practitioners and members of

voluntary hospital staffs manage to keep a full share of confidence in themselves, but they certainly learn, year by year, that the practice of medicine is a very responsible calling; and I believe those most capable of giving a sound opinion are those least inclined to shoulder the responsibility of being placed in a position in which the advice might be given to a patient who did not seek it, or at any rate had no choice of the doctor who should give it; and further, more important still, the situation might be very difficult if the patient declined to follow out the advice. But to repeat my main contention, is there any member of the profession capable of giving definite advice on individual cases, which advice the State is justified in expecting the patient to adopt? If a man chooses his panel doctor, if he chooses his private practitioner, if he chooses his hospital, or his hospital consultant, he has come more than half way towards taking his (the patient's) share of the responsibility; but can he choose a salaried officer? Or could he choose to choose no officer at all?

The position of a medical referee is often very doubtful; the society may be asking questions which no medical man can answer; and it is we ourselves who have the necessary expert knowledge to know our limitations, and it is our duty to have the courage to state them.

There are many attractions about a whole-time salaried post under the State; many men holding temporary commissions are hoping for such a service when we demobilize, but except in special departments I wish to suggest that ordinary civil practice will not easily be carried out under a system comparable to that of the army. It is right for a man to hold views on certain points so strongly that he will decline to treat people who will not carry out his directions. But is he justified in forcing his views on patients who may not individually have chosen him?—I am, etc.,

December 31st, 1917.

TEMPORARY COMMISSION.

THE MINISTRY OF NATIONAL SERVICE.

SIR,—The letter of "X" does not seem to have evoked the interest in medical circles which one would have expected. Let us hope that the letter of "Y" will be more successful. Presumably appreciation of the magnitude of the issues involved in the setting up of the Ministry of National Service has not yet percolated through a profession the members of which have many absorbing duties.

With the idealism of "X" I am not concerned, nor with the pessimism of "Y" with regard to the political wisdom of the British Medical Association. But "Y" at all events has recognized the potentialities of the new Ministry after the war. Will the Ministry continue to make use of voluntary assistance from the statutory professional committees, or will the force of circumstances compel the absorption of these bodies into the machinery of a Government department?

The information obtainable by the statutory committees is essential to the Ministry. This information is being gathered for the medical profession by the medical profession at the cost of its own bodies. It is conceivable that presently difference of opinion may arise between the Ministry and the committees with regard to the nature, form of record, or use of the information acquired. Discussions on such differences of opinion will not lead to efficiency.

In my opinion the time has arrived when the whole of the work of the statutory professional committees should be transferred to the Ministry of National Service. Where possible, use should be made of the Local Medical War Committees in connexion with the department. But in cases where any difficulty arises in maintaining connexion between the Ministry of National Service and the local profession in each area as represented by the local committees, the Ministry can avail itself of the machinery of which it already has a nucleus in the shape of its deputy commissioners.

The transference to a Government department of a piece of work which has been due purely to voluntary effort is probably a difficult matter. But for the sake of ultimate efficiency it should be undertaken forthwith.—I am, etc.,

January 6th.

THE TREATMENT OF TRAUMATIC PARAPLEGIA.

SIR,—In answer to Colonel Percy Sargent's criticisms on my article on this subject may I say that I am sorry if I did not make my meaning clear—that it is only for cases clearly incurable that I raised the question of an attempt being made to establish conductivity between the upper and lower segments of the divided spinal cord?

Quite a number of cases of spinal injury are now being operated on at the front, a short time after the wound has been inflicted, when it is readily ascertainable whether there is complete division of the cord, and therefore if the patient is likely to remain paraplegic, should he recover from the primary injury and the accompanying bladder trouble.

In later cases, if complete paraplegia has existed for some months after injury without any signs of returning functions, this would, I consider, prove that the cord had been divided or permanently injured, and that the paraplegia would persist with its attendant distressing symptoms and dangers associated with paralysis of the bladder and rectum. In only such hopeless cases do I advocate an attempt being made to bring about relief by trying to establish continuity of the conducting tracks.

The ideal operation would be to bring together the divided ends of the spinal cord; but this could only be done by shortening the spine, as the cord cannot be stretched to make the ends meet.

Waller taught many years ago that the axis cylinder is a branch of a nerve cell which grows towards the periphery, and Howell and Huber, twenty-five years ago, arrived at the conclusion that although the peripheral structures are active in preparing the scaffolding, the axis cylinder is the essential portion of a nerve fibre, which has an exclusively central origin.

I am quite aware that the peripheral nerves differ from the medullated fibres of the spinal cord in not possessing a neurilemma sheath, and that Purves Stewart, Ballance, and Bethe advanced the view that new nerve fibres have a peripheral origin; but other eminent observers, such as Langley, Anderson, and S. Ramon y Cajal have defended the older Wallerian doctrine.

It is on the Wallerian view that it would seem to me possible that the axis cylinders may project processes through a small sector of living cord introduced between the two ends of the divided cord.

About the success of my case of transplanted spinal cord into the gap in a median nerve of a man there can be no question, for the case was followed up for years, was a complete success in every respect, and was seen by many medical men. I explained his case on the Wallerian theory, rightly or wrongly.

The man subsequently earned his living for some years as a platelayer on the North-Eastern Railway, and was ultimately killed on the line while on duty; unfortunately I did not hear of his death for a week, and then it was too late to try to obtain permission to examine the nerve that had been operated on.—I am, etc.,

London, S.W., Jan. 8th.

A. W. MAYO-ROBSON.

FLIES IN WINTER.

SIR,—The following observation appears to be contrary to the views of Captain McDonnell.¹

I have a small ancient week-end cottage in the country. During October, November, and the first two and a half weeks of December, 1917, it was shut up. Severe frosts had occurred during this time, and the cottage is a cold one. We paid a short visit on December 19th; fires had been lighted the day before. About 8 p.m. my wife went up to the children's room, and on moving the curtains over an old deep-set window found black masses of semi-torpid flies clustered closely together. I crushed a large number, probably several hundred, but left one black mass of nearly a hundred flies untouched, and a number of disturbed flies crawling about, as I thought it would be cleaner and more complete to kill them with formalin next morning. I got the formalin at mid-day, but on moving the covering curtains found all the flies had gone, and their new resting place could not be found. These flies had therefore withstood severe frost and two and a half months

¹ BRITISH MEDICAL JOURNAL, January 5th, p. 25.

in a house to which no food had been brought, and were still capable of moving off when disturbed, so it is rational to suppose that they could have existed throughout the winter.—I am, etc.,

A. WINKELRIED WILLIAMS, M.B., C.M., D.P.H.

Brighton, Jan. 8th.

MENTAL EXERTION AND THE PROTEIN RATION.

SIR.—It won't do. It will not do at all to trust that the protein will take care of itself if only we give or take sufficient calories. The cases I have published show that a man may consume enough calories to keep him in physical health and ample weight, and yet his mental health may suffer from lack of protein. And the experiments of Atwater and Benedict won't do either. They found, you say, that the intensity of metabolism is not affected by mental work. This denies what I did not assert. I do not say that the intensity of the general metabolism is affected by mental work; but if, as we most of us think, the amount of mental activity is a measure of the activity of the brain, the metabolism of the brain must *a priori* be increased during mental activity. All that Atwater and Benedict's experiments show is that they did not find evidence of increased metabolism of the brain. But if, as I contend, the working metabolism of the brain is mainly a protein metabolism, were they likely to find an increase in it? Protein is not, as the carbohydrates are, stored in the body until wanted, and its products excreted in proportion to the activity of the body. Any excess of protein intake beyond what is needed for the service of the body is reduced to urea and excreted at once, along with the urea reduced from the protein that has been utilized. The amount of CO_2 that is excreted is a measure of the sugar that has been used. The amount of urea that is excreted is a measure of the protein that has been absorbed; and what proportion of the absorbed protein has been used we have no means of knowing. It is customary to assume that the activity of the brain may be measured by the amount of phosphates excreted, but this is a pure assumption, and rests on no evidence that I know of. It was made in Germany.

It would seem that the only way to determine whether the protein excretion is increased by brain activity would be to stop the intake of protein and compare the excretion of urea during a period of mental activity with the excretion during a period of mental rest; but the stoppage of the protein intake would so disturb the conditions that the result would not be trustworthy.

We are here reduced to speculation, and must speculate as best we can on the basic fact that a certain minimum amount of protein over and above the amount necessary to preserve the physical health, is necessary to the minimum of normal mental exertion. This is proved by my published cases. I submit that it is reasonable and safe to suppose that more mental exertion means the using up of more protein, and that better mental work will be done on a liberal ration of protein than on a bare minimum. I do not wish to convey the notion that a dullard can be converted into a genius by stuffing him with meat, but I have a strong opinion, based on my own experience, that the dullard will be less dull on a liberal protein ration than on a scanty one. I think it probable, also, that the genius will be nearer the top of his form in the same circumstances, but as to this I have no personal experience.

Finally, Sir, let me repudiate the aspersion that I have any quarrel either with you, or with the Food Controller, or with any one. My record is surely sufficient evidence of a nature almost morbidly averse to quarrelling.—I am, etc.,

Parkstone, Dorset, Jan. 7th.

CHAS. MERCIER.

* * Dr. Mercier says he has no quarrel with us, and we have certainly no quarrel with him. We did not quote the experiments of Atwater and his colleagues as evidence that the metabolism of the brain was not increased by mental activity but as evidence that the magnitude of any change, whether in terms of energy or of protein, was not such as need be brought into account when the question is one of rationing. Dr. Mercier may be quite right in thinking that more protein is needed by a man engaged in mental work than by the same man physically fit

although mentally inactive; but the interval between the minimum amount of protein necessary for physical health (less than 40 grams according to Rubner and Thomas) and the amount provided by a war diet which also yields the *needed energy*, is so great that we still hold, *pace* Dr. Mercier, that calories *will* do, if we can get them; but with the material now before them readers will be able to form their own judgement.

THE SANATORIUM TREATMENT OF TUBERCULOSIS.

SIR.—Your leading article of December 8th, 1917, clearly emphasizes the failure of sanatorium treatment for tuberculosis as a whole, and one cannot emphasize too strongly that the treatment of such cases very much resolves itself into one of environment.

Many of the sanatoriums have done good work in arresting the disease, and it is equally true that too many of the sanatoriums are little better than boarding houses—thus the treatment is not what it should be. It is comparatively easy to forecast a cure or arrest of the disease in the hæmorrhagic type, but in the catarrhal forms the outlook is very different, and to obtain amelioration of the symptoms a differentiation has to be made and a distinct line of treatment enforced; this, I believe, is not systematically carried out in many of the so-called sanatoriums, so, from a public point of view, failures arise.

The treatment and experience of Brechmer and Walther are frequently traded upon, and too little adopted in their true and practical aspects. Brechmer not only selected a proper site for his sanatorium, but he lived the life of his patients; he not only understood his cases, but enforced his treatment; even then disappointments occurred, and plainly due to "environment"—namely, the return to old associations and a lesser resistance.

Possibly the effect of exposure to strong "rainy winds," as Dr. Gordon says, has its influence, and no doubt he writes with knowledge of the conditions in his own district. I write with some experience, and I agree with him in saying sanatoriums are valuable when properly situated and skilfully handled; for this purpose there must be a dry subsoil, moderate rainfall, no dust or fog, but sunshine and protection from wind.—I am, etc.,

Bournemouth, Dec. 13th, 1917.

A. KINSEY-MORGAN.

MEDICAL STUDENTS IN AND OUT OF THE RANKS.

SIR.—May I call attention again to the injustice which is being done to some of those medical students who, in 1914, sacrificed their future to the need of their country? I refer to those students who, in their first and second year, responded *at once* to the urgent call (how urgent seems to have been forgotten) of those dark days. A cynical Government now says, "Fools! why did you not wait until you had passed your second professional examination? Because you were over-hasty, you must give way to those who, with much greater sense, looked before they leaped. Besides, if you had been more careful you need not have come at all." Others, more loftily, say, "Be content! look at the great satisfaction your noble patriotism will bring to you in after-life." Which, of course, is quite true. Pure patriotism is, without doubt, an excellent thing, and carries with it a noble and pure reward, even if it lands you in the workhouse. It would appear, however, that the reward is much more tangible if your patriotism is seasoned with a little self-interest.

My son, who was within six months of passing his second professional when he joined the army in 1914, is now told that, had he been a little less hasty in the exercise of his patriotic instincts, he would now have been free to return to his medical studies. As it is, he has suffered the horrors of Gallipoli and Mesopotamia, only to find that his claims are disregarded in favour of those who chose to "wait and see," and now find themselves rewarded by the gift of both the substance and the shadow by a grateful country. Is the army in such need of men that this injustice to these brave men is to continue? Surely not!—I am, etc.,

January 6th.

J. A. A.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

The second appeal for subscriptions to this fund was published in the *BRITISH MEDICAL JOURNAL* on December 29th. The fund is now so low that unless liberal support is shortly obtained it will be necessary very largely to diminish if not altogether to suspend the monthly contributions which were kept up regularly throughout last year. The following subscriptions have been received up to the end of last week:

£ s. d.		£ s. d.	
Dr. Herbert Spencer	25 0 0	Dr. S. M. Salaman	1 0 0
Mr. J. B. Lawford	5 0 0	Dr. C. D. Muspratt	5 0 0
Mr. W. C. Bull	10 10 0	Dr. E. W. Collinson	5 5 0
Dr. Middleton	5 5 0	Dr. H. Russell Andrews	5 5 0
Dr. George Hunter	1 1 0	Dr. F. E. Batten	5 0 0
Dr. A. E. Nicholls	2 2 0	Dr. F. J. Baildon	1 1 0
Dr. Lawrence Franklin	10 10 0	Dr. D. R. Moir	1 1 0
Mr. J. Elliot Square	5 0 0	Mr. T. Jenner Verrall	2 2 0
Dr. J. B. Hurry	1 1 0	Miss Price	1 0 0
Mr. F. Neal	0 10 0	Mr. Frederic Durham	2 2 0
Dr. J. W. Carr	5 0 0	Dr. R. Hingson Fox	1 1 0
Dr. Alfred Cox	2 2 0	Dr. D. Fogarty	1 1 0
Sir St. Clair Thompson	10 10 0	Dr. W. B. Russell	0 7 6
Dr. John Matthews	10 10 0	Professor T. K. Monro	5 5 0
"Anonymous"	5 0 0	Per Sir Rickman J. Godlee	3 10 0

The treasurer also desires to acknowledge the receipt of £8 14s. 10d. from the Pharmacy Board of New Zealand, received through Mr. C. W. Nielson, the Registrar.

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

The Serbians.

DEPUTY DIRECTOR-GENERAL A.M.S.

COLONEL T. H. J. C. GOODWIN, C.M.G., D.S.O., who has been representing the British Army Medical Service in America, has been appointed Deputy Director-General, Army Medical Service, on the retirement of Surgeon-General Sir M. W. Russell, K.C.M.G., C.B. Colonel Goodwin's place in America will, we understand, be taken by Colonel C. K. Morgan, C.M.G., who has been serving on Sir Arthur Sloggett's staff in France.

AUXILIARY R.A.M.C. FUNDS.

At the conclusion of the first complete year of the existence of the Auxiliary R.A.M.C. Funds it is thought that all officers of the Auxiliary Forces will be interested to hear something of the measure of success which has been attained in promoting the objects for which the funds were established.

Initiated by the Director-General, Surgeon-General Sir Alfred Keogh, G.C.B., in June, 1916, the idea soon began to take shape, and a committee was formed in August which undertook the management of the funds subject to the approval of the annual general meeting.

Circulars were sent out to all officers, and subscriptions invited first from officers of the auxiliary forces for the benevolent branch for the assistance of orphans of deceased officers who may have left their families in difficult circumstances, with a view to obtaining for the children a better education than would have otherwise been possible; and secondly from canteen and recreation funds for the relief branch for the immediate needs of widows and orphans of soldiers of the corps of the new armies who have lost their lives during the war. All moneys received have been kept separately in the two branches, the accounts being kept quite distinct.

As regards the benevolent branch, it was decided that in all cases assistance should be made by grants annually, such grants being renewable as circumstances required, but being always reviewed by each general annual meeting. The committee has been authorized to deal with urgent cases as they arise during the year by making small grants in advance subject to the approval of the next annual meeting, and also with the administration of the relief branch.

The first annual general meeting was held on October 26th, and grants made from the benevolent branch as follows:

3 orphans of an officer with temporary commission	430
2 " " " " " "	520
2 " " " " " "	540
2 " " " " " "	215
4 " " " " " "	431
2 " " " " " "	125
R.A.M.C. Territorial Forces	

Cases which have been reported since the meeting have been dealt with by the committee under the powers delegated to them, and no doubt others will arise as the existence and objects of the funds become better known.

Sir Alfred Keogh has continued to take a great interest in the fund, and in September last addressed a personal letter to all Directors of Medical Services at home and abroad inviting their co-operation. As a result the number of annual subscribers has greatly increased, and the total at present exceeds

1,200, and a considerable amount of money has been invested in War Loan and National War Bonds to make provision for future calls. The success and future development of the charity may, therefore, now be considered to be assured, provided that the corresponding annual subscriptions are continued, which there is no reason to doubt.

In the earlier days there seems to have been some misunderstanding as to the objects of the funds, and some officers appeared to think that they were in some way undertaking duties which should be met from public sources. Grants from these funds in no way take the place of any pension, compassionate allowance, or gratuities to which the families of deceased officers or warrant or non-commissioned officers or men may be entitled under the Royal Warrant for Pay, etc. The funds are a charity pure and simple, and registered under the War Charities Act, 1916, and grants are made solely in aid of orphans and widows and orphans in the relief branch, and are allotted according to the circumstances of each individual case after taking into consideration the total income of the applicants, including any pension, etc., of which they may be in receipt.

Colonel W. Hale White, R.A.M.C.T., has kindly undertaken the duties of Honorary Secretary, and the office will shortly be moved to 11, Chandos Street, Cavendish Square, S.W.1. After January 31st all communications should be sent to that address.

EXCHANGE.

MEDICAL OFFICER in charge (H.D.) Squadron R.F.C., Norfolk, wishes exchange with Medical Officer in charge barge in Flanders. Address No. 200, BRITISH MEDICAL JOURNAL Office, 423, Strand, W.C.

Obituary.

DR. EDWARD SERGEANT, consulting M.O.H. Lancashire, sends a personal appreciation of the late Dr. Thomas Fisher, whose death was announced in the *JOURNAL* of December 29th:

For a period of five years (Dr. Sergeant writes) Dr. Fisher was a fellow student of mine at St. Thomas's Hospital, and during the time I held the position of house-surgeon he was one of my best dressers. He held the position of M.O.H. to the Garstang Rural District Council for thirty-five years, and as county medical officer of health I frequently visited his district and can speak in the highest terms of his worth and the valuable assistance I received from him on matters relating to public health. Special mention may be made of his help in the formation of a large small-pox hospital area for the districts comprised within the Fylde, Preston, and Garstang Unions. He also rendered great assistance in matters relating to the occurrence of tuberculosis and in respect of a local outbreak of poliomyelitis, more recently also in anthrax. Notwithstanding the heavy pressure of the work of his profession, Dr. Fisher took the greatest interest in agriculture and was personally a large landowner and practical farmer. Dr. Fisher's unexpected death came as a great shock and deep grief to a very wide circle of friends in this county, many of whom, for a prolonged period, had been accustomed to regard him as a dear friend and trusted medical adviser.

WE regret to record the death of Dr. JOHN POLSON which took place towards the end of last August at Newland, Cape Peninsula. The son of Dr. James Polson, he was born in April, 1837, in Aberdeenshire, and graduated M.D. at Aberdeen University in 1859. For sixteen years he practised in a Forfarshire village, but on account of his wife's health he left for South Africa in 1879. He was a most popular and successful practitioner in Reddersburg, having a large practice among the Dutch farmers. At the time of the Boer war he retired from work and after visiting the old country he made his home in the Colony. Whether in Scotland or in the Free State his geniality and fine character made him beloved and respected by all who knew him.

MAJOR P. D. SICCARDI, of the Clinique of Industrial Diseases in Milan, died in hospital in Pavia on December 22nd, 1917, as the result of a small abrasion of the skin which became infected while injecting spirochaete virus. He had made ietero-haemorrhagic spirochaetosis among the Italian troops his special study, and had carried out many researches. When Porto Rico was annexed by the United States of America, Siccardi was at the time waging a successful campaign against ankylostomiasis in that country. He was a frequent contributor to the subject of occupational diseases and to the solution of public health problems. A hard worker and a careful observer, his death is a great loss not only to Italy but to social and preventive medicine generally. In the Milan clinic Major Siccardi was for a considerable period closely associated with Professor Devoto, to whom he acted as assistant.

Medical News.

THE Minister of Pensions has appointed Sir John Collie, C.M.G., to be Director of Medical Services for the Ministry of Pensions.

PROFESSOR TUFFIER, of Paris, has been promoted to the rank of Commander of the Legion of Honour in recognition of his eminent services as consulting surgeon to the French armies.

At the meeting of the Royal Microscopical Society at 8 p.m. on Wednesday next, Mr. E. Heron-Allen will deliver his presidential address on the society during the great war and after.

A MEETING of the Tuberculosis Society will be held on Monday, January 21st, at 8 p.m., at the Royal Society of Medicine, 1, Wimpole Street, W., when a discussion on farm colonies in the treatment of tuberculosis will be opened by Sir Robert Philip, Dr. T. Dyke Acland, Dr. Noel Bardswell, and Dr. A. H. Macpherson.

As Padua has recently been the objective of Austrian air raiders, the rectorate and Academic Council of the famous university have been by official decree transferred temporarily to Pisa. The same decree authorized the Minister of Education to allow professors of Padua to lecture in other universities and superior institutions.

A COURSE of public lectures on some biological problems of to-day will be given at University College, London, during January, February, and March. The first lecture, on the problem of food, will be given by Professor W. M. Bayliss, F.R.S., on Monday, January 21st; the second, on war bread and its constituents, by Professor F. G. Hopkins, F.R.S., on January 28th; the third, on accessory food factors (vitamines) in war diets, by Miss E. Margaret Hume, of the Lister Institute, on February 4th; and the fourth, on alcoholic and other beverages, by Professor Cushny, on February 11th. All the lectures will be given at 4 p.m., and are open free to the public.

At the last session of the General Medical Council a report was received from the Public Health Committee recommending certain modifications in the resolutions and rules regarding diplomas in public health, with a view to recognition of laboratory experience by medical officers serving with a British Expeditionary Force. The recommendation, which was printed in the SUPPLEMENT of December 8th, 1917, p. 113, was adopted by the Council. This has necessitated a revision of the existing resolutions and rules, and we are asked to state that a new edition has accordingly been prepared containing the additional provisions which will hold good for the duration of the war.

DR. FILOMENA CORVINI, who has been working as a medical officer, with the rank of lieutenant, at the Italian front, recently returned to Chieti, her native town, where she had an enthusiastic welcome. She was afterwards received in private audience by the Queen of Italy, who expressed keen interest in her work. Other Italian women doctors are taking their share in war work. Dr. Elena Fambri, of Venice, has attended the wounded in the advanced line, while Dr. Serena De Paoli, who remained at her post in the Children's Department of the Civil Hospital at Venice, suddenly found herself in the zone of military operations and at once took up the duties created by the new situation.

THE lecture arrangements of the Royal College of Surgeons of England for February are as follows: On February 6th, on the surgical treatment of neuragia, by Mr. Jonathan Hutchinson; on February 8th, on the treatment of war injuries of the jaw and face, by Mr. Percival P. Cole; on February 11th, on the diagnosis and treatment of syphilis of the central nervous system, by Dr. Hildred Carlill; on February 13th and 15th, on the *Quaderni d'Anatomia* by Leonardo da Vinci, by Professor William Wright; on February 18th, on the structure of the English skull, by Mr. F. G. Parsons; on February 20th and 22nd, on projectile fracture of limb bones, by Mr. E. K. Martin; and on February 25th, on the pathological aspect of certain war injuries of the eye, by Colonel W. T. Lister, C.M.G. Professor Keith will resume on January 14th his course of lectures on the anatomical and physiological principles underlying the treatment of injuries to muscles, joints, and bones. All the lectures are given at 5 p.m.

AN artificial limb manual training centre at the Boulevard, Balham, was opened by Mr. Samuel Samuel, M.P., on January 8th. It has been established as a piece of war philanthropy by the local traders' association. It is to receive and instruct men who have been newly fitted with artificial limbs at Rochester and elsewhere. The men, under the guidance of competent instructors, are first to

be put through some elementary training in the use of their new limbs: afterwards they are to be passed on to more delicate and complicated movements, and ultimately, it is hoped, to the use of tools appertaining to various trades before being drafted to technical centres for expert instruction in special handicrafts. The centre consists of three large rooms fitted with benches and with various appliances for exercising arm and leg movements. It was stated that many men, after discharge from convalescent homes, grow discouraged by their inability to use their artificial limbs to full advantage, and sometimes even discard them. Daily classes of free instruction will, it is hoped, quickly make them proficient.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology, Westrand, London*; telephone, 2631, Gerrard.
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Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

ANSWERS.

"PERPLEXED," who desires to hear of a home for an epileptic man, aged 36, is recommended to communicate with the secretary (Mr. Penn Gaskell), National Association for Epileptics (Chalfont Colony), Denison House, Vauxhall Bridge Road, S.W.1.

LETTERS, NOTES, ETC.

CIVIL SURGEONS IN MILITARY HOSPITALS.

COLONIAL writes: "C. S." in his letter in the JOURNAL of January 5th, p. 40, calls attention to a very important matter, and one which is worthy of the attention of the Association. In the Boer war civil surgeons on military service were allowed to wear a distinctive uniform. In the present war no such privilege has been accorded to them, nor the right of wearing any distinguishing badge showing that they are doing war work. Civil surgeons engaged as whole-time medical officers in military hospitals, doing orderly duty, etc., ought to be granted permission to wear uniform with a distinctive badge. They do not ask for commissioned rank, but it is right that as medical officers in military hospitals they should wear uniform to show their position, and take their proper standing with their colleagues who hold commissioned rank.

THE WHITE BREAD CURE.

THE habitual use of white bread is comparatively a novelty even in France. Avenel, than whom there is no better authority on such matters, quotes an entry from a householder's account book in 1765, showing that he advanced to a maid in his employment 1.65 francs for "a purge and some white bread." As the servant's wages for the year were probably less than 80 francs, this was a considerable sum to her. White bread, Avenel explains, was then looked upon as a remedy.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE MEDICAL ASPECTS OF AEROPLANE ACCIDENTS.*

BY

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In the early days of flying there were necessarily many accidents, owing first to structural weaknesses in the aeroplanes and secondly to the fact that the pioneer pilots had to experiment and were mostly unacquainted with many of the factors governing aerial navigation. When man began to teach man, and as improvements in the construction of aeroplanes increased, so accidents diminished in number proportionately; but, on the other hand, many more took up flying, and the total of accidents was increased. The pre-war methods of teaching were slow and sure, and first solo flights were made in stages, and after prolonged tuition, thus tending almost to obviate accidents altogether. As the war advanced and the importance of aviation was recognized more pilots were needed and the methods of teaching had to be accelerated; after a few hours' dual-control instruction, pupils were sent off to do their first solo flights. Naturally many more accidents occurred, and as nowadays tuition is on faster and more powerful aeroplanes, so have the total number of accidents increased. Every accident teaches something new, and all should be investigated thoroughly, so that a preventable cause or error can be eliminated in the future. In this connexion the reports of the Public Safety and Accidents Investigation Committee of the Royal Aero Club are very instructive and should be studied.

The total number of accidents due to school work and experimental flying is greatly augmented by the number due to war flying, either the result of aerial duels or anti-aircraft fire from the ground.

An attempt has been made to classify accidents at this station covering a period of six months, and these are referred to as the "V" series. In a general review of accidents I have also drawn from fifteen months' experience whilst at another school, and these are referred to as the "E" series.

In the "V" series during six months 4,000 hours' flying were done, consisting of 9,000 flights, and during that time 58 aeroplanes were wrecked or crashed. The suggested definition of a crash is an aeroplane so damaged in a flying accident that it has to be deleted or sent into the workshops for repair or rebuilding. This is in contradistinction to the effects of a bad landing or get off where the ensuing damage is small and can be repaired by the flight mechanics. Fifty-eight crashes in 9,000 flights represents one crash in every 155 flights. In these 58 crashes 16 airmen were injured, which is equivalent to 28 injuries in every 100 crashes, or one pupil injured in every 560 flights.

From these figures one can see that school flying is fairly safe and compares favourably with other high velocity forms of transit.

From this list of 58 crashes the following table is compiled to show the frequency of crashes and injuries on early solo flights:

No. of Solo.	No. of Crashes.			No. of Solo.	No. of Crashes.		
	With Injury to Pilot.	Without Injury to Pilot.	Total.		With Injury to Pilot.	Without Injury to Pilot.	Total.
1st	1	8	9	8th	0	1	1
2nd	5	4	9	9th	0	2	2
3rd	1	3	4	10th	0	1	1
4th	0	3	3	12th	1	1	2
5th	1	2	3	After 10 hrs.	2	12	14
6th	0	1	1	Dual control	1	0	1
7th	3	5	8				
Total	...	...	...		15	43	58

* Abstract of an article published in the *Journal of the Royal Naval Medical Service*, January, 1918.

The table shows a greater frequency of crashes on the first and second solos, then a diminution from the third to the sixth inclusive, and a rapid rise again on the seventh. The inference suggested is that by the time the pupil arrives at his seventh solo he becomes over-confident and a little careless.

CAUSES OF AEROPLANE ACCIDENTS.

The causes of aeroplane accidents are: (1) defect in the aeroplane; (2) error in judgement in flying; (3) "loss of head"; (4) brain fatigue or lethargy; (5) fear; (6) physical illness; (7) unavoidable causes.

In an analysis of the 58 crashes in the V series the following table shows the frequency of these causes:

Cause.	Number of Crashes.		
	With Injury to Pilot.	Without Injury to Pilot.	Total.
1. Aeroplane defect: (a) Breakage (b) Engine failure	1 —	0 —	1 —
2. Error of judgement	4	38	42
3. Loss of head	6	1	7
4. Brain fatigue	3	1	4
5. Fear	0	0	0
6. Physical illness	0	0	0
7. Unavoidable	1	3	4
Total	15	43	58

I. Defect in Aeroplane.

This implies mechanical failure of some part of the aeroplane, and can be subdivided into (a) breakage in the air, and (b) engine failure.

(a) *Breakage*.—In the early days of aviation breakage or giving way in the air of some vital part of the aeroplane—for example, the folding back of a wing—was fairly common, and was due to faulty design or weakness in construction. Happily, to a great extent this has been corrected, and at the present time very few accidents are due to this cause. In three years' experience with the R.N.A.S. I have not seen a machine actually break in the air. In one case in the E series an elevator control wire jammed and caused the aeroplane to nose-dive, with fatal results to both occupants.

(b) *Engine Failure*.—Engine failure *per se* may be a direct cause of an aeroplane accident—for example, if the engine fails just as the aeroplane is leaving the ground, and there is unsuitable landing ground, the pilot may not have sufficient height or air space to avoid obstacles in front. Or in landing the pilot may find in his glide downwards that he has undershot or overshot the mark and his engine will not "pick up" or respond to carry him on further to suitable landing ground.

On the other hand, engine failure may not be a direct cause but may be a strong contributory or indirect cause of an accident. In all cases if the engine fails in the air a forced landing is compulsory, but given a fair height—2,000 ft. or more—the pilot can usually select a good field for landing and arrange his descent accordingly. Of course, on approaching the field to land it may be found not quite so good as imagined from a greater height—for example, sloping ground, long grass, etc.—and thus the pilot may make an error of judgement on actually landing. This quite often occurs with a pupil, but rarely with an experienced aviator, who knows exactly how to "pancake" his machine. But even in the case of experienced aviators, engine failure just after leaving the ground is a strong contributory cause to the real cause of an accident—namely, an error of judgement in flying. Authorities cite as one of the commonest examples of aeroplane accidents engine failure just after leaving the ground, when the pilot tries to turn back to his original starting-place loses height in the turning, and, in trying to prolong his glide, loses flying speed—stalls—and the aeroplane falls to the ground out of control. In the V series engine failure was the direct cause in one case, and was a contributory cause in two cases.

2. Error of Judgement.

Error of judgement in flying is the commonest cause of aeroplane accidents. This error may occur in getting off the ground, in the air, or on landing.

Of the 58 crashes in the V series this cause accounted for 42—4 in getting off the ground, and 38 on landing. Of the many examples of error of judgement in flying perhaps the commonest is when, on landing, the pupil misjudges his distance from the ground, and either "flattens out" too soon and "pancakes," with a possible crash depending on the height, or else "flattens out" too late, and strikes the ground at a varying angle, usually overturning and wrecking the machine. Other examples in the air are putting on too much "bank" with insufficient "rudder" or vice versa; climbing on a turn; and, as in engine failure, prolonging a "glide" so that the machine loses flying speed.

It is difficult to estimate and account for these errors of judgement. In some cases it may be due to under-instruction. In other cases, even after prolonged instruction, the pupil may still misjudge distances, and on examination one occasionally finds that his standard of vision is below normal; but, on the other hand, he may be found physically fit, with normal vision and good balancing power. In the latter cases it may be a question of delayed reaction time, especially the visual reaction time on which the aviator is so much dependent. Normally this reaction time takes $\frac{1}{10}$ or $\frac{2}{10}$ of a second. It may be delayed by fatigue, drugs, and excesses, but, on the other hand, in some individuals who are otherwise physically fit, it is found to be much slower than in others. Hence, in the selection of candidates for aviation the visual and other reaction times must be up to the normal standard. By the French medical authorities on aviation candidates are rejected if the reaction times are found to be of the delayed type.

3. Loss of Head.

Loss of head occurs fairly frequently in a greater or less degree, and accounts for a fair proportion of accidents—7 in the present V series. The pupil in his new occupation of flying for the first time has all his mental faculties on the alert, at extreme high tension; the sense of danger, although not asserting itself, is ever-present, but subconscious. Under the sudden strain of an emergency his power to reason and act synchronously may momentarily lapse, resulting in what is known as loss of head. In a critical position the pupil has to think, decide, and act quickly, but with loss of head the mental balance becomes upset: there is no mental inertia, but the wrong decision is taken and acted on. In flying, seconds and parts of a second count enormously, and may mean all the difference between safety and danger. After actual loss of head there is seldom time to correct the error made. As examples of loss of head in the air the pupil in an emergency may move the throttle the wrong way, may keep his engine full on when he should throttle down, or may switch off his engine at a moment when he requires all the flying speed possible. Loss of head is very much allied to the two following causes.

4. Brain Fatigue.

In contradistinction to loss of head, the pupil in brain fatigue reaches the stage where he has neither the power to reason, decide, or act. A state of mental inertia supervenes. This is due to repeated stimuli received by his brain in rapid succession in his flight—he feels alone; a succession of errors occur in the air; he feels he cannot manage to control the aeroplane; fear does not seize him, but the enormity of the whole thing appals him; he feels helpless, and a state of brain fatigue occurs in which he, in a stupor, awaits events and takes little part in the aeroplane's control. After a careful study of 100 of the first solo flight confessions of pupils, and of many pupils who have had crashes, I am convinced that brain fatigue is a cause of a fair proportion of accidents. Four occurred in the 58 of the V series. As a rule, in brain fatigue the pupil fails to flatten out, and the aeroplane strikes the ground at its gliding angle and becomes wrecked. On questioning a suspected case of brain fatigue immediately after his flight, one finds usually that there is very little recollection of what happened during the flight; memory seems to become partially stunned. It is difficult to make a diagnosis of those liable to brain fatigue. As a rule, if it occurs, the pupil, even should he escape injury, soon gives up flying. He is not of the temperament suitable for flying. As a preventive, the pupil's first few solo flights should always be of short duration.

5. Fear.

Fear, at least in a degree sufficient to disturb one's flying, is rarely experienced in the air on the first few solo flights, whatever the sensations may be before going up or in the intervals between flying. The mind is far too much occupied and concentrated on details of flying, watching the various instruments that record air speed, height, levels, and engine's revolutions, and in judging position and direction in the air relative to the ground. From an analysis of the confessions of the first solo flights of 100 pupils and of my own, it is curious to note that very few experience fear in the air, at least not in a degree sufficient to disturb flying. Many confess to a sense of danger lurking somewhere at the back of the head, but say that it rarely if ever asserts itself. In the V series no crash occurred through fear.

6. Physical Illness.

In the series of crashes under consideration none was attributable to physical illness. At an air station medical inspection of the pilots and pupils at regular intervals reveals any organic disease that might lead to loss of consciousness in the air.

Flying on an empty stomach may cause faintness in the air. In schools flying commences at dawn, and all pupils are provided with a good meal of cocoa, tea, bread-and-butter. Similarly on long flights pilots are provided with tabloid forms of nourishment. The effects of cold and fatigue may produce faintness or stupor in the air. There are many instances on record of pilots fainting in the air either through being wounded or from high altitude effects. Some have been known to recover consciousness before reaching the ground and to make successful landings. Two pupils in the E series suffered from attacks of malaria in the air, and both were made to discontinue flying. Another pupil in E series, although slow to learn, was making fair progress, but one day he was noticed to descend rather steeply; he made no attempt to flatten out, the aeroplane struck the ground at its gliding angle, and the pilot was thrown out, clear of the machine, a distance of 66 ft., and escaped with only a slight sprain of one ankle. A few days later in the wardroom this pupil was seized with a series of typical epileptic fits. On inquiry a history of epilepsy for the previous five years was elicited. This was undoubtedly a case of an epileptic fit taking place in the air.

7. Unavoidable Causes.

From time to time unavoidable accidents arise. Every precaution is taken at a flying school to prevent collisions in the air or on the ground. Set signals are made with regard to the direction of circuits and landing areas for different flights. The terrain in certain areas may be unsuitable and conceal obstacles; again, in some aeroplanes the view of the sky or ground in certain positions may be limited. These conditions may cause unavoidable accidents. In the V series four accidents were unavoidable. Two were due to bad terrain with obstacles concealed in the grass; in the case of the other two a collision took place in the air.

TYPE OF ACCIDENTS.

The term "type of accident" has been suggested to describe the part of the flight in which the cause of the accident was initiated. It is possible to make an arbitrary division of a flight into three parts: First, the getting off the ground into the air up to 50 or 100 feet; second, in the air, with the various turns, figures of eight, climb, spirals, etc.; and, third, the landing, which includes the descent from the time the throttle is closed to the time the aeroplane is brought to a standstill on the ground.

The following table gives an analysis of the types in the V series:

Type of Accident.	No. of Crashes.		
	With Injury to Pilot.	Without Injury to Pilot.	Total.
1. In getting off	4	6	10
2. In the air	2	0	2
3. In landing	9	37	46
Total	15	43	58

Some of the errors which the pupil may make in getting off are raising the aeroplane's tail too high, slewing to one side, or getting off with one wing down. In the air a pupil may lose flying speed or stall, or may sideslip or spin. The commonest

type of accident is in landing—the pupil's *bête noire*. He may either flatten out too soon, lose flying speed some feet from the ground, and the machine "pancake," or else he may be too late in attempting to flatten out, and the aeroplane strikes the ground at an angle, turns over, and is wrecked.

SCHEME FOR FIRST AID AT AN AIR STATION.

The sick-bay or dressing station should be in full view of the aerodrome, with a look-out man supplied with field glasses always on duty during flying hours. Should the dressing station not be situated on the aerodrome, the former should be connected by telephone to the look-out man, whose position commands a good view of the flying area. Immediately a crash or false landing occurs, the look-out man telephones to the sick-bay notifying the steward the exact site of its occurrence. A map of the aerodrome, numbered in quadrants, can be conveniently arranged in the sick-bay. The look-out man then leaves his post and proceeds to the scene of accident, taking the wheeled hand stretcher, on which is carried a first aid dressing bag and an emergency tool kit case. The latter consists of an oblong box containing the following:

1. Two crowbars.
2. Two strong wire cutters.
3. Saw.
4. A long stout knife.
5. A hammer.
6. Strong cloth cutting scissors.
7. A fire extinguisher.

The above set of implements is very necessary, as in some crashes where the pilot is pinned under the wreckage it may be difficult to reach him. An injured aviator should never be dragged out of a crash unless in the case of fire, but rather the wrecked machine should be cut away from him. In many cases this prevents simple fractures from being converted into compound ones. The steward on being notified of an accident dispatches the ambulance, which stands always in readiness by the sick-bay, to the scene of the accident. The ambulance should be provided with twin wheels aft in order to facilitate movements on soft earth, etc. Two sick berth attendants go with the ambulance, and with them is a bag containing the following articles:

1. Morphine solution and two Willey's hypodermic syringes.
2. A bottle of chloroform and face mask.
3. Brandy.
4. A bottle of sterilized water.
5. Six first-aid field dressings and slings.
6. Picric acid dressings.
7. A tourniquet, cloth cutting scissors, and a knife.

These articles can easily be packed into a small bag 10 in. by 8 in. by 3 in. The surgeon on duty is on the aerodrome during flying hours, and proceeds to the scene of the accident by car or foot. If the accident is at a distance, a mile or more, it is better to go by aeroplane. I have now gone by air to over thirty forced landings and accidents at a distance, and am convinced of the utility of this method in arriving quickly and not otherwise tired and out of breath after a long run. In discovering the site of forced landings and accidents at a distance from the aerodrome much depends on the condition of the country around. Should this be flat country, these accidents are fairly easily discovered, but in some flying schools the surrounding land may be uneven, intersected with dykes and high-hedged roads. Thus it may be extremely difficult for the search party to find the wreck. Officers and flight mechanics sent to the scene of accident should be trained in first aid with special reference to aeroplane accidents. Flying pupils should not be allowed to come near or help, except in exceptional circumstances.

Often the crash is so severe that the wreckage has to be cut away from the injured aviator. In other cases the machine is upside down, with the pilot held head downwards by his safety belt. The latter must be cut and the pilot slid gently out. The emergency tools are used to cut wires, remove wreckage, and lever away the heavy parts—for example, the engine—and thus easily to reach the injured person. The aeroplane seat cushion is taken from the machine and placed under the injured pilot's head, while his body rests on a flying coat spread out on the ground. A rapid examination is carried out to determine the injuries received. If the injured person is conscious and in much pain morphine should be injected and he should be conveyed quickly to the dressing station, where clothes can be cut away, injuries examined, and

treated accordingly. If unconscious, some cutting away of clothing can be done on the field, injuries examined, and perhaps a dislocation reduced or a fracture accurately diagnosed during the unconscious period. In cases of fire, unless the pilot is thrown clear, the extinguishers must be used; but if there is any wind blowing they are of little use, as an aeroplane on fire is destroyed completely within a few minutes. The pilot's leather clothing for a time usually protects the body, but the face and lower limbs rarely escape. As the pain is so severe, and this applies to other injuries apart from those caused by fire, it is better to give chloroform on the field, and this is kept up on the way back to the dressing station. Morphine should also be given, but it takes some time to act.

SOME FACTORS RELATIVE TO AEROPLANE ACCIDENTS.

The injuries sustained are akin to most high velocity accidents, but are usually more severe as greater speed is used in aviation. They are composed of—

1. Injuries due to crushing, where some part of the pilot's body gets crushed between parts of the wrecked aeroplane. Crushing injuries are very severe in nature and mostly fatal in the propeller type of aeroplane (engine behind).
2. Injuries due to collision with the ground, as when the pilot is thrown out, or hits the ground with his head in turning over in and with the aeroplane.
3. Injuries due to impact with different parts of the aeroplane, as when the head is violently jerked forward and strikes the edge of the nacelle on the aeroplane's impact with the ground. Flying debris, such as broken struts and wires, may cause local impact injuries.
4. Injuries from fire.
5. Drowning and immersion effects in seaplane work.
6. Suspension effects, as when the pilot is suspended head downwards in an overturned aeroplane and is unable to loosen his safety belt. In many crashes the sudden impact of the pilot's body on the safety belt causes abdominal injury.

The injuries sustained vary a good deal, and depend on the type and power of the aeroplane and the cause and type of accident. An experience of three years attached to the Royal Naval Air Service impresses me more and more with the element of luck which befalls pilots in crashes. The present-day school aeroplane is much stronger in construction and more powerfully engined than in earlier days, thus providing for a greater margin of error on the pupil's part. The propeller type of school machine (for example, the Maurice-Farman) is considered very safe. It can be landed slowly, and has a powerful engine to cover errors. In a crash it has a strong undercarriage and a great deal of woodwork to absorb the shock before actual injury occurs to the pilot. On the other hand, in a nose dive in this type of machine the engine, being behind, is likely to crush the pilot severely, and this usually proves fatal. In tractor machines the engine in front takes most of the shock in a crash, but the observer's seat just behind the engine usually gets telescoped or crumpled sideways. The pilot's seat, which is behind these, usually escapes crushing effects. If the pilot receives injury, this occurs either from his being thrown out or from his head being violently jerked forward and hitting the nacelle edge, windscreen, or instrument board. Should the safety belt hold, the sudden impact of the pilot's abdomen and lower part of chest against it may cause internal injuries. Nowadays most nacelle edges are padded, and safety belts are stronger and braier.

Safety Belts.—With regard to the use of safety belts, endless discussion has taken place amongst aviators. My own opinion is that before leaving the ground all aviators should see that their safety belts are fastened and should be familiar with the method of their quick release. The belt should never be undone in the air. Thus the pilot, in the event of fainting, losing consciousness, or being wounded, or encountering gusty and bumpy weather or fog, has a safeguard to prevent him either being thrown out in the air or thrown forward on to his control lever (thus causing the aeroplane to nose-dive), or having his feet jerked off the rudder bar (thus losing steering power). I think all are agreed on the above, but the difficult question arises whether to release the belt near the end of a glide before landing. This I would advise in the propeller type of aeroplane, but in the tractor machines it remains an open question.

Certainly if the aeroplane catches fire in a crash little hope can be entertained of the pilot if he be strapped in. Safety for him depends on his being thrown out clear of the machine. A narrow belt is to be condemned. The

ideal safety belt should be broad and resilient, attached to the framework of the aeroplane and not to the pilot's seat, should be made to release easily and quickly, not at the centre of the pilot's body but at the side where it is attached to the aeroplane. This release should be effected by means of a small hand lever. It is advisable for all pilots to carry a stout knife in the outside pocket of their flying coat in order to cut the belt should they be held in upside down after a crash.

Safety Helmets.—These are of undoubted value in school work and should be worn by all pupils. They should fit properly and not be easily dislodged whilst flying. The modern ones are much lighter and less high in the crown than the earlier ones used. In a crash they certainly prevent scalp wounds from broken struts and wires and the side flaps protect the ears from injury. Over and over again I have seen pilots thrown out who owe their escape from more or less serious head wounds to their safety helmets.

On the other hand, in a turn over, the added height of the crown may catch the ground and wrench the head either forwards or backwards, causing fracture dislocation of the neck, or severe strain and possible rupture of the muscles of neck and back.

As pointed out by Fleet Surgeon Wells, an ideal safety helmet would take its support from the shoulders.

Goggles.—Most aviators wear goggles, but there are still some who prefer to fly without them. I know of one instructor who, after a year continuously instructing pupils and wearing no goggles, began to suffer from a form of conjunctivitis. I certainly think that goggles should always be worn. There is no doubt that flying without goggles is apt to set up a spasm in the eyes which in the long run is bound to do harm. Triplex or non-splintering material is now almost universally used instead of glass in the manufacture of aviation goggles. Thus rarely in a crash do we get any injury to the eyes. The nose-piece connecting the two lunettes should have no metal in its composition. I have seen some cases where wounds of the nose were caused by the metal connecting part of the lunettes.

Accidents under Dual Control.—Accidents under dual control are not common, as the instructor has usually time to correct in the air any of the pupil's errors in flying. One occurred in the V series, and was unavoidable owing to the character of the ground. In the E series three occurred. All dual control machines should be fitted with a mechanical device for throwing out of action quickly the pupil's control of the machine. I have seen three other crashes under dual control but without injury to either instructor or pupil.

Fatal Accidents.—In two years of school work I have only seen three fatal accidents occur in roughly 200 crashes. Four deaths occurred, of which three were instantaneous and one after four days. All were due to multiple injuries.

ACUTE YELLOW ATROPHY IN SYPHILIS.

(A Preliminary Note.)

By STUART McDONALD, M.D., F.R.C.P. EDIN.,

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DURING the past two months I have had the opportunity of studying in the *post-mortem* room no fewer than five typical cases of acute yellow atrophy, an experience which must be almost if not quite unique. Though numerous examples of subacute types of the disease have been recorded in recent years, and particularly in munition workers, typical cases of the classical icterus gravis are seen only at long intervals. According to Best¹ (1903) only some 500 cases of acute yellow atrophy were on record at that time.

In a personal experience of over 5,000 *post-mortem* examinations performed since 1898 I have only investigated one other case. The present series of five cases have all occurred in syphilitic subjects in the course of, or subsequent to, treatment by "salvarsan" preparations and mercury; and considering the number of cases of syphilis now being treated throughout the country, a searching

analysis of these fatal cases would appear to be urgently called for to determine, if possible, the relative parts played as etiological factors by the syphilitic toxin, arsenic, and possibly some other exciting agent.

I do not propose in this communication to describe the details of the observed cases, these being reserved for a later and fuller joint report, but would content myself at present with a brief summary of the essential facts.

In practically all the cases a full course of intravenous injections of salvarsan had been given, coupled with the usual intramuscular injections of mercury. Needless to say, in each case the diagnosis of syphilis was not only clear on clinical grounds, but was confirmed by a Wassermann test. These cases were not of undue severity, and indeed showed no special symptom of importance till a sudden onset of jaundice was noticed, without at first any special disturbance, the disease suggesting nothing more than an ordinary catarrhal jaundice.

At a varying period of from two to eight days, however, acute symptoms appeared with dramatic suddenness. They were ushered in by a period of wild excitement and increased icterus, with haematemesis. The patients rapidly passed into a condition of deep coma, and death occurred in the five cases at periods of one to four days from the onset of the acute symptoms.

The urine was markedly bile stained, and in each case showed tyrosin; in some leucin was also demonstrated. In four of the cases diminution in the size of the liver was demonstrated during life.

These cases, then, presented clinically the classical symptoms and signs of icterus gravis of a degree of acuteness which is seldom seen. The morbid anatomy and histology of these cases were equally striking and equally characteristic, the appearances being practically identical, and varying only in degree. To summarize the *post-mortem* results, there was in each case great diminution in the size of the liver, which varied in weight from 27 to 43 oz. Histologically there was the usual intense necrosis rather than a fatty degeneration of the liver parenchyma, the bile duct epithelium largely escaping; there had been, of course, no time for liver-cell regeneration, but a definite inflammatory reaction was present. Though "red" areas were macroscopically apparent in the liver, the condition has been so acute that in most cases the "yellow" areas preponderated. It is to be noted, however, that the naked-eye appearances give no adequate indication of the extensive changes found microscopically. In each case there has been widespread haemorrhages in the serous membranes with a special haemorrhagic infiltration of the lungs. The kidneys, in contrast with the liver, have shown an intense degree of fatty change, with, in some instances, definite signs of an inflammatory reaction. There has been constantly noted also a varying degree of intestinal catarrh.

Bacteriological examination has, in contrast to what has been hitherto found in similar cases, yielded some interesting results which may prove of prime importance in relation to the etiology of the condition. Cultures from the heart blood and lung have given copious growths of organisms apparently of the *coli*-typhoid group, with some definite cultural characteristic features and pathogenic properties (in two at least out of the three strains tested so far). I am unable to say more at present, as their cultural and biological reactions are still being investigated, and as the bacteriology of acute yellow atrophy has hitherto been so indefinite, one must be chary of attaching too much importance to their presence without some experimental evidence of an etiological relationship with the disease. One may be permitted, however, to review briefly the present opinions as to the causation of acute yellow atrophy, or rather acute necrosis as it should be called, and to note how the various hypotheses which have been advanced would apply to the present group of cases. In 1908² I endeavoured to summarize the current views at that time from a study of an acute case, and a series of subacute cases which I had personally observed, and particularly from a series of cases which had been observed in that year in Germany and America.

To quote from that paper, I stated

that there is much to be said in favour of the view that in the causation of acute yellow atrophy we have two factors at least at work. It may well be that the typical condition is

only produced when some special virus acts on a previously damaged liver;

and again,

that the most reasonable view to take would appear to be that the essential cause of acute yellow atrophy is some poison, possibly of microbic nature, produced in the alimentary tract and acting on a liver previously damaged, or whose function at least has been disturbed.

I do not, of course, claim originality for this view; it has been held by others, no doubt, both before and since. I only present it again as a working hypothesis.

The damage to the liver may be produced, as we know, by metabolic poisons—for example, in eclampsia and allied conditions—and there is now abundant evidence that syphilis may in the same way be an essential factor in paving the way for the development of acute yellow atrophy in another group of cases. That syphilis produces definite changes in the liver is common knowledge. The existence of gummata and cirrhosis in both congenital and acquired syphilis is common, but it is apparently not so widely recognized, except by those who are treating large numbers of cases of syphilis, that jaundice is not so very uncommon. According to various authorities, it would appear to occur in from 1 to 2 per cent. in cases treated in the German clinics.

It has also been long recognized that syphilis is not an uncommon precursor of typical acute yellow atrophy, and was noted long before salvarsan was ever used as a curative agent. In 1898 Richter collected 41 cases, and, though later Veszpremi and Kanitz,⁸ in a criticism of Richter's observations, cast doubt on the presence of syphilis in ten of these cases, numerous observations on acute yellow atrophy since leave no doubt that syphilis has been present in a very large number of instances. In another group of cases, poisons not of microbic nature have fallen under suspicion; thus phosphorus, arsenic, mercury, chloroform, and, in quite recent years, trinitrotoluene and tetrachlorethane, have been shown capable of producing changes in the liver which are comparable at least to those seen in icterus gravis. An analysis, however, of most of these cases reveals certain differences from the *post-mortem* findings in typical acute yellow atrophy either in the histological or chemical results of investigation of the liver or in the rapidity with which the condition develops. Thus, in the case of phosphorus and delayed chloroform poisoning, though the symptoms may closely simulate those of acute atrophy, there is a degree of "visible" fatty change which is not apparently seen in the classical acute atrophy, as was pointed out by Sir H. J. Stiles and myself⁴ in a paper on delayed chloroform poisoning in 1904. Tiletson⁵ has recorded a case of acute atrophy, apparently resulting from mercury, where syphilis was not present. I have only found one definite reference to arsenic as a causal agent.

Severin⁶ in 1912 described cases of acute atrophy in syphilitic cases under treatment by salvarsan, though Wells⁷ (1914) refers generally to such cases, and doubtless an examination of recent literature, to which I have not access at present, would reveal other examples.

Fresh interest in the subject has been stimulated since the outbreak of war by the study of toxic jaundice in munition workers, in whom a large number of cases of jaundice have been observed. In 1916, 181 cases occurred in T.N.T. factories in this country alone, with 52 deaths. The subject was discussed at the Royal Society of Medicine in January, 1917,⁸ and the Medical Research Committee has recently issued a monograph on the subject, which I have not yet seen.*

The trinitrotoluene, according to the investigations of Dr. B. Moore, appears to be largely, if not entirely, introduced into the body through the skin, and the *post-mortem* results reveal a condition, as M. Stewart states, somewhere between subacute atrophy of the liver and portal cirrhosis. One case, however, which he describes, though not in detail, in his contribution to the discussion at the Royal Society of Medicine, would appear in its clinical course and morbid anatomy to be indistinguishable from a typical case of acute yellow atrophy.

It may be remarked that these cases occurred particularly in munition workers who had shown definite symptoms of toxic gastritis, and it is possible that even in

them the gastro-intestinal catarrh is in some way associated with a secondary intestinal infection, acting on a previously damaged liver. *Post-mortem* examinations in these, for the most part subacute cases, might not reveal the microbic invasion which has been so marked in the present series. Still less likely would *post-mortem* examination throw much light on the etiology of the by no means inconsiderable number of cases of subacute atrophy which occur for the most part in children without any previous history of "poisoning" or infection.

These cases have not till comparatively recently been widely recognized, in this country at least. In 1908, together with Dr. Lindsay S. Milne,⁹ I published a series of five such cases in which the clinical histories and *post-mortem* appearances left no doubt as to their true nature, but owing to the longer clinical course run, little light could be thrown on the primary cause of the condition.

In still another group of cases, namely, undoubted septicaemia from various organisms, appearances in the liver simulating typical acute yellow atrophy are sometimes observed, but a critical study of such cases reveals some differences from the conditions observed in the so-called idiopathic acute atrophy.

The bacteriology of acute yellow atrophy has so far been very indefinite. This is easy to understand when one remembers that the liver is endowed with special functions for resisting microbic invasion from the alimentary canal. The Kupfer cells lining the sinusoids in the liver have, as we know, a powerful phagocytic action, and it is difficult to imagine that such a mass of highly specialized and actively functioning tissue as the liver presents is not intimately concerned with immunity processes in general. If anything, then, of a toxic nature acts on the liver, as is evidently the case in acute yellow atrophy, secondary microbic invasion is almost to be expected, and it becomes a matter of considerable difficulty to differentiate between a possible exciting agent of prime importance and a number of more or less harmless saprophytes, some of which may have entered the body after death. The isolation of the causal organism under these circumstances, if there be one, must not be expected to be an easy matter.

That infection of some kind apart from syphilis plays some part in the etiology of acute atrophy has long been held. In a large number of recorded cases some previous intestinal catarrh has been noted. The liver being so markedly affected in this disease, it has been justifiably held that the poison, whatever it may be, has been conveyed through the portal circulation.

In some cases *Bacillus coli* has been isolated *post mortem*; most observers, however, have regarded this as a condition without special significance and almost to be expected. Reichmann¹⁰ in 1908 isolated from the blood a sporulating Gram-negative bacillus, but as it has no special pathogenic power he did not regard the observation as important.

Apart from intestinal infection in a number of cases, so-called influenzal attacks are supposed to have played some part in the causation of the disease. Miller¹¹ in 1903 recorded a case in which active pulmonary tuberculosis was present, and was inclined to think that the tuberculous toxins had some causal effect. It may be noted, however, that there was at least a strong suspicion that this patient was syphilitic.

Finally, to apply these various suggestions to our present series of cases:

We have here five typical cases occurring together in a limited period; all have been syphilitic subjects, and all have been treated with salvarsan preparations *plus* mercury.

It is remarkable that though similar cases amounting to thousands have been treated by the same methods, such a complication as we have recently experienced has not been observed until now. This would seem to point to some other factor having been introduced. There is no evidence at present that the salvarsan has materially altered, at least in the last three years, and the syphilitic toxin and mercury factors may be taken as constant. Together with this, we have the observation that in each case there was found at the *post-mortem* examination microbic infection of a special type.

There would appear at least to be a *prima facie* case for regarding this infection as being the new factor which, acting on livers previously damaged by the syphilis, and possibly arsenic *plus* mercury, has completed the damage

* Readers interested may refer to the official memorandum published in the BRITISH MEDICAL JOURNAL (December 16th, 1916, p. 842), which contains a section dealing with this subject.

to the liver cells, and allowed autolysis of the tissue, which appears to be the essential liver change, to occur. Some such combination of circumstances might account for the rarity of the disease.

It is evident that a very considerable amount of work from a histological, chemical, and bacteriological standpoint is necessary in the cases already observed. I am indebted for assistance to Mr. P. C. Laws, M.A., in investigating the bacteriology of the cases.

It should be noted that neither clinically nor pathologically do the cases observed bear any close similarity to cases of spirochaetal jaundice.

Professor R. A. Bolam, who has seen some of the cases during life, is engaged with some others on the clinical side of the problem, and we hope in the near future to describe the cases in detail, and to give our conclusions, based on a more thorough study than other pressing work has permitted till now.

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PERICARDIAL KNOCK.

BY

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THERE is a sound heard on auscultation in cases of penetrating wounds of the chest near the cardiac region which is unlike anything met with in civil practice. Its origin is, I believe, not yet established. The occurrence of this sound is now familiar to most of those who are dealing with these cases at the clearing stations. It is of the nature of a click, and varies from a faint sound heard by careful auscultation, to a noise which may be compared to that heard in the ear-piece of a telephone when the lever is moved up and down. It may be heard sometimes when standing at the foot of the patient's bed. Sometimes the patient is conscious of it, and on one occasion has himself called my attention to it. In nearly every case the sound disappears after forty-eight hours, although in one patient who was recovering from a chest wound without any complications the sound persisted for ten days. He was then sent to the base, and I have no further information about him. The sound has been, as a rule, most marked near the apex beat. It is usually double, corresponding to the heart sounds, and its intensity waxes and wanes with respiration, sometimes disappearing completely in full expiration. A distinct fremitus can be felt by the hand laid on the chest.

The first case in which I noted it was shown to me by Captain W. W. Rees, R.A.M.C. I then suggested that it was due to a shell fragment lodged where the pleura and pericardium are in contact. I thought this possible as I had previously heard a metallic rumbling sound in a case in which a shrapnel ball was seen by x-ray screen in the costo-diaphragmatic angle moving up and down with respiration. A skiagram in Captain Rees's case showed the fragment to be in the neighbourhood of the pericardium.

That this explanation was not the correct one was proved by the case of an officer shown to me by Lieut.-Colonel Newlands of the A.A.M.C. The characteristic sound could be heard when standing beside the patient's bed. The entry wound was outside the heart on the left side, and the track passed in the direction of the pericardium. Two days later a right-sided subphrenic abscess developed and was drained. The foreign body was found lying in the right side of the abscess cavity. An infected haemothorax was also drained. The patient died a few hours later, and at the autopsy a "sluggish" purulent pericarditis was present. This case showed clearly that the foreign body was not itself directly responsible for the sound.

In the next case I saw the foreign body was visible on the screen in the cardiac area. It moved continuously

with the heart beat, so that a skiagram showed only a blurred image. This patient died, and at the autopsy the pericardial surface was normal. There was no infection, exudate, or any sign of pericarditis. The cavity contained a few drops of blood-tinged serum due to the passage of the missile, which had traversed the pericardium and lodged in the interventricular septum. This case, as also several others in which the "knock" disappeared after twenty-four or forty-eight hours in patients who never had serious symptoms, shows that pericarditis is not the cause.

I may note in passing that the continuous movement of the foreign body shadow with the heart beat, as distinguished from an oscillatory movement at certain phases of the respiratory and cardiac rhythm, has indicated that the foreign body is actually in the heart wall or cavity.

It has been suggested that the sound is due to emphysema of the connective tissue of the mediastinum, but in one case the missile passed through the chest antero-posteriorly on the left side clear of the upper and outer margin of the heart. Moreover, a case has been reported by Captain Rees in which the sound was heard over the apex beat, which was normal in position. It was heard in systole and was loudest in full inspiration. The foreign body was seen on the x-ray screen moving with respiration, and in full inspiration there was an oscillatory movement communicated to it by the cardiac impulse. There was a clear space of some 2 in. between the heart shadow and that of the foreign body. The entry wound was over the lower end of the left scapula. Localization of the foreign body on anatomical cross-sections showed it to be lying behind the root of the left lung in close proximity to the rami bronchiales, and over 1 in. from the nearest point on the pericardium. The man's condition when he was sent to the base was very good.

The usual disappearance of the sound after a short period, and the absence of serious symptoms in many cases, suggests that it may be due to air in the interstitial connective tissue of the lung which is struck upon by the beats of the heart. Further records will doubtless throw more light on the subject.

A SIMPLE APPARATUS FOR NITROUS OXIDE-OXYGEN ANAESTHESIA.

By CAPTAIN A. S. WILSON, R.A.M.C.

THE infrequent use of nitrous oxide-oxygen as an anaesthetic for major operations in the British Expeditionary Force would make it appear that its very great advantages have not been fully realized. The rapid induction of anaesthesia and the immediate recovery are most important factors; with any general anaesthetic, the shorter the duration of its influence the better for the patient. Nitrous oxide is shorter than any other.

It is by far the most agreeable anaesthetic to take, and struggling and resistance are uncommon. Post-operative nausea and vomiting are hardly ever encountered; headache, restlessness, and bronchopneumonia are much less frequent sequelae than after ether or chloroform.

With reasonable skill and care on the part of the anaesthetist it is by far the safest general anaesthetic. Cyanosis under nitrous oxide, as under any other anaesthetic, is always a danger signal; when present, it is an indication that an insufficient proportion of oxygen is being supplied; such a mixture will never produce satisfactory relaxation, and usually results in muscular twitching and disturbed respiration. On the other hand, an excess of oxygen causes persistent movement, and prevents the onset of unconsciousness; such excess is frequently indicated by a red flush across the patient's forehead.

Desirable variations in the depth of anaesthesia to suit the requirements of different phases of an operation are much more rapidly and safely attained than with ether or chloroform. It is beyond the scope of this short paper to reiterate Crile's well-known findings on the physiological advantages of nitrous oxide as an anaesthetic.

Even after a prolonged administration, lasting up to two hours or more, the patient always completely recovers from the anaesthetic before leaving the operating table; this is invaluable when the number of post-operative cases is so large that it is impossible to provide a sister or trained orderly to stand by each patient till he is round

from the anaesthetic. During busy times at casualty clearing stations, when men are being rapidly evacuated, nitrous oxide anaesthesia allows of a patient being taken to the ambulance train immediately after operation.

Next to local anaesthesia it is the nearest to the ideal anaesthetic. In cases in which infiltration is insufficient nitrous oxide will be found a most useful and harmless adjunct; the analgesia which can be produced by hovering over the patient's face with the mask, supplying only a very gentle flow of nitrous oxide, is generally sufficient. It is not necessary to produce unconsciousness, merely a temporary "dissociation of ideas."

Nitrous oxide-oxygen is a perfectly suitable anaesthetic for any operation; there are no genuine contraindications.

It is advisable to employ the almost universal preliminary injection of omopon, scopolamine, and atropine, one ampoule omopon-scopolamine ($\frac{2}{3}$ grain omopon, $\frac{1}{15}$ grain scopolamine) being given an hour and a half before operation, and another half ampoule with $\frac{1}{15}$ to $\frac{1}{10}$ grain atropine sulphate half an hour before operation.

In thoracic surgery the paravertebral injection of novocain solution will greatly reduce the amount of anaesthetic required. In abdominal surgery, local infiltration—on the lines of Crile's anoci-association—combined with nitrous oxide, will result in perfect relaxation of the abdominal wall.

Those who have wished to employ this form of anaesthesia may have been discouraged by the difficulty and discomfort of administration with the ordinary apparatus supplied. The apparatus I have constructed may appeal to them; with it I have been able to maintain anaesthesia, lasting in some cases over two hours, with a minimum of difficulty.

The apparatus has been used in all cases described in the paper on thoracic surgery by Captains Lockwood and Nixon, in which local anaesthesia was found insufficient.

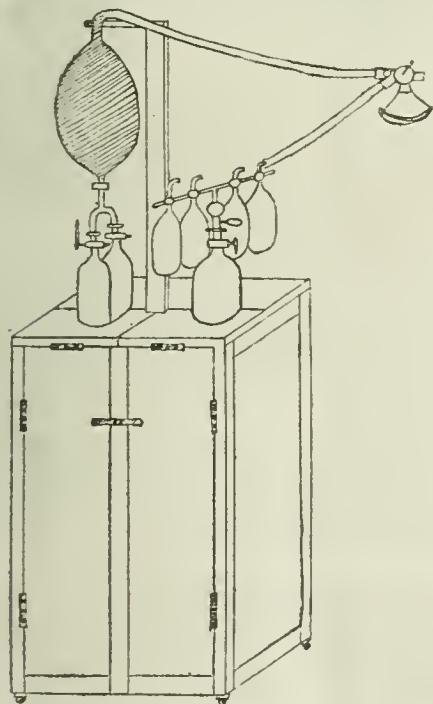


FIG. 1.—Apparatus fitted for working. The height of the cabinet is 2 ft. 6 in. and of the bracket 2 ft. 6 in.

The apparatus is assembled from materials available in any hospital, with the addition of a few minor items easily obtainable at a trifling cost.

It consists of a stand carrying two nitrous oxide cylinders (500 gallons each) and one 40-ft. oxygen cylinder in a vertical position, with a central upright for suspending the nitrous oxide gas bag, as shown in Fig. 1.

The nitrous oxide cylinders are connected direct to the gas bag by means of the delivery tube supplied for the ordinary foot stand. Gas passes from the bag through two lengths of "concertina" flexible tubing to the combined mixing chamber and face-piece of Hewitt's nitrous

oxide-oxygen apparatus. The supply of nitrous oxide is conveniently controlled by a straight hand key on the cylinder valve; the flow of oxygen is regulated by a Haldane's oxygen apparatus, which provides a pressure-reducing valve and a convenient mechanism for varying the amount of this gas as required. One of the four delivery tubes is connected to the oxygen inlet on the mixing chamber by a single length of concertina tubing. It is advisable to surround the upper end and connexions of the nitrous oxide cylinders with hot-water bottles to obviate the danger of freezing at the outlet. The usual precautions are necessary to prevent leaking at the connexions, the two lengths of concertina tubing are joined over a short piece of metal pipe. The gas bag should be covered; a small landing net (obtainable anywhere at very small cost) will be found useful for this purpose.

The construction of the stand will depend entirely on the materials and labour available. It is a very great advantage to have it mounted on four strong castors, as this renders it perfectly mobile.

The form of stand shown will be found convenient and simple. Two separate compartments are provided; that for the nitrous oxide cylinders is lined with cloth or other suitable material to retain the warmth provided by two hot-water bottles hanging inside. Both compartments have side doors with hinged top extensions, which facilitate the replacing of cylinders. There is a bracket on the top of the central upright for attaching the upper end of the nitrous oxide bag.

Some difficulty may be experienced with the differently shaped cylinders which have been supplied to the British Expeditionary Force recently; they are shorter and stouter than those which were formerly distributed. It is impossible to link two of these newer cylinders together by means of the ordinary delivery tube as stated above. Pending the distribution of a suitable connexion (which is contemplated) it will be found convenient to attach one of the ends of the delivery pipe to a nitrous oxide cylinder and fix a temporary gas-tight plug in the other arm of the tube.

With the above apparatus I have found it possible to maintain anaesthesia on about 120 gallons of nitrous oxide and 20 gallons of oxygen per hour.

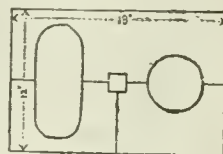


FIG. 2.—Diagram of the arrangement of top; dimensions 12 in. from back to front and 13 in. from side to side.

ANAESTHETICS IN MILITARY HOSPITALS.

BY

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HAVING now been administering anaesthetics for several years in hospital and private practice and daily for the last seven months at the Lord Derby War Hospital, Warrington, with 3,000 beds in the summer and 2,500 in winter, the following is my experience:

The patient is given as a preliminary morphine $\frac{1}{4}$ grain, atropine $\frac{1}{15}$ grain, half an hour before the operation. The preliminary injection of morphine and atropine is not only followed by less secretion of mucus and a quieter anaesthesia, but the patient usually sleeps for an hour or two after the operation, thus causing very much less trouble to the nursing staff—a great advantage in a busy hospital.

The anaesthetic mostly used by me is ether, preceded by chloroform. I use two separate masks, one covered with a layer of lint for chloroform and the other with two layers of lint for ether. By using two separate masks the danger of giving a mixture of unknown strength is avoided, and I almost invariably use the open ether drop method on a Schimmelbusch's mask.

At the beginning of the administration I drop about one drachm of chloroform slowly on the mask, holding it an inch or so from the patient's face and quietly talking to him, or in nervous cases getting him to count. During this time the mask is lowered, until in about a minute

or so it is resting on the face. I then replace it by the ether mask and quickly drop on ether till the lint is saturated. Next I place a towel, two or three folds, over the mask to increase the concentration, leaving sufficient space to apply the anaesthetic continuously. By this method I rarely get any struggling and often not the slightest movement on the part of the patient, who is generally ready for the operator in three or four minutes. This ensures the maximum degree of safety, is certainly very quick, and preferable to beginning with ether alone. Patients all agree that the chloroform is pleasanter and less irritating. For instance, it is quite the rule for those men who have had both anaesthetics to tell me that they prefer chloroform. The average quantity of anaesthetic for an operation of half an hour is 2 drachms of chloroform, 3 oz. of ether. Occasionally it is very difficult to keep some of these young subjects under with the ether drop method alone, especially in abdominal cases, and it may be necessary to resort to a little chloroform or C.E. mixture for a short time and then resume the ether.

In my private and previous hospital experience I have administered nearly three thousand anaesthetics, the bulk by the method outlined, and have not had one fatal case or any serious difficulty.

In my early days I was taught to give ether by the Clover method, but now rarely use it, for to my mind the ether drop method is very much better, in that the patients very rarely get cyanosed, have less trouble with mucus, a quieter anaesthesia, and less sickness after the operation.

I have also introduced a Shipway's warm ether apparatus, and, in conjunction with my own methods, find it very useful in cases requiring prolonged administration, in that it conserves the body heat of the patient, and is also a saving of the anaesthetic.

Ethyl chloride and nitrous oxide have proved quite satisfactory for patients requiring a short anaesthesia such as for incisions and manipulation of joints.

I find, after giving anaesthetics daily in a military hospital, that it is quite different from administering them in a general hospital in peace. In the latter it is the exception to have a strong, healthy young man to anaesthetize, the majority of cases being women and children or men usually with a definite organic or inflammatory lesion and often well prepared for an operation. Military cases are frequently robust young men who have lived an outdoor life for varying periods and many of them have been in the trenches and subject to war strain and nervous exhaustion. I have also found that men suffering from shell shock require much more anaesthetic than other men and have a greater tendency to excitement whilst going under. In these cases a little encouraging suggestion during the first stage of anaesthesia not only helps during the administration, but is also beneficial afterwards. At first I was inclined to attribute this to the mode of living, which made them difficult to anaesthetize, but I am now convinced there is a nervous element to contend with. It is impossible in many cases to judge by the appearance of the men how they are likely to behave under an anaesthetic. Some of the apparently quiet and sickly-looking men take a large quantity of anaesthetic and become troublesome with excitement, whereas some of the rough-looking and vigorous need very little.

In a short note Marcus W. Lyon (*Anatomical Record*, Philadelphia, 1917, xiii) records the case of a woman, aged 41 years, whose right kidney was absent, the left being hypertrophied. The right ureter was connected with the urinary bladder and contained a little calculous debris. The adrenals on both sides were in their normal positions. There was only one Fallopian tube and one ovary. The interest of the case is that the patient's maternal grandmother had been operated upon for some abdominal condition and that one kidney—it is not stated which—was found to be absent.

SURGEON B. J. LLOYD, of the United States Public Health Service, sanitary inspector under the Bureau of Medicine, in a recent report states that at Bremerton, Washington, where the Paget Sound navy yard is situated, and at Seattle, the neighbourhood swarms with prostitutes from all parts of the country. He recommends that the Navy Department should procure the enactment of a law declaring a general district, one hundred miles in diameter, surrounding every military and naval reservation. From this all undesirable persons should be excluded, and the most objectionable should be interned.

ON THE TREATMENT OF GUNSHOT WOUNDS WITH A SOLUTION OF SOAP AND WATER AND PRIMARY SUTURE.

BY

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At the suggestion of Colonel Cuthbert Wallace, consulting surgeon to our army, I commenced treating as many gunshot wounds as possible by primary suture, using instead of an antiseptic a solution of soap and water.

The solution used has been of the strength 1 in 40. Pure *sapo durus* (1 part), obtained in blocks, is cut into shavings and dissolved in hot water (20 parts) which has been previously boiled. When required for use the solution is mixed with an equal volume of sterile water.

OPERATIVE TECHNIQUE.

Superficial Wounds.

Superficial wounds are completely excised and soap solution well rubbed into the surface; they are then stitched up.

Single Penetrating Wounds.

The skin wound is completely excised, the exposed surface of the wound in the muscle cut away, and the track of the missile laid thoroughly open. The wound being held widely open with retractors, the surface of the track is cut away all round, *from the inside*, with scissors until all damaged muscle, as far as it is visible to the naked eye, is removed. Foreign bodies, clothing, or any small, loose fragments of bone, are removed, all bleeding points ligatured, and the whole wound thoroughly swabbed out with soap solution. Muscles and fasciae are closed with catgut and the skin sutured.

If the metal has passed almost through the thickness of a limb, it is removed by a counter incision and the wound converted into a seton wound.

Seton Wounds.

Both entrance and exit wounds are treated as above, and it is generally possible in this manner to expose and excise the whole track, one half from each incision. In cases in which this has been impossible for anatomical reasons the centre of the track has been well rubbed with gauze and soap.

If it only involved the division of a thin layer of muscle, the entrance and exit wounds were directly connected, laying open freely the whole track, which could then be dealt with. If there is gross loss of muscular tissue so that the ends cannot be approximated, or if a large dead space is left, the skin is sutured over the wound and a very small split rubber tube introduced for twenty-four to forty-eight hours.

In cases in which it is difficult to approximate the skin edges without undue tension one or more incisions may be made down to the deep fascia parallel to and at some distance from the wound. This occurs most often in the forearm and lower part of the leg.

Amputations.

Amputations have been completely stitched up with a very small split tube introduced into one corner for twenty-four hours. Penetrating wounds of knee-joints have been completely excised down to the synovial membrane, the joint well irrigated with soap solution, and the wound closed in layers.

Effect of the Soap Solution.

The effect of the soap solution on the wound appears to be haemostatic. Instruments, needles, etc., tend to become somewhat slippery—a slight disadvantage.

RESULTS.

During the last four months all cases in which it was possible have been treated by this method, but during one period of pressure it was impossible.

Patients have been kept on an average for ten days and then evacuated by barge to one general hospital, where they have been seen by Colonel Cuthbert Wallace, and reports on progress have been given to me by him and sent by the medical officers of that hospital.

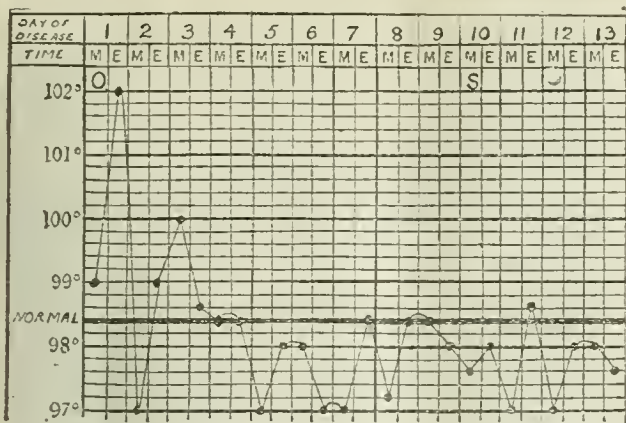


CHART 1.—O, Operation. S, All stitches removed.

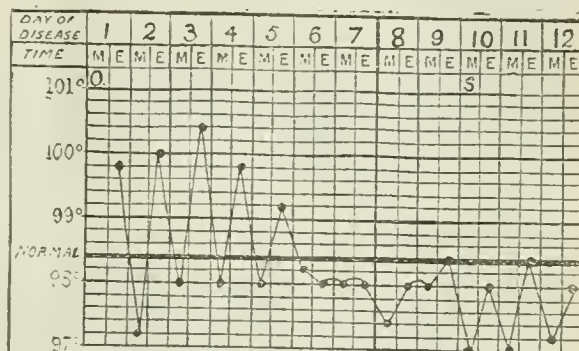


CHART 3.—O, Operation. S, All stitches removed.

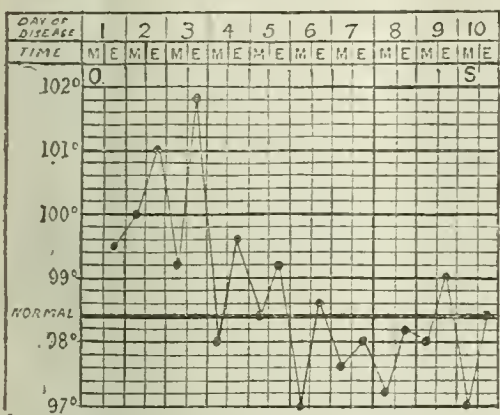


CHART 2.—O, Operation. S, All stitches removed.

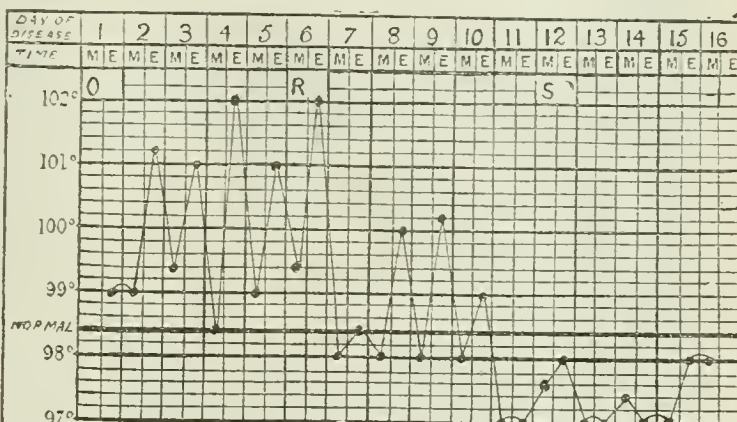


CHART 4.—O, Operation. R, One stitch removed. S, All stitches removed.

In this way it has been possible to follow the early history of all patients except a few who were unavoidably lost sight of during the period of pressure. The total number of cases was 116.

	No. of Cases.	Healed.	Healed after Superficial Suppuration.	Failed.	Result Unknown.
Wounds superficial to muscle	5	3	0	0	2
Deep flesh wounds...	59	37	11	3	8
Compound fractures	33	23	5	2	3
Amputations...	6	4	0	0	2
Knee-joints...	8	3	0	2	3
Total...	116	75	16	7	13

The compound fractures consisted of the following cases:

	No. of Cases.	Healed.	Healed after Superficial Suppuration.	Failed.	Result Unknown.
Femur ...	4*	2*	1	1	0
Tibia and fibula ...	1	1	0	0	0
Tibia ...	3	2	0	0	1
Fibula ...	1	1	0	0	0
Humerus ...	17	13	2	0	2
Radius and ulna ...	1	1	0	0	0
Radius ...	5	4	1	0	0
Ulna ...	6	4	1	1	0
Total...	38	23	5	2	3

*One case was a partial fracture in which a piece of shell had passed through the shaft of the femur about the middle without producing complete fracture.

Out of a total of 98 cases in which the result was observed 91 eventually healed and 7 failed altogether.

Out of 38 cases of compound fracture, 33 eventually healed and 2 failed.

A considerable proportion of cases healed dry without any discharge. In some there was a little oozing or slight superficial suppuration, necessitating removal of one or two stitches before they healed.

A few cases became very swollen, red and shiny, about the second day, simulating acute cellulitis. The temperature rose to 102.3, but the pulse as a rule remained below 100. After a day or two the swelling began to subside, redness disappeared, and the skin became crinkled, due to diminution of subcutaneous oedema. These cases may cause alarm at first, but it is rarely necessary to remove any stitches. The pulse-rate appears to be the best guide.

In some cases in which the wound was gangrenous before operation a brownish discoloration appeared around the wound, and the part might even become tympanic. On removal of one or two stitches gas and offensive discharge escaped, and the infection as a rule subsided.

Four temperature charts are appended. Chart 1, a case of excision of elbow-joint, and Chart 2, an amputation of leg, followed a perfectly normal course and healed by first intention.

Chart 3 was a case of compound fracture of humerus with an opening into the elbow-joint. On the second day the whole elbow was very red, swollen, and shiny in appearance. It all subsided, and the wound healed by first intention.

Chart 4 shows a case of compound fracture of the femur. It was a severe fracture, with a large exit wound, in order to close which tension incisions had to be made. For the first six days his temperature rose at night and the pulse-rate caused apprehension, but on removal of one stitch on the sixth day, evacuating a small collection of turbid fluid under the skin, it gradually subsided and the wound healed.

CONCLUSIONS.

1. Soap solution easily permeates and comes into contact with the whole surface of the wound. It acts as a mechanical cleansing agent, washing away all débris.

2. Complete excision of a wound leaving an aseptic surface is possible only in superficial wounds and in superficial muscular wounds. It is impracticable in deep penetrating wounds, compound fractures, etc., on anatomical grounds, and it would also entail a much freer removal of tissue, which may impair future functional result. These latter cases, when treated by soap solution and primary suture, heal better than if an antiseptic such as enzol or bipp had been used. It follows from this that the tissues themselves are able to deal successfully with any infection which is left behind without the aid of any antiseptic. This point is particularly exemplified by those cases in which there is at first an intense local reaction following on the operation; it subsides as the tissues gain the upper hand.

3. Success depends on getting cases within a few hours of being wounded, before infective processes have spread far into the adjacent muscles, on the thorough removal of dead or grossly damaged tissues, and on the localization by x rays and removal of any foreign body that may be present.

4. Compound fractures of the upper extremity practically always do well; only three cases of fracture of the femur have been thus treated, and of these two were successful, but the number is too small to warrant a definite opinion. It is necessarily the most severe type of case one has to deal with, but the results of those cases have been distinctly encouraging.

5. The advantages of primary suture are obvious: (a) Easy, rapid, and painless dressings; (b) time is saved for everybody once the patient has left the operating theatre; (c) it is economical. The time taken in the operating theatre is, however, considerably longer, and this generally forbids the use of the method when the pressure of work is high.

6. One of the most important points is that no severe injury which has been stitched up should be evacuated for at least a week—first, because movement may just turn the balance during the early days of local reaction when the tissues are getting the upper hand and cause failure, and, secondly, because when it is very difficult to decide whether the case should be opened up or not the operator himself is in a much better position to judge what is likely to be taking place inside the wound he has sewn up than some one else who gets the case later; consequently stitches remain in which may otherwise be taken out perhaps through no fault of any one.

7. No opinion can be given as to the ultimate functional result as to bony union and action of muscles.

In those cases in which primary suture has been out of the question owing to gross loss of tissue, after the usual operative procedure I have used a soap pack after the manner of the salt pack. It has been left in as a rule for five to seven days, and when taken out left a beautifully healthy wound.

Acknowledgements.—I wish to express my indebtedness to Colonel Cuthbert Wallace, C.M.G., for much help and encouragement, and to Lieut.-Colonel D. O. Hyde, D.S.O., R.A.M.C., for kindly allowing me to keep these cases and to publish notes on them.

A SEROLOGICAL INVESTIGATION OF VINCENT'S ANGINA.

BY

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Infective disorders of the pharynx include a great variety of different conditions—ulcerative, membranous, ulcero-membranous, and septic—due to different micro-organisms, so that for their accurate differential diagnosis careful bacteriological investigations are necessary.

The nature of these investigations will depend on the clinical appearance which the lesions present. Thus, in membranous inflammations cultures on Loeffler's blood

serum would reveal the presence or absence of the Klebs-Loeffler bacillus; in ulcero-membranous conditions the microscopic examination of properly prepared stained films would show the spirochaete and *B. fusiformis* of Vincent; a positive Wassermann reaction would prove the nature of ulcerative conditions to be syphilitic, whilst cultures and films showing streptococci and staphylococci would be obtained in pyogenic infections.

The value of the Wassermann reaction in the differentiation of these various conditions cannot be denied, being positive in syphilitic affections of the pharynx and negative in all others, with the exception of the angina of scarlet fever, which presents sufficiently characteristic symptoms not to lead to confusion, and is not further considered here.

This opinion, however, which is based on the careful bacteriological examination of several hundred cases of sore throat at the Queen Alexandra Military Hospital, is quite at variance with the views expressed in several contributions scattered through the literature of the subject, in which it is maintained that in uncomplicated cases of Vincent's angina the Wassermann reaction is often found to be positive. Thus, StClair Thomson¹ states that—

From syphilis the differentiation—(of Vincent's angina)—is . . . difficult, as both fusiform bacilli and spirilla may be found in a cover-glass preparation from a tertiary ulcer, and also because, apart from concomitant syphilis, the Wassermann reaction may be positive. In more than one case I have seen a suspected Vincent's angina reveal its true nature by the evolution of a coppery rash or other specific stigmata.

The value of this statement is largely invalidated by the vagueness of the diagnosis of the Vincent's angina which was merely suspected. The diagnosis should, of course, have been definitely made by bacteriological examination. Still, allowing that the cases were really Vincent's angina, they would merely confirm Sobernheim's and Weinstein's findings that syphilitic and fusospirillary pharyngitis may coexist, and support our own conclusions that Vincent's angina may occur in subjects with latent syphilis. Bowman,² again, considers "that the disease may be confused with syphilis, and Vincent's angina may be superimposed upon a syphilitic or diphtheritic infection of the mouth and throat." Nevertheless, he found that the Wassermann reaction had always been negative in the uncomplicated cases of Vincent's angina seen by him.

Bouty³ also, describing his experiences of Vincent's angina among the troops in France during the last two years, states that "the Wassermann reaction in Vincent's angina is negative," but the evidence upon which this statement is made is not given. This agrees with the findings of Campbell and Dyas,⁴ who state that "a positive Wassermann reaction does not exclude Vincent's angina, nor does the fact that a mouth lesion clears up quickly under arsenic exclude syphilis." In cases of Vincent's angina with no syphilitic history, however, the Wassermann reaction is always negative.

Ehrlich⁵ in 1910 called attention to the value of intravenous injections of salvarsan in Vincent's angina, and recorded the rapid healing within a few days of the lesions of this disease. Gerber⁶ in the same year described a case successfully treated in this way, stating that the Wassermann reaction was weakly positive, and that he had also found it so in a previous case; he considered, therefore, that he could not definitely exclude syphilitic infection. Gerber⁷ also quotes Much as having obtained positive Wassermann reactions in this condition. Much's⁸ own statement made in 1908 is that in one other case of Vincent's angina multitudes of non-specific spirochaetes were found in the tonsil. Lues was excluded, but on what grounds is not stated. The examination of the blood by the complement fixation method, which was undertaken during the febrile stage of the disease, gave a strongly positive reaction. Fourteen days afterwards, when the patient had recovered from the angina, the reaction was found to be negative.

Sobernheim's⁹ name is constantly encountered in the literature of the subject as supplying the most definite evidence of the finding of a positive Wassermann reaction in Vincent's angina. His evidence rests solely on three cases, and a critical examination of these shows the flimsy basis on which his statement rests.

In the first case the patient presented the symptoms of secondary syphilis—typical exanthem, anal condylomata, and mucous plaques on the tonsil. While antisyphilitic treatment was being carried out a deep greyish-yellow coated ulcer, with

all the characteristics of Vincent's angina, developed. *B. fusiformis*, *Spirochaeta vincenti*, and *Spirochaeta pallida* were observed by dark-ground illumination. Antisyphilitic treatment was suspended, serological examination of the blood gave a positive result, and after some days the ulcer healed spontaneously.

The second case was a youth of 17, who complained of pain in the neck and difficulty in swallowing. The left tonsil was red and swollen, its upper pole being covered with a smeary exudation. The cervical glands were enlarged, but not tender. In stained film preparations *B. fusiformis* and spirochaetes were present in enormous numbers, and the diagnosis of Vincent's angina was made. The Wassermann reaction was completely positive. Potassium chlorate lozenges were ordered, and healing was complete in eight days.

The third case was a young woman of 18, in whom the diagnosis of Vincent's angina was made from the condition of the tonsil and the whole course of the illness. The Wassermann reaction was negative. A few days later an ulcer of the tonsil appeared, which rapidly cleared up without specific treatment. Mucous plaques developed later on both tonsils, and the patient was then placed on antisyphilitic treatment.

Sobornheim concludes that great caution must be exercised in applying the Wassermann reaction to the differential diagnosis of lues and Vincent's angina.

In the first and third of these cases it is obvious that the syphilis and the Vincent's angina were merely concurrent infections, and that in the second case latent syphilis, either congenital or acquired, could not be excluded with certainty.

Weinstein,¹⁰ in discussing the value of the Wassermann reaction in rhino-laryngological practice, stated that in cases of Vincent's angina the ulceration of the tonsil may sometimes appear to be syphilitic, and that neither the clinical appearances nor the microscopic findings are sufficient to establish a definite diagnosis with certainty. In such cases he states that he employed the Wassermann reaction with good results, and gives his experience of four cases:

A woman of 24, suspected to being syphilitic, presented the typical appearances of Vincent's angina, with an immense number of fusiform bacilli and *Spirochaeta buccalis*. The Wassermann sero-diagnostic test was completely negative. In two other persons suffering from Vincent's angina, with the characteristic micro-organisms present, a history suggestive of syphilis was obtained, and was confirmed in both cases by the Wassermann reaction. In the fourth case of angina with a doubtful syphilitic history, in which *B. fusiformis*, *Spirochaeta buccalis*, and *Spirochaeta dentium* were present in large numbers, the sero-diagnostic test was negative.

Saverio,¹¹ discussing Vincent's angina and syphilis, considers from the cases cited above that the presence of numerous Vincent organisms in the exudation of cases of angina does not as a necessary consequence produce any deviation of complement, and that until such important problems have received sufficient light new parallel studies must be made—on the one hand to establish the pathogenic value of the spirochaetes commonly found in Vincent's angina, and, on the other hand, to accumulate sufficiently numerous cases of similar forms of angina in which the sero-diagnosis has been made. If a certain diagnosis cannot be made, he holds that the hypothesis of Vincent's angina in syphilitic subjects is the most probable.

It is to the latter suggestion of Saverio's that we have directed our attention. At the Queen Alexandra Military Hospital we have recently had occasion to examine bacteriologically more than 300 cases of fuso-spirillary infection, and about half this number were typical cases of Vincent's angina verified by bacteriological findings.^{12, 13} From this number we have taken at random, and with no more selection than mere convenience demanded, 55 cases, and had the blood tested by the Wassermann reaction, performed either by one of us (F. E. T.) by the method recently described,¹⁴ or at the laboratories of the Rochester Row Military Hospital.

In all of these cases, with but two exceptions, no fixation of complement could be observed. The histories of these two cases, in which a positive Wassermann reaction was obtained, are as follows:

CASE I.

Pte. G., Australian Imperial Force, attended the laboratory on December 14th, 1916, for a sore throat which had troubled him for a week. A superficial ulcer was seen on the right tonsil, and the margins of both upper and lower gums were ulcerated and covered with a soft, creamy exudate. The lymphatic glands at the right angle of the jaw were swollen and tender. The ulcers on the tonsil and gums bled when touched lightly, and smears from these parts showed numerous fusiform

bacilli and spirochaetes. The gums and tonsil were treated daily and by December 20th the latter was quite healed. The patient continued to attend for treatment of his gums, and on December 24th a sluggish-looking ulcer was noticed on his left tonsil. Smears from this ulcer presented microscopically a typical picture of the organisms of Vincent's angina, but it was noticed that the glands at the angle of the jaw were not enlarged and the ulcer did not bleed when touched. The Wassermann reaction was positive. On cross-examination the patient admitted that he had contracted syphilis in Australia, having had a primary chancre ten years previously for which he was treated successfully; he remained free from secondary symptoms and had had no further syphilitic manifestations up to date.

CASE II.

Pte. J., Australian Imperial Force, attended for a sore throat which had troubled him for a month. There was a deep ulcer filled with a yellowish-white exudate on the left tonsil, and the upper and lower gums were ulcerated. The ulcers on the tonsil and gums bled when lightly touched, and smears when examined microscopically showed the usual picture of the organisms of Vincent's angina. The lymphatic glands at the left angle of the jaw were enlarged and tender. As we were making a serological investigation of Vincent's angina at this time a sample of the patient's blood was taken for examination and gave a positive Wassermann reaction. The result was communicated and explained to the patient, who then admitted having had a chancre ten years ago, when he was treated by a herbalist for three months with medicine and ointment for the sore. No secondary or further symptoms of the disease had been noticed. He was married, but had had no children. The throat and gums were treated on the lines we had adopted for fuso-spirillary ulcerations. The throat had healed in a week, and the gums about three weeks later. This case, from its clinical characteristics and microscopical findings, was obviously one of fuso-spirillary ulceration in a subject with latent syphilis.

These two cases, then, were the only ones out of a total of 55 cases of Vincent's angina examined by the Wassermann test in which the reaction was positive; the remaining 53 cases were quite negative. The positive character of the reaction in the two cases admits of a ready explanation, and was not due to the fuso spirillary infection of Vincent. In both cases the condition was one of Vincent's angina in a subject of latent syphilis.

As a result of this investigation and of a careful and critical consideration of cases recorded in the literature we have come to the conclusion that the prevailing belief in the occurrence of a positive Wassermann reaction in Vincent's angina has no foundation in fact, and that the two conditions can be differentiated with absolute certainty by the application of bacteriological and serological methods; and that when the complement-fixation test of Wassermann is positive in cases of Vincent's angina, then a double infection exists, either as a coincident syphilitic and Vincent's infection or as the occurrence of Vincent's angina in the subject of latent syphilis.

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A PREPARATORY institution for the school of naval medicine has been established temporarily in connexion with the University of Bordeaux. Its object is to give the first year of medical training to young men intending to adopt the career of naval or colonial surgeon.

THE French Food Minister, M. Victor Boret, who worked in maltings and in a shipbroker's office in this country before joining his father as a corn merchant in France, takes a sanguine view of the food position of that country. There is, he says, enough meat, potatoes, and corn, except oats, if there is no waste. In Germany there is, he believes, a total want of fats, oil, tea and coffee, and so great a shortage of foods that the people are underfed. There has recently been some difficulty about bread in Paris, owing to transport delays due to the bad weather and severe snowstorms, but arrangements have been made which it is believed will ensure an even distribution of flour among the bakers.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A NOTE ON SKIN GRAFTING.

Two instances of skin grafting in my practice are worthy of notice, especially by the general practitioner.

In both cases there was an extensive raw surface, one over the whole front of the lower leg in a man of 65, the other in a virile old man of 82 over the whole area of the scapula.

I have nothing to suggest as to method, but, as far as I know, the source of the grafts is novel. The foreskin of a circumcised infant was utilized in each case. At least two hours elapsed after the circumcision before the grafts were placed *in situ*; they were kept in the meantime in a bottle of normal saline. The wounds were both clean and fairly free from discharge. The grafting skin was scraped and cut into small pieces about one-eighth of an inch square, applied to the wound, covered with oilskin, and bandaged lightly. Two days were allowed to elapse, and it was then found that six out of seven grafts had taken in each case.

The points of interest are (1) the source of the grafts, (2) the utilizing of a waste product, and (3) the length of time between the taking and planting of the grafts.

Wednesbury.

H. C. CREW, L.S.A. Lond.

BILATERAL TWISTED OVARIAN TUMOURS.

On opening the abdomen of a patient to deal with, as I thought, a twisted ovarian tumour, I was surprised to find that the condition was bilateral there being an ovarian tumour the size of a fetal head on the left side, and one somewhat larger on the right. As the patient had been ill about a fortnight before I saw her, both were almost gangrenous and adherent to everything round about. With patience both were isolated and removed, and as the vermiform appendix was closely involved in adhesions to the tumour of the right side, it also was removed. Owing to the condition of the tumours drainage was necessary for some days, but the recovery of the patient was uneventful.

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A CASE OF SEPTICAEMIA DUE TO INFECTION BY *BACILLUS DYSENTERIAE* SHIGA.

The following case is of special interest in presenting several abnormal clinical and pathological features:

Driver A. B., aged 21, after two years' home service went to the East. On July 22nd diarrhoea is said to have commenced—twelve to fourteen stools daily. The patient stated that he had headache from onset, but no mention was made of abdominal pain or tenderness. On July 27th he was admitted into a dysentery ward of the military hospital at Malta, under my care. He was then exhausted and collapsed, with sordes on teeth and lips, furred tongue, extreme thirst, constant headache, marked restlessness, and incontinence of urine and faeces. The temperature was 99°, and the pulse 84. His appearance suggested a severe typhoid condition, so much so that, although admitted as a suspected dysentery, antidyenteric serum was withheld pending the pathological examination of the stools. He could answer questions and remained quite rational for the first twenty-four hours. No enlargement of liver or spleen was detected, and no abdominal pain or tenderness elicited; there was no exanthem and nothing abnormal in heart or lungs.

The stools, which were very frequent, consisted of fluid faecal matter mingled with blood in considerable quantity. Their glairy appearance suggested amoebic dysentery, but no animal parasites were found by the protozoologist. Tenesmus and straining were absent, and the patient never complained of any abdominal discomfort.

On July 28th he was more drowsy, becoming semi-conscious and incoherent at times. The restlessness had increased—frequently tried to get out of bed—but he took fluids well, and the pulse had improved. The temperature once reached 100.2° (its maximum), otherwise it remained about 99° till the day of death, when it fell to 97.4°. The stools now consisted almost entirely of pure, bright blood. His condition steadily became worse, and on July 29th, as he was presenting a picture of increasing septicaemia resembling the typhoid state, blood was taken from the median basilic vein for pathological examination. By this time the pathologists had reported the stool culture to be negative to *Bacillus dysenteriae* Shiga.

On consultation, the view was expressed that the case was probably a fulminating Shiga dysentery, stress being laid on the carinated abdomen associated with the marked toxæmia. The administration of antidyenteric serum was advised, and

60 c.cm. immediately injected subcutaneously; it was rapidly absorbed. This dose was repeated next day, when it was found that the patient's blood—which had been sown in bile and incubated for twenty-four hours—gave a profuse, pure growth of the Shiga bacillus, and also an agglutination which pointed strongly to Shiga infection. Still no *Bacillus dysenteriae* Shiga had been found in the stools.

The patient's condition steadily became worse, and, in spite of frequent saline infusions and other stimulative treatment, he died at 8 p.m. on July 30th, within three days of admission.

The *post mortem* examination showed extensive disease of the large intestine. The whole of the mucous membrane from the ileo-caecal valve down to the anus was intensely congested, being studded throughout with minute superficial ulcers. The whole appearance showed an exceedingly rapid and fatal infection with *Bacillus dysenteriae* Shiga, which was isolated from scrapings taken from the mucous membrane of the lower bowel. Nothing abnormal was found in the small intestine.

The points of special interest in the case are:

1. The rapid progress of the disease, producing a profound toxæmia caused by the septicaemia.
2. The atypical temperature chart.
3. The marked cerebral symptoms as compared with the clear mental condition exhibited in ordinary acute dysentery cases.
4. The absence of any abdominal pain, tenderness, straining, or tenesmus.
5. The fact that the Shiga bacillus was not isolated from the stools during life, whereas, in the great majority of acute bacillary stools examined during the last two and a half years at this military hospital, positive results have been obtained.

6. Lastly, and perhaps most interesting, the fact that a pure culture of the Shiga bacillus was grown from the patient's venous blood. Only rarely has it been found possible to isolate the *Bacillus dysenteriae* Shiga from the blood, this being the first occasion at the hospital, and, so far, only a few cases have been reported by workers in other laboratories.

I wish to tender my grateful thanks to Captain Shields, R.A.M.C., O.F.C. Laboratory, and to Dr. Ada McLaren, for their kind collaboration, and also to the O.C., Lieut.-Colonel G. B. Price, R.A.M.C., for permission to publish the case.

C. MURIEL ASTLEY MAER, att. R.A.M.C.

Rebicus.

CONDUCTION OF THE NERVE IMPULSE.

In 1914 Dr. KEITH LUCAS of Cambridge delivered seven Page May Memorial lectures at University College, London, but they had not been completely written out at the time of his untimely death in an aeroplane accident. His co-worker, Dr. ADRIAN, has therefore, with the modest devotion of a pupil, finished the last labours of a great physiologist, who since the beginning of the war had applied all his inventive genius to solving the practical problems of aviation, and whose death, as will be disclosed later, is as great a loss to flying as to physiology. The result is a volume with the title *The Conduction of the Nervous Impulse*.¹

The object of the lectures was to discuss how a nerve conducts the nervous impulse and how far the phenomena of conduction in a peripheral nerve can be made the basis of the understanding of conduction in the central nervous system. The impulse in a nerve of a nerve-muscle preparation is followed by a refractory period, during which the nerve is unable to respond to a second stimulus; this is due to a defect both of excitability and of conductivity. With the return of excitability the nerve becomes more excitable than when at rest, and the supernormal phase explains the phenomenon of summation—namely, that when a single impulse fails a repetition succeeds, provided that it is so timed as to fall within the supernormal phase left by its predecessor. After the demonstration that summation and apparent inhibition—the two most important phenomena of reflex conduction—can be reproduced in the isolated nerve-muscle preparation, the phenomena of these processes are applied to the central nervous system in the chapter on central inhibition, which Dr.

¹ *The Conduction of the Nervous Impulse*. By the late Keith Lucas, Sc.D., F.R.S., Fellow and Lecturer of Trinity College, Cambridge. Revised by E. D. Adrian, M.B., M.R.C.P., Fellow of Trinity College, Cambridge. Monographs on Physiology. Edited by E. H. Starling, M.D., F.R.S. London: Longmans, Green and Co. 1917. (Med. 8vo, pp. 102; 22 figures. 5s. net.)

Adrian has supplied with some hesitation owing to uncertainty as to how far the late Dr. Keith Lucas would have wished to enter into the speculation necessarily involved in the discussion of this subject. As Professor Starling says in his sympathetic preface, Keith Lucas's work is for all time, and will serve as a sure vantage ground for future investigators.

MEDICINE IN THE DARK AGES.

DR. CHARLES SINGER'S *Review of the Medical Literature of the Dark Ages*² is a scholarly piece of work for which all students of the history of medicine should be grateful. He dates the new birth of medicine in Western Europe from the translations of the so-called Arabian writers, which began to be well known in the second half of the twelfth century. For at least three hundred years Latin translations from Arabic versions and commentaries on Aristotle, Galen, and other Greek writers were the basis of such scientific knowledge as there was.

The true mediæval period of medicine began somewhere about 1150, while the dark age began at the death of Bede (673-735). The medical writings produced in Western Europe during the four centuries following that event fall under one of three heads—vernacular, Latin extra-Salernitan, and Salernitan. A brief account of each of these groups is given. Vernacular medicine in Europe before the twelfth century is confined to Anglo-Saxon texts. The characteristic features of our native medical literature are wide knowledge of herbs and simplicity of pharmaceutical processes. There are no anatomical descriptions, and no attempt is made to separate diseases from symptoms. Salernitan medicine deeply influenced some of the Anglo-Saxon literature, but the two have a common ancestor in Greek and Roman medicine.

Dr. Singer's search in the dust of forgotten lore has brought to light a new text of about 1110 which is an encyclopaedia of scientific knowledge of the twelfth century. The MS., which was found in St. John's College, Oxford, is of folio size, and consists of 177 parchment leaves, the text being illustrated by a large number of coloured diagrams and a few pen and ink drawings. Among the contents are sections on lucky and unlucky days, a table of consanguinity, astronomical tables and calculations, etymologies, rules of grammar and prosody, with other miscellaneous matter. To the medical historian the most interesting part is a compendium of medicine consisting of chapters on the constitution of the body from the four humours, the regimen of the four temperaments, blood letting, the prognostication of life and death, a glossary of herbs, a table of weights and measures, recipes for electuaries and for plasters, an Anglo-Saxon charm to stop nose-bleeding, the relation of fevers to the humours, the principles of pathology, panaceas, an alphabetical list of remedies with the diseases for which they are suitable, and a list of diseases with the appropriate remedies. Dr. Singer publishes the Latin text, and very "doggy and mediæval" (to use a phrase of Sir Clifford Allbutt's) it is; for the convenience of the reader he has broken up the sections into paragraphs and has supplied headings. As the text is in many places defective he has filled in gaps and furnished necessary elucidations. He also gives partial translations of some of the more important passages. Dr. Singer has no doubt that the writer of the MS. was a Saxon, not a Norman. He says that the treatment of the theoretical aspect of medicine in the work, absurd as it is, marks a real advance on what had gone before. It shows signs that the human intellect, which had reached its nadir in or about the tenth century, was already in the ascendant, and preparing for a brighter future.

The same volume of *Proceedings* of the Royal Society of Medicine contains a note by Dr. Singer on the figures of the MS. of the *Inventorium seu collectorium in parte Chirurgiali Medicinæ* or *Grande Chirurgie* of Guy de Chauliac. It was written by Jean Tourtier, master in surgery, for presentation to the Duke of Bedford, and can therefore be dated between 1420, when the Duke became Regent of France, and 1435, when he died. Scattered through the volume are eight miniatures showing an anatomical demonstration, and surgical scenes such as

opening of abscesses, stitching and dressing of wounds, blood-letting, and so forth. All these are reproduced. There are also some rough drawings of surgical instruments.

NOTES ON BOOKS.

THE publication of the twenty-eighth issue of *Burdett's Hospitals and Charities*³ has been unavoidably delayed owing to difficulties due to the war, which are particularly heavy in the case of an elaborate and exhaustive reference book of this kind. Despite the war, every effort has been made to keep the work accurate and up to date. So far as possible, those institutions are indicated which have supplied accommodation for the reception of the sick and wounded from the war. It has, however, been found impracticable to separate the financial results of the normal from the abnormal activities of permanent charities under war conditions, and the total income and expenditure only have been indicated in the accounts. This year's issue includes for the first time the names of military convalescent camp hospitals, and the tables relating to the hospitals of the United States, Canada, Australasia, and India have been remodelled. The opening chapters give the usual comprehensive survey of the volume of charity, of hospital finances and new construction, and of many other matters of particular interest to the world of charity. As in the previous volume, the index is placed at the end of the first 156 pages of literary matter, thus bringing it into direct contact with the classified directory of institutions which occupies the greater part of the volume. Sir HENRY BURDETT is to be congratulated on the continued excellence of this indispensable year-book of philanthropy and hospitals, and we hope that he may be successful in his quest for a competent successor in the editorship, to which he once more makes allusion in the preface. It would be a misfortune if no one were found able and willing to carry on a work of such value and importance both to the hospital system and to the public at large.

*Whitaker's Almanack*⁴ this year completes its first half-century. It has become so familiar a part of the furniture of the worker's desk that it is hardly necessary to praise it. It is the most remarkable annual cyclopaedia anywhere published. This edition appears to be made up to the end of October, 1917, and the diary of the war is continued to that date. There is a special section on the new Empire honours, but the lists have, of course, been rendered incomplete by the recent New Year's awards. Attention is called in the preface to the steady growth of Government departments, and their constitution and principal officers are, as a rule, duly noted; but here again, in many instances, changes have been made very recently. The navy and army lists have been omitted entirely, as nothing adequate relating to either service could be presented, and we agree that the excision was inevitable. The book remains the most convenient current work of reference.

On November 3rd, 1917, we published (p. 594) a note of the story Dr. W. W. KEEN had then recently published of the case of the late President Cleveland. The matter has now been issued in a small volume entitled, *The Surgical Operations on President Cleveland in 1893*.⁵ Dr. Keen has written a foreword which makes one or two points plain.

² *Burdett's Hospitals and Charities*, 1917. Edited by Sir Henry Burdett, K.C.B., K.C.V.O. Twenty-eighth year. London: The Scientific Press, Ltd. 1917. (Cr. 8vo, pp. 1033. 12s. 6d. net.)

³ *Whitaker's Almanack for 1918*. By J. Whitaker, F.S.A. London. 1918. (3s. 6d. net.)

⁴ Philadelphia: George W. Jacobs and Co.; London: F. Bird, 22, Bedford Street. (Pp. 55. 3s.)

MEDICAL AND SURGICAL APPLIANCES.

Photographic Papers for X-Ray Work.

MESSRS. ILLINGWORTH AND CO., Park Royal, Willesden Junction, London, N.W.10, have sent us samples of special papers they have placed on the market for printing from x-ray negatives. They are made in both bromide and gaslight varieties, and, in addition to the standard grade for average negatives, there is a special grade for weak and thin negatives. They can be used with the W. O. x-ray plate developer in use in military hospitals, and the makers supply full information as to the best method of development. The papers have been tested for us, and have been found excellent in every way. The quality of the paper base is good, and the emulsion gives good detail and vigorous prints with good contrasts; the papers are therefore very suitable for x-ray pictures.

⁵ Reprinted from the *Proceedings of the Royal Society of Medicine*, 1917, vol. x (Section of the History of Medicine). London: John Bale, Sons, and Danielsson, 1917.

British Medical Journal.

SATURDAY, JANUARY 19TH, 1918.

THE WISE USE OF MEDICAL MAN POWER.

THE speech of the Minister for National Service in the House of Commons on Monday brought before the country the position as to man power with a frankness which was the truest wisdom. He insisted on the paramount importance of the navy, and mentioned that the personnel of the navy, which stood at 150,000 in August, 1914, had risen in October, 1917, to 400,000. He called on us to return to the faith of our forefathers and to recognize that on the sea and by the sea we lived. Though we are called upon to play a larger part in the field of battle until America comes in, and that means more men for the army, it does not mean men regardless of the vital industries which support the armies, and not men nor munitions of war regardless of the navy on which all else depends, nor men regardless of food on which the health and endurance of the people depends. The British army to-day has, he said, on its rolls over four million men, and altogether the British nations have provided for the armed forces of the Crown not less than 7,500,000. Of these, 4,530,000, or 60.4 per cent., have been contributed by England; 620,000, or 8.3 per cent., by Scotland; 280,000, or 3.7 per cent., by Wales; 170,000, or 2.3 per cent., by Ireland; and 900,000, or 12 per cent., by the Dominions and the Colonies. The remaining million men, composed of native fighting troops, labour corps, carriers, and so on, represent the splendid contribution made by India, Africa, and other parts of the empire.

He went on to show that the demand now existing for more men for the army could be met from two sources—the reserve now in the armies at home and abroad and the men still in civil life. The composition of the armies at home is being readjusted so as to enable the greatest possible proportion of the demands of the armies overseas to be met within the army itself, but, when all was done, it was necessary to proceed immediately to raise in this country 420,000 to 450,000 men from among those now in civil life. On the other hand, measures were to be taken to return simultaneously a large number of men from the forces to civil life, and in particular to avoid calling upon men who have been seriously wounded to fight again. The ideal of the Ministry was a system of recruitment based on occupation, conditioned by age, and it might be by marital state. The intention was to reinforce the army with the youngest men that could be got, but not to lower the age (18). Young men would be taken out of essential industries and their places supplied by men of those trades who had fought and had been wounded, if male substitutes were necessary at all.

The Military Service (Review of Exceptions) Act, 1917, would be administered with great care and consideration. Until recently, he pointed out, recruiting had been regarded as purely the duty of the military authorities: it was now a civilian duty, and Great Britain was for the purpose of recruiting divided into ten regions, each under an officer responsible for the due administration of recruiting within his region. Sir Auckland Geddes was able to assert that the

machine was running smoothly and well, and though he did not say so, we believe that this is largely due to the successful working of the Medical Department of the Ministry. The first duty of that department was to take over the arrangements for the medical examination of recruits and to establish recruiting boards on a civilian basis. In planning out this work the policy of the Medical Department of the Ministry has been to make use of the central and peripheral machinery already existing in the central Professional Committees and the Local Medical War Committees throughout the country. The loyal co-operation of these bodies with the Ministry is fully recognized. The Local Medical War Committees were asked to suggest the names of practitioners in each area who would be able to give part-time services upon the National Service Medical Boards, the idea being to spread the work as far as possible over a number of practitioners, each giving part-time services, rather than to employ whole-time medical officers. It was recognized that this would lead to greater economy in the use of medical man power. The actual appointments to the panels, out of which, from day to day, the boards are constituted, remain in the hands of the Ministry, along with discretionary powers as to altering or adding to the lists of names suggested by local committees: in one or two instances the boards are still conducted under the old whole-time system, but this is merely a matter of temporary convenience, and in nearly every area they are now working on the new basis and working satisfactorily. Each board is under the chairmanship of a Deputy Commissioner of Medical Services, who is a whole-time officer appointed directly by the Ministry. The new system of gradings provides standards of comparison of physical fitness for which a good claim to scientific accuracy can be established.

As a part of its general duty to estimate and organize the man power of the country the Ministry has become responsible for the supply of medical men to the military services and for their selection, with due regard to the needs of the civil population, among whom, it must never be forgotten, workers in munition and other essential trades are included. It is hoped that with the improvements in the distribution of medical officers in the army, both abroad and at home, with the practice of strict economy of medical men at all fronts, and with a continuation of the generous assistance given by America, it may prove possible to avoid further calls upon the civil profession to supply more medical officers for the army; but we believe that with the great increase in the personnel of the navy mentioned by Sir Auckland Geddes the demands of the medical service of that arm are becoming more insistent.

The Ministry of National Service has recently been approached by the Ministry of Pensions with a view to providing the personnel and, in general, organizing the establishment of boards at discharge centres to examine the soldier upon discharge and estimate his pension, and of Pensions Boards for the periodical re-examination of pensioners. Arrangements are in course of being completed by which the Ministry will, in appointing these new boards, act upon the same lines as before—that is to say, it will obtain suggestions as to suitable practitioners from the Local Medical War Committees, though reserving to itself powers in regard to the actual appointment.

The establishment of numerous boards in this way has necessitated a wide survey of medical man power in the country, in order that the different forms of Government work may be so distributed as to secure, in the first place, the right man for each form of work,

and to ensure, in the second place, that each medical practitioner is as far as possible doing his proper share of it. It has thus become increasingly necessary for the Ministry to undertake the general survey of the medical man power of the country, and it is in this connexion that medical men of military age have recently been asked to submit themselves for physical examination. Very busy practitioners may not find it easy to give the time for this examination, but it is hoped that when they realize that the request is not an idle one they will cheerfully respond.

The Deputy Commissioners in the different areas will work in close co-operation with the Local Medical War Committees and with other medical organizations, and will act as the outposts of the Ministry in the country, being responsible for supplying to it all information as to the employment of medical men in their areas.

The Ministry of National Service has been called into existence to meet an emergency, but as is here indicated its scope is already wide, and its work will not come to an end with the war, however that ends. It may have, and we believe will have, a great influence on the future of the medical profession, and we rejoice to think that it has not at once set to work to create a large new corps of medical officials, but is seeking to enlist the help of doctors actively engaged in general practice.

THE USE OF POTATOES IN BREAD-MAKING.

At recent meetings of the Académie de Médecine¹ MM. Maurel and Gautier have discussed a question of great practical importance—namely, the utilization of potatoes in bread-making. The discussion was initiated by M. Maurel, who communicated the results of his observations upon bread made from wheat flour (milled to 85 per cent.) and potato pulp, the percentage of the latter increasing from 20 to 50 per cent. The nutritive values of the mixtures were found to be as follows, per 100 grams: In 20 per cent. potato bread, calories 308; in 30 per cent., 283; in 40 per cent., 259; in 50 per cent., 234. Protein, in 20 per cent. potato bread, 8.51; in 30 per cent., 7.68; in 40 per cent., 6.84; in 50 per cent., 5.97. All these breads were found to be well risen and elastic on removal from the oven; they kept fresh a considerable time, only losing 2 per cent. of weight in forty-eight hours; and, even with 50 per cent. potato pulp, retained a satisfactory odour of wheaten bread. The bread absorbed liquids, and was consequently insalivated more easily than that prepared without admixture. Maurel suggested that the decreased nutritive value with increasing admixture of potatoes could be avoided by the introduction of bean flour, his suggestion being to use 60 per cent. wheat, 30 per cent. potato, and 10 per cent. bean flour. In his opinion the use of potatoes in baking was impracticable for small private bakers, but both possible and desirable in State, communal, and army bakeries, as well as in families that make their own bread; he gave statistics showing that in this way important economies in wheat consumption might be effected.

In his criticism of this communication M. Gautier referred to the potato bread prepared by the orders of the Minister of Revictualling and recommended in a circular to the prefects on August 7th, 1917. This bread contained 20 per cent. of potato flour and possessed an energy value of 253.6 calories per 100 grams (6.90 grams protein). Gautier did not

deny that the ministerial bread possessed the merits claimed on its behalf, but he dissented from the view that such a bread could be prepared by private bakers, and emphasized the difficulties in this direction to which Maurel had alluded. Gautier believed that it would be better to reduce the bread ration rather than further to dilute the official loaf with substitutes for wheat, and to encourage the public to use potatoes and other vegetables cooked in the normal way. M. Gautier's criticism does not take account of an important advantage associated with the use of potatoes in bread rather than in their natural state. We have already directed attention to the difficult problem of internal transport, and it might be much easier to organize deliveries of supplies to large bakers, than to retail greengrocers when we are concerned with the very large quantities in question. There is also the difficulty of giving variety to the cooking of potatoes when fats are scarce.

The Ministry of Food has taken up the subject and we have received a sample loaf containing 10 per cent. of potato flour. Particulars have not been supplied of its analysis, but, so far as appearance and palatability are concerned, we can testify that M. Maurel's claims are just. The bread seemed to us of better flavour than that baked from ordinary G.R. flour, and a portion preserved for twenty-four hours (that is, eaten at least forty-eight hours after baking) seemed less stale than our customary war bread. If other bakers are able to reach the Ministry's standard, the potato bread should be in great demand, and, from the physiological point of view, as we have more than once remarked, its use is very desirable on account of the superior biological value of potato protein in comparison with that of wheat. The public should be urged to try the new bread at once, and we understand that the use of a certain percentage of potatoes in bread-making is about to be made compulsory.

SIR ALFRED KEOGH.

SIR ALFRED KEOGH retires from the office of D.G., A.M.S., leaving behind him the reputation of one of the greatest organizers and administrators the army has produced. It was not an accidental coincidence that he and Sir William Robertson received the G.C.B. on the same day about a year ago. When he took up the office for the second time, in October, 1914, he knew that he had undertaken a task beset with difficulties. He succeeded in carrying day after day a burden of responsibility and labour which only a man of his energy, enthusiasm, and mental calibre could carry. He had to meet at once the medical needs—which then seemed immense—of the new armies of men who voluntarily responded to Kitchener's appeal. The response came in a manner redounding to the everlasting honour of the British medical profession. The response must have heartened Sir Alfred Keogh in those difficult early days after Antwerp and the first battle of Ypres. It would have been made whoever had been in his place, but it was made more readily and with more confidence because he was there. Men at such moments do not stop to analyse the springs of their conduct, but there can be little doubt that the spontaneity of the response was in part due to the feeling that Sir Alfred Keogh was one of us; that through his long years of military administration he had never forgotten that he was a doctor first and a soldier afterwards. He has said this or something like it very often, and his record in the service would stand as evidence had he never said it. The work of the enlarged Army Medical Service, of which he has had the central direction, has been greatly successful in the prevention of disease, in the treatment of the wounded and sick, and in their transport and hospitalization. The first urgent problem

¹ *Bulletins de l'Académie de Médecine*, Nos. 43 and 44, sittings of November 6th and 13th, 1917.

of the war on the Western front was raised by the frequency of wound infections of extraordinary severity and of types which, if not new, were unknown except by name to modern surgeons. Then appeared at once the wisdom of the appointment of consulting surgeons, physicians, and pathologists, and the establishment of clinical and research laboratories under the direction of skilled men of the younger school. In all this Sir Alfred Keogh has shown a quality which distinguishes a great from a good administrator, a quality which he shares with his distinguished colleague in France, Sir Arthur Sloggett, of encouraging men of capacity, in the words of Harvey, "ever to search out and study the secrets of nature" at the bedside or in the laboratory. In the course of his multifarious work of the last three and a half years Sir Alfred Keogh has had to touch the fates of ten thousand medical men of all ages, dispositions, and clinical acquirements. That the Army Medical Service has during these times always succeeded in using its civilian recruits to the best purpose would be to claim too much. It is not in mortals to avoid mistakes, but we are quite sure that throughout it all the retiring Director-General has been inspired by a real appreciation of the importance of scientific methods, by a genuine love of his profession, and a whole-hearted desire to do the best possible for the armies and for the sick and wounded. In choosing Sir Alfred Keogh's successor, the precedent recently created in other branches of the army, of looking to the younger men, has been followed. Colonel Goodwin, who entered the R.A.M.C. in 1893, is not yet 47. He served with distinction in frontier expeditions in India and has won golden opinions in this war where he served in France from the earliest stage, as more recently in America, to which country he proceeded as a member of Mr. Balfour's mission last spring. He has a difficult succession; we wish him every success in the high office to which he is called.

THE STAFFS OF THE INSURANCE COMMISSIONS.

A REPORT on the administration of National Health Insurance during the years 1914-17 has been presented to Parliament and published.¹ The last report was that dated June, 1914, and dealt with the year then terminated. In 1915 it was resolved to suspend the publication of an annual report, owing to the conditions arising out of the war, and in particular to the serious depletion of the staffs of the Joint Commission and the several commissions. It has, however, now been considered advisable to publish a report covering the period from the outbreak of war to November, 1917, more especially as several matters of interest have to be recorded relating to the adaptation of the machinery of National Health Insurance to war conditions. Precedent is followed in the division of the report into parts describing the work of the Joint Committee and the several commissions; but, in view of the shortage of paper, and as many of the details of administration are the same in all the four countries, they are described fully in the part dealing with the English Commission, the reports of the work of the Scottish, Irish, and Welsh Commissions supplementing that description wherever the conditions in those countries depart from those prevailing in England. The male staff of the Joint Committee at the outbreak of the war was 39, including 11 men over military age; this has been greatly reduced, as 15 have been released for military service (of whom 3 have been killed) and 13 lent to other departments engaged on war work. The net result in the loss to staff has been 71.8 per cent. For similar reasons the male staff of the English Commission has lost 720 out of 1,106, or 65 per cent. This loss has been met mainly by the engagement of women, of whom

there are now nearly 1,600 in the employment of the Commission. Of the members of the staff on active service 63 have lost their lives, and in addition 2 have been missing since May, 1917, 1 is interned in Holland, and 2 are prisoners of war in Germany. One member of the staff, Sub-Lieutenant A. W. St.C. Tisdall, R.N.V.R. (killed in action), received the Victoria Cross. Prior to the war the Scottish Commission had 261 men in its employment, of whom 213 were of military age; at the present time the corresponding figures are 72 and 44. Of the staff on active service 23 have died, 1 is reported missing, and 1 is a prisoner of war. The Welsh Commission has been able to release 117 out of the 167 male officers it had at the outbreak of war; 11 have been killed, and 1 is missing. The staff of the Irish Commission included 213 male officers at the outbreak of war, of whom 172 were of military age; 45 members, constituting 21 per cent. of the total male staff and over 26 per cent. of members of military age, have voluntarily joined the forces; 9 have lost their lives, and 2 are reported missing.

TRENCH FEVER AND "P.U.O."

WE would direct the attention of our readers—civilian as well as military—to the preliminary report printed in another column, of a committee nominated by Sir Arthur Sloggett to investigate the cases of obscure pyrexias occurring in the army in France, which are variously known nowadays as "trench fever," or "P.U.O."—that is, "pyrexia of unknown origin," as commonly transliterated, but really signifying "pyrexia of uncertain origin." Indeterminate fevers have been very prevalent since the first winter of the war; and although never directly fatal they are the cause of much invaliding and sometimes destroy a man's fitness for military service. The committee and the medical officers associated with them had the advantage of studying a considerable number of unselected patients who were collected at an early stage of their sickness in a hospital set apart for this purpose. The present communication confines itself to an attempt at clinical classification based on an analysis of the notes taken by the medical officers in charge of the cases. Considerations of etiology, pathology, prevention, and cure are reserved for a later report. From the general mass of clinical observations three fairly distinct types of pyrexia emerge: the relapsing, styled for convenience "trench fever"; the single short initial bout of fever, recalling influenza; and the prolonged initial fever, resembling enteric. The first type is divided into regular relapsing and irregular relapsing subtypes. Apart from the course of the pyrexia, however, the four groups are indistinguishable by any clinical test. Headache is invariable, and pains in the limbs and back are common to all, as is a strong tendency to persistent tachycardia when the temperature is subsiding. The report brings out clearly the causal relationship between P.U.O. and many cases of disordered action of the heart. The absence of intestinal or renal symptoms is noteworthy throughout the series. Enlargement of the spleen was fairly frequent—a condition not observed by those who described the earlier cases. It is interesting to find splenic enlargement now definitely associated with P.U.O., because we believe that in the first year or two of the war this sign was generally held to indicate an enteric group infection. The first report of the committee marks a step forward in the precise clinical investigation of a very obscure group of diseases, which, as we have said, are not without interest for civil practitioners in this country. There can hardly be a doubt that trench fever, at least, is infectious. It was first recognized in the trenches, but it began to occur among orderlies in medical units further back where the sick were nursed, and eventually at schools of instruction on the lines of communication to which men were sent from the trenches. McNee, Renshaw, and Brunt, in a paper published in our columns nearly a year ago,

¹ H.M. Stationery Office. To be obtained through any bookseller. (Cd. 8890.) Price 1s. 6d. net.

showed that it could be transmitted from one person to another by whole blood. There is strong evidence that the disease was imported into the armies at or near Salonica by troops coming from France, and it is therefore not impossible that it may be imported into this country or may have already been transmitted to persons brought into close contact with soldiers returned from France. The Trench Fever Committee for this country, which sits at the Royal Army Medical College, Grosvenor Road, London, S.W.1, under the chairmanship of Surgeon-General Sir David Bruce, K.C.B., has, indeed, asked that reports of suspicious cases may be sent to it. Sir Wilmot Herringham and his colleagues are very cautious in drawing any conclusions in their preliminary report, but the known facts may, perhaps, justify some speculation as to whether among the cases once common in marshy districts in England, and then commonly called "marsh fever," there may not have been some of the varieties of feverish disorder described in their report. No doubt the majority of the cases in the Fens and in the low marshlands of Kent were malaria, but it seems possible that some may have been instances of the newly recognized disorders, trench fever and its congeners.

THE MEAT POSITION.

MR. CLYNES stated in the House of Commons on January 16th that 10,000 returns from slaughterhouses in Great Britain indicated that in December, 1917, the number of cattle slaughtered for beef was 9.5 per cent. greater than the number slaughtered in December, 1916. The number of live stock in the country, he said, is estimated to be lower than a year ago, so that supplies of home-fed beef for the next four months, equal to those of the same period last year, could only be forthcoming at the expense of a further depletion of our live stock. It is generally believed that during last year the habit of eating much meat has greatly increased among the industrial classes; this is an intensification of a tendency which, for good or evil, has been growing during the last quarter of a century at least. In a well-known "purple passage" Macaulay predicted that "in the twentieth century . . . labouring men may be as little used to dine without meat as they now are to eat rye bread."¹ This expectation has been more than fulfilled, and some general statistics will not be without interest. According to Gregory King, who estimated the population in 1696 as 5,500,000, about 2,700,000 ate meat daily; of the rest, 1,540,000 ate meat at least twice a week, while 240,000 were either sick persons or infants under 13 months old. There remained 1,020,000 persons "who receive alms, and consequently eat not flesh above once a week."² Adam Smith observed that "in almost every part of Great Britain a lb. of the best butcher's meat is, in the present times, generally worth more than 2 lb. of the best white bread; and in plentiful years it is sometimes worth three or four lb."³ We recently gave statistics of the consumption of meat by the English working classes shortly before the war. The figures were as follows: Industrial families in urban districts consumed from 1 lb. 9 oz. to 2 lb. 6 oz. per "man" and week, the lesser amount referring to families with weekly earnings of less than 25s., the greater to those with wages over 40s. No satisfactorily comparable data are available for European families, but we deduce from Slosse and Waxweiler's statistics⁴ that even in Brussels and among skilled operatives the weekly consumption of all forms of flesh (including bacon, etc.) was not much more than 3 lb. In Germany, since the war, the most favourable data, those of Loewy,⁵ show a weekly consumption of 0.77 lb. to 1.4 lb., the latter figure concerning

families with a monthly income of more than 500 marks; the more recent evidence of Berg⁶ only reaches three-quarters of a pound weekly with labourers on heavy or very heavy work. In the face of the experience of our ancestors and the long deferred collapse of our enemies, it does not seem necessary to labour the point that a restricted meat diet, although, like the discontinuance of any pleasant habit, a hardship, is far from being a calamity. We do not, indeed, suppose that the meat shortage will continue to be so acute as it is at present, but we see no reason whatever to expect that supplies will again become abundant during the war or until long after its termination. This must necessarily follow from a consideration of the price of fodder, the demand on shipping, and the obvious economy of not interposing a non-human "profiteer" between the source of biotic energy and the human consumer. It is to be remembered in this connexion that 64 lb. of dry fodder are consumed in producing 1 lb. of dry human food in the form of beef.⁷ The position, then, has to be faced, and we conceive the course of action incumbent upon the educated and professional classes to be clear. They must, both by precept and example, urge upon the majority of their countrymen the desirability of ceasing to regard meat as a staple article of diet and the need of looking upon it as a mere relish or appetizer. We should like to see not one only but several meatless days introduced into all the clubs and restaurants, and no one should eat meat at home more than once a day. We have time and again urged the psychological importance of example; in this particular matter example is of really supreme value.

THE AIR MEDICAL SERVICE.

IN moving the second reading of the Air Force Bill last November, Major Baird, then Parliamentary Under Secretary to the Air Board and now to the new Air Council, said that one of the most important needs was for a specialized Air Medical Service, and he gave more than one cogent reason why a body of men must be obtained whose sole duty would be to concentrate on the new branch of medical science, upon which depend both the welfare of our flying men and the efficiency of the Air Service. To a mind trained in science the proposition is self-evident as soon as it is made. The inference followed that the air authorities had grasped the position in good time, and intended to set up an Air Medical Service to minister to the special and peculiar needs of the new Air Force which is now in its birth throes. This assumption underlay all that we wrote on the subject a fortnight ago, and there would be no need to go over any part of the ground again were it not for a rumour now current that the Air Council has unaccountably weakened in its resolve. Without entering into details, the case against such a reversal of sound policy can be stated in three sentences. The Air Force is to be a separate force distinct from the army and navy, with its own Secretary of State and its own Council. The presumption therefore is that it should be complete in all the branches represented in the other fighting services—that is to say, it should have its own medical service. Hence the onus of proof rests on those who oppose, not on those who advocate, the setting up of an Air Medical Service. We would urge, with all the emphasis at our command, that the Air Force, by reason of its special functions, its immense possibilities of future development, and the peculiar risks to which its personnel is exposed, must from the outset contain within it a specialized medical corps devoting the whole of its time and talents to the medical and physiological problems of flying, and the professional care of aviators and their retinue. It will not do for the Air Force to be served by medical officers doled out by the War Office and the Admiralty for uncertain periods of duty. We need only turn to Surgeon Graeme Anderson's paper on the medical aspects of aeroplane accidents (p. 73)

¹ Macaulay's *History of England*, Chapter III.

² Quoted in Lecky's *History of England in the 15th Century*. Popular edition, vol. ii, p. 205.

³ *Wealth of Nations*, Routledge's edition (1908), p. 118.

⁴ *Enquête sur le régime alimentaire de 1065 ouvriers belges*. Brussels, 1910.

⁵ *Deut. med. Woch.*, February 8th and 15th, 1917.

⁶ *Zeit. d. deutschen Landwirtschaftsrats*, May, 1917.

⁷ Wood: *The National Food Supply in Peace and War*. Cambridge 1917, p. 34.

to realize that a practical interest in aviation is an indispensable quality in an air medical officer. Only within an Air Medical Service will it be possible to create a trained medical personnel graded according to the capacity of each individual for specialized duties, such as research work in hospital or laboratory, the medical charge of aerodromes and air hospitals, or the testing of physical fitness for aviation.

WITTENBERG PRISON CAMP.

At a meeting of the West London Medico-Chirurgical Society on January 13th, with Dr. A. J. Rice-Oxley, President, in the chair, one of the two gold medals of the society awarded last year was presented to Major Harold Edgar Priestley, C.M.G., R.A.M.C., in recognition of his devotion to duty during the typhus epidemic in Wittenberg Camp, Germany, from February to June, 1915. The President said that Major Priestley, in addition to his sufferings as a prisoner of war, had been twice torpedoed in the last ten months, and was now on sick leave from abroad. When he arrived at Wittenberg there were 12,000 prisoners of war and a number of civilians, but there were practically no drugs or medical appliances, and no proper sanitary arrangements. When typhus fever broke out, the German principal medical officer, Dr. Aschenbach, played the coward and fled the camp, and his colleagues did the same. Major Priestley thereupon devoted himself to the sick and dying until he fell ill himself. In returning thanks, Major Priestley spoke of the callousness and brutality of the German guards and the sufferings of his fellow prisoners, who, in spite of cruelty, hardship, and disease, never lost their courage or discipline. He paid a warm tribute to the work of his colleagues at Wittenberg: of the five medical officers two only have survived. In accepting the medal, Major Priestley said he regarded himself as holding it in trust for all those splendid men.

MEDICAL STUDENTS IN THE RANKS.

At the present time the withdrawal of medical students from combatant service in order to resume their studies is governed by Army Council Instruction 1751, the provisions of which were summarized in the JOURNAL of December 8th, 1917. Under this instruction students who at the time of their enlistment were engaged in medical studies and had completed their second year may, if they so desire, be released for the purpose of continuing their studies with a view to qualification. Students who do not pass the professional examination in anatomy and physiology within six months of resuming study will be recalled to the colours, and a student transferred to the Reserve who does not resume his studies and enrol in an officers' training corps will be recalled. The usual official steps have been taken to bring the instruction to the notice of all students serving with the colours, whether at home or abroad; but it is evident that in front-line formations, during periods of stress, information of this sort published in battalion orders may never reach those for whom it is intended. Here it may be pointed out that the official object in releasing medical students from the ranks is not to remedy individual cases of hardship, however desirable that may be, but to maintain the number of students in training at a level sufficient to produce an adequate supply of new medical practitioners for national needs. To effect this purpose more adequately, we understand that Army Council Instruction 1751 will shortly be amended, and that the Ministry of National Service will take steps to ensure that so far as possible all those concerned are made aware of the revised regulations.

SHELL-SHOCK PATIENTS IN AIR RAIDS.

EARLY in November a question was asked in the House of Commons with regard to shell-shock patients at the 4th London General Hospital, and other similar cases at Golder's Green, the suggestion being that the condition of these men is aggravated by air raids and that they ought

to be removed to a quieter neighbourhood. In a non-committal reply Mr. Maepheron said that it might be possible, in connexion with changes then being made, to discontinue the neurological centre in London as a treatment centre; he added that the inquiry as to Golder's Green should be addressed to the Minister of Pensions. In a letter printed in the JOURNAL of November 24th Dr. Thomas Luusden maintained that however convenient it may be for the authorities, it is bad treatment to congregate nerve-shattered men in hospitals unless the severity of their symptoms renders this unavoidable, and that it is unpardonable to keep even the serious cases in a town like London, where air raids are frequent. The description which he quoted of the effect of an air raid on nerve-shattered men was very painful to read, and we are assured by several informants that that account in no way exaggerated the state of things on such occasions. There can be little doubt that shell-shock patients are extremely liable to relapse under the mental stress of an air raid, and when cases of varying degrees of severity are grouped together at such a time the good effects of months of treatment may be undone in the course of a few minutes. We regret to have to add that so far as we can ascertain nothing has yet been done towards the early removal to the country of men suffering from war neuroses. The change would be in the interests of the patients, of economy of medical manpower, and therefore eventually of sound administration.

Medical Notes in Parliament.

Reassembling of Parliament.—When the House of Commons reassembled on January 14th, the Minister of National Service moved the first reading of the Man Power Bill in a very detailed speech. In the course of it he said that he wished he had the opportunity then to describe the reforms which had been introduced in the system under which men are medically examined. The old system had been replaced by a new one which, though it still showed a few raw edges, was a vast improvement on the old. He wished, too, that he could stop to tell of all the work that had been done to co-ordinate the demands of Government departments for medical men, and to ensure an adequate supply of medical practitioners to meet the nation's needs in 1920, 1921, and the years following. The efficient working of the recruiting and medical machines rested finally upon a complete and accurate system of registration. He welcomed, therefore, the measure Mr. Hayes Fisher had introduced to complete that work of registration.

Education Bill.—The Education Bill was introduced by the Minister for Education, on January 14th, under the ten minute rule. The bill, he said, was substantially the same as its predecessor, and attention to physical welfare remained a special and distinctive note, but certain of the administrative clauses had been omitted or amended. The clause with regard to medical inspection of schools and educational institutions reappears unaltered,

Medical Attendance at Military Hospitals.—On January 12th Sir R. Cooper asked a question which suggested that the recent replacement of British medical practitioners in military hospitals by American practitioners had broken down, and that British practitioners had been requested to return temporarily to work in the military hospitals. Mr. Macpherson replied that the facilities given to the American Government to enable its officers to obtain experience of war injuries had not broken down. The number of practitioners employed in military hospitals varied with the number of patients in them.

Treatment of Neurasthenics.—In reply to a question by Mr. King, the Parliamentary Secretary to the Ministry of Pensions said that there was no power to keep men discharged from the army under control, but institutions were being provided in which the severer cases of neurasthenia might be suitably treated. Two such institutions had been opened, and others would be ready for occupation shortly. The Ministry was advised, however, that the milder cases of neurasthenia should not be retained in institutions, and that it would not be to their advantage to be placed under the care of lunacy experts. In reply to a further question, he said that one of the new institutions was in the raid area of London, but none of the others now being got ready were in that area. When provision had been obtained outside, the advisability of moving the present institution would be considered.

THE WAR.

PRELIMINARY REPORT OF THE COMMITTEE UPON TRENCH FEVER AND PYREXIA OF UNKNOWN ORIGIN.

DURING the winter 1914-1915 many cases were admitted to hospital for "myalgia," "influenza," "neuritis," and even "rheumatic fever," which had as common symptoms pyrexia and local pains. In April, 1915, attention was drawn to a new kind of fever which was marked by relapses. It was described by Graham,¹ by Hunt and Rankin,² and by McNee, Brunt, and Renshaw;³ Hurst⁴ later described it at Salonica. Little has been added to their accounts. The name "trench fever" was given to it, since it arose in the front area. It was not found to originate on the lines of communication until the establishment of schools of instruction, to which men came from the front area, created foci of infection. It is to this form that attention has hitherto chiefly been directed. McNee found that he could convey the infection by injecting the whole blood or the red cells, but not by injecting the serum alone. But beyond this little has been learnt of its pathology. Pappenheimer⁵ described certain forms seen in the blood, and obtained by culture from the blood and tissues, but these were found to occur in other conditions also. Patterson,⁶ and later Nankivell and Sundell,⁷ described spirochaetes in the urine of these cases, but similar spirochaetes were found in the urethra of healthy men.

Dimond⁸ described a body which he called a haemogregarine. and the same body was found by Patterson, Perry, and Urwick, but it was proved to be a flagellate growing in the distilled water which had been used in preparing the blood films. No organism has yet been discovered which can be connected with this form of fever.

But it was always known that along with this relapsing form many cases occurred in which the temperature ran a very different course. These cases were mentioned by Hunt and Rankin, but have never been carefully observed or described.

These various forms of fever of unknown origin have been very prevalent; for every case of enteric there have been at least twenty of these indeterminate and innominate fevers. And though they never cause death, yet they often lead to a very long period of incapacity and sometimes to discharge from the service for ill health. They are therefore of great importance to the army. Accordingly the D.G.M.S. of the army in France nominated a committee, consisting of Lieut.-Colonel W. O. O. Beveridge and Colonels Sir John Rose Bradford, Sir Wilfrid Herringham, and Sir William Leishman, to examine and report upon them. No. — Stationary Hospital was selected for the reception of the patients, and, by arrangement with the D.M.S. of the army, and the D.D.M.S. of the corps in whose area the hospital was situated, the cases were sent in direct from the field ambulances as soon as they arrived. In this way a large number of unselected cases were obtained at an early date of their illness which had this common feature alone, that they were at their onset of unknown origin. They formed, in fact, a sample of P.U.O. in bulk as nearly representative as it could be made.

The cases were under the care of Lieut.-Colonel B. B. Burke, officer commanding the hospital, Captain Horsley Drummond, officer in charge, medical division, and Captain Urwick, pathologist, and in charge of wards. In October the services of Captain Perkins were obtained as special pathologist for these cases. It is an advantage that as there is an isolation hospital attached to No. — Stationary Hospital, cases found to be the subject of enteric fever could be transferred, and a comparison made with cases that were not enteric.

The aims of the Committee were:

1. To determine whether these cases of unknown pyrexia include more than one class of fever, and, if so, to classify them.

2. To observe the symptoms distinctive of each class that might be established, and thereby to distinguish one class from another, and from all known fevers.

3. To investigate the etiology and pathology of these fevers.

4. To discover the best means of prevention and cure.

It is upon the first two of these objects that the Committee desires to offer a preliminary report drawn from an analysis of the clinical notes taken by the medical officers. The report, however, is incomplete even under these headings, for it does not include a number of observations upon certain symptoms, and upon the condition of the blood, which are still in progress, nor does it deal with the diagnosis from enteric and influenza. In the present series, the object of which was to obtain a general picture of the cases diagnosed as P.U.O., a few cases of enteric are known to be included. They are, however, so few that the general conclusions are not thereby invalidated. This will be considered at length in the next report.

CLASSIFICATION.

After consideration of other principles, the only classification that seemed at all satisfactory was that based on the character of the temperature chart. These fall into three classes—

A. The relapsing class (trench fever).

B. A class with a single short initial bout of fever and no relapse.

C. A class with prolonged initial fever.

It gives perhaps a more vivid picture if it be added that Class B recalls influenza, and Class C an enteric fever.

The total number of cases is 170 in which there is only one officer. Of these the relapsing class A includes 91 cases, B includes 27 cases, and C 52 cases.

They were all in hospital during July, August, and September, 1917. It may be that the autumn and winter cases will show modification of the symptoms now reported.

CLASS A.—TRENCH FEVER.

91 Cases.

The cases in this class are divided into—

1. Regular relapsing, with definite normal intervals = 56 cases.

2. Irregular relapsing, in which the intervals between the relapses are not so definite, or if the intervals are definite the temperature remains above the normal = 35 cases.

It seems indubitable that these cases belong to the same class, but it is important to notice that there is both a true intermittent and a remittent variety. In the following analysis of symptoms the whole class is taken as one. (See Charts 1, 2, 3, illustrating A 1; Charts 4, 5, illustrating A 2.)

Previous History.—In 9 cases a previous attack of P.U.O. was known or probable. In 2 cases a previous attack of malaria was known or probable.

Immediate Antecedents.—The cases occurred in all situations—trenches, dug-outs, canvas, huts, and billets. Lice were present within twenty-one days in all but 18 cases. Mosquitos had definitely bitten 22 patients.

Prodromal Symptoms.—In very few cases. Coryza in 4, diarrhoea in 3, constipation in 4, malaise in one.

Onset.—Sudden in all but 9 cases. Usually the patient could tell what he was doing at the time. There is nothing else peculiar in these 9 cases.

Initial Symptoms.—*Headache* was invariable. It was nearly always frontal, and often referred to the back of the eyes. There was often conjunctivitis (pink eye). *Shivering* occurred in 24 cases, *dizziness* or *giddiness* in 33, several complained of weakness or faintness, and four actually fell down. There were *pains* in the back or lower limbs in most cases. In a few there was no pain other than headache at the onset, and in six this was the only pain throughout. *Vomiting* took place in 24 cases, and *nausea* in 4 others, *diarrhoea* in 4 cases, *sore throat* in 6.

On Admission.

The patients complain of headache and pains in the lower limbs, usually in the thighs and knees. They often look very toxic, and are flushed and sometimes drowsy. The tongue has a central streak of yellow or brown fur with red edges, the appetite is bad, the bowels constipated.

There is no distension of the abdomen. There is no abnormality in the heart or lungs. In 10 cases there was a trace of albumin, which disappeared in two or three days.

Course and Progress.

1. The *temperature* chart is marked by a series of 'bouts' of fever, in which the temperature as a rule rises rapidly, and falls rather more slowly. In some cases the rise is gradual. Taking the first bout as an example, the temperature on the first day was known in 18 cases. Of these, in 10 cases

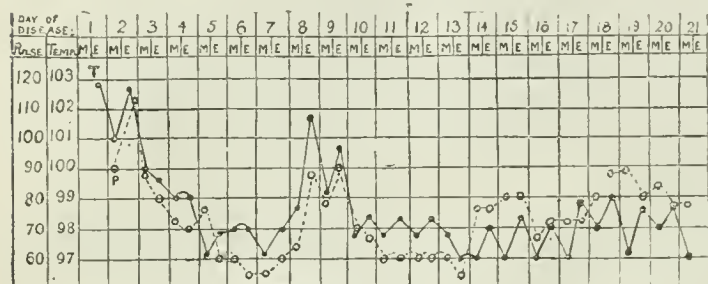


CHART 1.

it was highest on the first day. In 3 cases it was as high on the second day as on the first day. In 5 cases it was highest on the second day. The acme is usually between 102° and 103° F., but is sometimes higher. The temperature is always falling by the third day.

The first bout lasted in 1 case one day, in 6 cases two days, in 18 cases three days, in 15 cases four days, and in 6 cases five days. In the great majority, 33 out of 46, it lasted three or four days.

The bouts vary greatly in number. Most patients have three or four bouts. One of this series, who seemed to be reinfected about the thirtieth day, had as many as seven.

If the acme of each bout be noted, or, supposing there are two days on which the temperature is equally high, the first of the two be called the acme, it will be found that there is a considerable regularity in its occurrence. Thus in the regular group the following sequences are found. The numbers are the days on which the acme of each bout was registered:

Case 12: 1, 5, 10.

Case 40: 1, 6. Case 32: 1, 6, 11. Case 30: 1, 6, 11, 17, 24.

Case 13: 1, 6, 12, 17, 23. Case 43: 1, 6, 12, 18, 24.

Case 38: 1, 6, 13.

Case 31: 1, 7, 12, 18. Case 18: 1, 7, 14, 23.

Case 10: 1, 8. Case 17: 1, 8, 16, 23. Case 1: 1, 8, ? 17.

Case 11: 2, 8. Case 8: 2, 8, 14. Case 15: 2, 8, 16.

There is a tendency for the acme to postpone as the disease progresses. There is also a tendency for the highest point to become gradually lower with each bout, as in Chart 2.

As a rule, when the bouts cease the temperature remains normal, or under 99° F. But in some there follows a period of irregular fever, which may sometimes last several weeks (Chart 6).

2. The *pulse*, which is commonly about 100 during the first bout, falls to about 70 as the temperature sinks to normal, and rises again, though not to so great a height, during subsequent bouts. It is the rule that it varies with the temperature so long as the bouts continue to appear. But at a later stage there has been in many cases great disturbance of the circulation. The pulse has become frequent, the heart has dilated under observation (the apex once went as far as 2 in. beyond the nipple), and a faint systolic bruit has been heard. The apex usually retreats again, and the bruit ceases to be heard if the patient is retained. These cardiac signs appear to be due to dilatation alone, and there has been no reason to believe

that endocarditis had been present. Since the plan was adopted of keeping almost every case in bed for twenty-one days tachycardia has been much less frequent. Yet it has appeared in several cases while the patient was still in bed, and, when it has appeared after the patient had got up, it has not been quickly relieved by putting him to bed again. There is no reason to suppose that the cases under observation were worse than the average, and it seems, therefore, probable that many cases of disordered action of the heart take their rise in trench fever. Chart 7 shows a remarkable degree of the condition.

In the whole 91 cases there were 24 in which severe tachycardia existed. Five of these patients complained of precordial pain, and in one the pain spread down to the left arm.

3. When trench fever was first described in 1915 the *spleen* was not found to be enlarged. In 1916 several cases of splenic enlargement were seen, and in the present series the spleen was definitely palpable below the ribs in 35 cases out of 91. One of the committee has been observing trench fever at the front from the beginning, and has no doubt that the proportion of cases which show this feature has increased.

The enlargement, or rather the extent of the organ which can be felt, is small. An inch or an inch and a half below the margin of the ribs is rarely exceeded. Four cases have shown greater enlargement than this, but of them one certainly and one probably were the subjects of old malaria. In these four the spleen was palpable the whole time the patient was in hospital. In 12 cases the spleen was palpable on admission, in 1 eleven hours, and in 1 seventeen hours from the onset.

It retreated behind the ribs before the twenty-fourth day in 21 out of the 35 cases in which it was palpable. But in 2 of these it reappeared later and in others it retreated and reappeared within the period of twenty-four days. It sometimes reappears during the relapses. It is probable from this that the spleen is often enlarged when it cannot be felt. It is sometimes tender, and to this are due the pain and tenderness in the left hypochondrium which were noticed by earlier observers, and were found in eleven patients of this series. This hypochondriac tenderness and the accompanying rigidity may occasionally prevent the spleen being felt.

4. Almost every patient complains of *pains* in various parts during the course of the disease. Apart from headache, which is universal and often very persistent, the most frequent site of pain is the lower limbs. All parts of these—thighs, knees, calves, shins, and ankles—are affected. The shin pains, which occurred in 44 cases out of 91, are described as in the bone itself. There is nothing outwardly to account for them. There is no thickening as

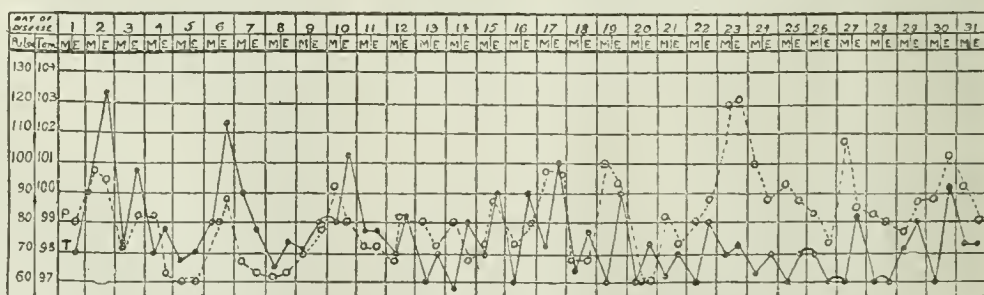


CHART 2.

in periostitis, and though the shins and other painful parts are sometimes tender, yet in many cases there is no tenderness, though the pain is severe enough to prevent sleep. Captains Drummond and Urwick have found tender areas, ill defined, in the skin of the legs, and in several cases hyperaesthetic zones corresponding to the distribution of one or two of the lower dorsal or lumbar roots. But they have never up to now found either subcutaneous nodules or anaesthetic patches, weakness or wasting of muscles, or tenderness of the nerve trunks, such as occur in true neuritis. The upper limbs are occasionally the site of pain. Backache is very common.

These pains vary from day to day in such a manner as to suggest malingering. Those, however, who have watched the cases are convinced that the complaints are

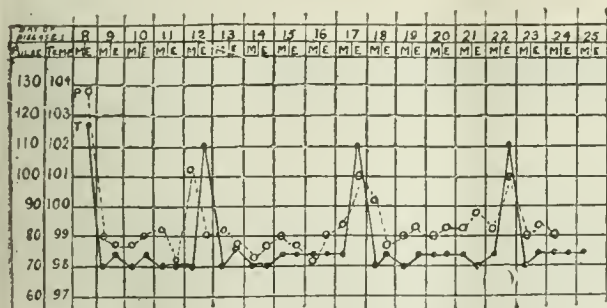


CHART 3.—This chart we owe to Lieut.-Colonel J. Clarke and Captain Parr. The case was seen by one of us in consultation, but is not of our series. It was typical. The patient felt quite well during the intervals, except for rather persistent headache. The remarkable character of the chart led to careful observation by Captain Parr and the sister in charge, who can vouch for its accuracy.

genuine. As examples of their fleeting character, two cases may be quoted:

Case 6.

- 1st day, headache and pain in loins and thighs.
- 2nd day, pain in loins, thighs, knees, and calves.
- 18th day, pain in knees.
- 21st day, pain in thighs and knees.
- 33rd day, pain in legs (not shins).
- 42nd day, pain in legs and back.
- 56th day, pain in calves and back.

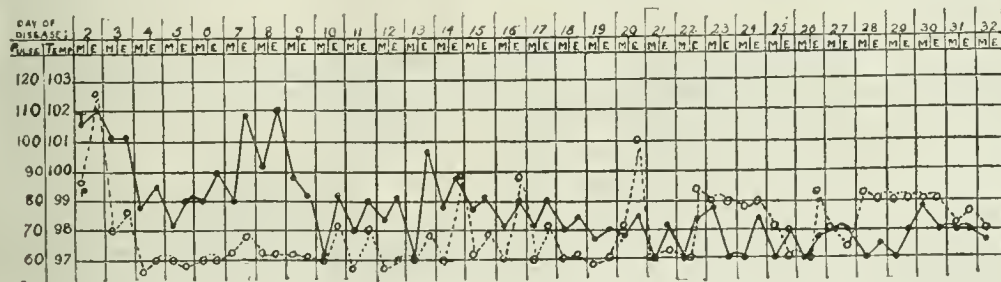


CHART 4.

Case 31.

- 1st day, headache and pains in the abdomen, shins, and knees.
- 8th day, no pain.
- 12th day, pains in left side of chest (pulse normal).
- 15th day, no pain.
- 16th day, pain in left side of chest and shins.
- 19-26th day, no pain.
- 30th day, pain in shins.
- 34th day, pain round loins.
- 39th day, pain in back.

5. The *respiratory* system has been unaffected in this series of cases. The climate in this part of France is, however, extremely wet, and coryza and bronchitis are rife for a great part of the year. At such times patients with trench fever often have coryza and bronchitis. But they seem no part of the disease itself.

6. The *tongue* cleans and the appetite returns in a few days. Constipation is common.

7. There has been no *renal* affection in this series except in a few cases, the transient albuminuria mentioned above.

8. *Herpes* about the lips is not uncommon. In a considerable number of cases, in which there was no suspicion of enteric, small erythematous spots have been found, roundish in outline, level with the surface, and fading on pressure. One of the patients in whom these spots were seen had never been inoculated against enteric, but showed no rise in agglutinations, and gave no result to cultures of blood, urine, or faeces. It is rare to meet with a man who has not been inoculated, and such an example is conclusive.

Similar spots have been found in cases admitted for slight surgical ailments without pyrexia. These spots sometimes occur with relapses of the fever. A subsequent report will furnish further details on these spots.

To a further communication is also left the full account of the bacteriological examinations, and of certain other clinical symptoms.

Event.

Of the total number 32 were discharged to duty, of which 21 were in hospital over five weeks, and the remainder were evacuated to the base. Fourteen were evacuated rather early because of pressure on the hospital accommodation. Nineteen were evacuated for tachycardia, of whom 10 had dilatation of the heart. Four others had dilatation without tachycardia. Five had fever still continuing after thirty days or more of illness.

CLASS B.

In this class were placed (a) those cases in which there was only one short initial bout of fever, lasting under six days, and (b) those cases in which the illness was not observed or recorded during the first days and showed no definite relapses or high fever, but was diagnosed as P.U.O. The total number is 27.

It has sometimes been stated that there are cases in which the temperature never rises above 100° F. even at the first, but remains slightly febrile for many weeks, and that this class of cases is marked by unusually severe pain. Some have even coined the name "shin fever" for cases so described. A long low fever not infrequently occurs after the regular relapses of Class A, such as is

illustrated in Chart 6. It remained to be seen whether this ever occurs without an initial bout.

There are 9 cases out of the 27 in which no initial bout is known, but in four of these the patient was not seen till the third day, two were seen on the fourth day, one on the fifth (an officer who said his temperature had been 101° F.), and two later. So that in none could it be said that there had not been an initial rise. The remaining 18 cases all showed a definite initial fever.

There is therefore no evidence of a prolonged low fever without an initial bout.

On the other hand, while some cases have both a persistent fever and persistent pains, the two do not by any

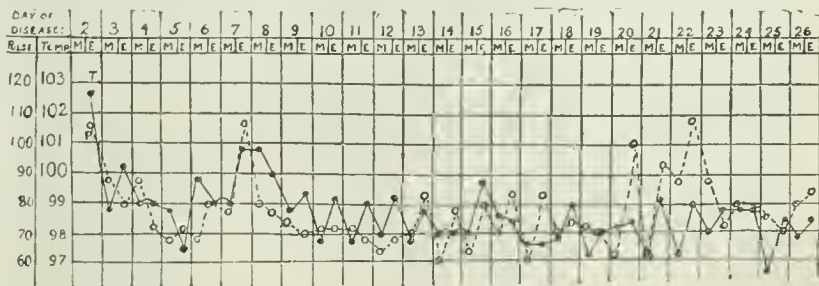


CHART 5.

means always coincide. The case illustrated in Chart 6 had pains for at least seven weeks, but the preceding case in the series (A 1, 32), though showing a very similar chart, had but slight pain. In the present class, No. 16 shows a chart like Chart 6, but had no pain after the tenth day; while No. 22, though hardly ever above normal

after the second day, complained of pain for forty-nine days.

It is not necessary to record minutely the symptoms of this class. In the absence of prodromal symptoms, the

Reference will be made to this in a subsequent communication.

CLASS C.

This consists of 52 cases in which the initial fever is prolonged.

Previous History.—P.U.O. in 4 cases, malaria in 2 cases.

Immediate Antecedents.—The cases occurred in all situations, as in Class A. Lice within the last twenty days are denied by 7 cases, mosquito bites were found in 10 cases, and 13 other patients had noticed mosquitos.

Prodromal Symptoms.—Slight symptoms were present

in 8 cases before the onset of the fever.

Onset.—Sudden in all but 8 cases.

Initial Symptoms.—Headache was again invariable, and was usually frontal. Shivering and giddiness were as common, and the same weakness of the legs was observed. Pains in the back and lower limbs were again common. Vomiting took place in 14 cases during the first two or three days, and diarrhoea in four. There was sore throat in seven.

On Admission.

The symptoms were practically indistinguishable from those occurring in Class A.

Course and Progress.

The cardinal point of this class is that the illness begins with a prolonged fever. This varies greatly both in duration and character. In 19 cases it lasted

from six to nine days inclusive; in 20 cases it lasted from ten to fourteen days inclusive; and in 13 cases it was still more prolonged.

In some cases the chart has a curve that is roughly uniform, reaching its highest point about the middle (the hog-backed form, Chart 8). Some have their highest point at the beginning, and descend regularly (Chart 9). Some intermit for half a day or so, usually between the second and seventh days. And some recall the irregular relapses of Class A 2. As such cases should always be

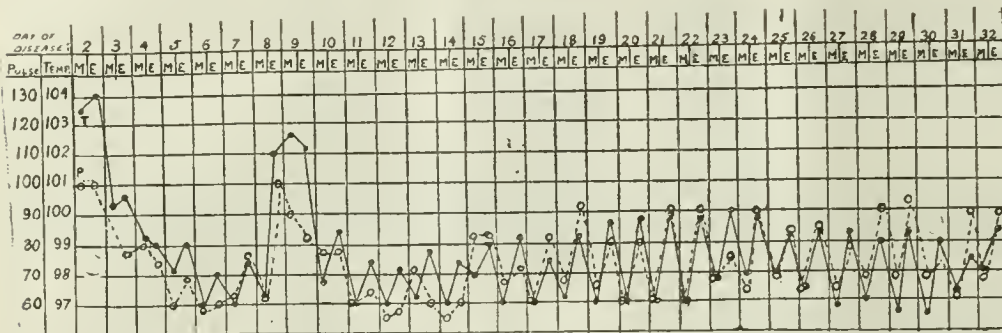


CHART 6.—The temperature remained at the same level (99–100°) until the sixtieth day, when the patient was evacuated. There was no local condition to account for it.

sudden onset, the initial symptoms, and the character of the pains, it does not differ from Class A, but, as might be anticipated from the absence of relapse, there is a considerable proportion of cases in which the pains soon disappear.

Of 18 cases available the initial fever lasted in 2 cases only one day, in 4 cases two days, and in 4 cases possibly five days. Of 7 cases in which the first day's temperature was known, 6 showed the acme on the first day and 1 case on the second day. In 1 case the temperature reached 106° on the first day and was normal by the morning of the third.

There was a transient trace of albumin in the urine of 2 cases.

The spleen was palpable in 7 cases.

Tachycardia was severe in 13 cases, but in all save one it occurred after the patient had got up. These patients were ordered out of bed earlier than the relapsing class, as they seemed to have shaken off their fever. The increased proportion of tachycardia was probably a result of this. The single exception had a rapid pulse when admitted and was of the type that Lewis has particularly associated with tachycardia. One patient, on the other hand, had an unusually slow pulse. On five days it was registered between 50 and 60, and on four days it was counted at 48. He was in bed throughout, and though this temperature never rose above 99° after the fifth day, he suffered much with pain until the twenty-seventh day, when he was sent to the base.

Of the whole number, 16 were discharged to duty.

On the whole, these cases are probably to be regarded as pathologically akin to Class A, but without relapse. There seems no reason why, if one patient has four or more relapses, another only one, there may not be some who will have none. If it be granted that these patients are infected by some poison against which they produce an antibody, it may be possible for some to form this much more quickly than others.

This seems more reasonable than to link them with the prolonged initial fevers of Class C, next to be described. But there is a great difficulty in excluding influenza.

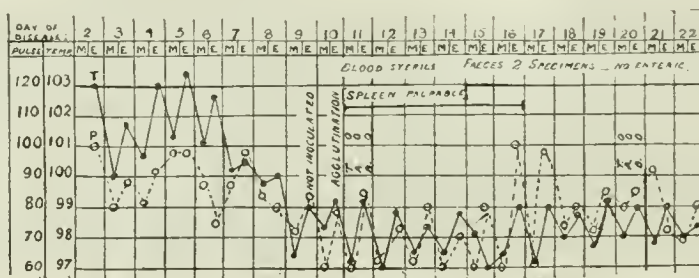


CHART 8.

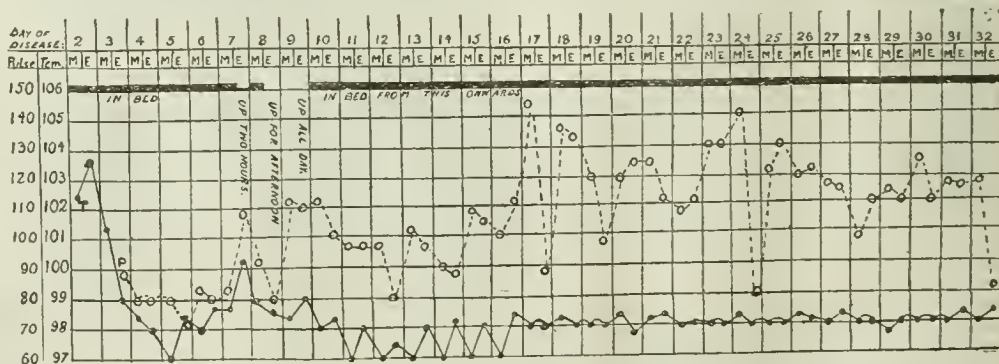


CHART 7.—Evacuated in same condition on thirty-fifth day.

suspected of enteric, the cultural and agglutinative tests have been added to these charts.

This initial fever is often followed by a period of normal or subnormal temperature (13 cases), but in some there is no such normal period and the temperature remains irregular for a long time, and in a third group a normal

period is followed by bouts of irregular fever somewhat recalling Class A 2.

The pulse usually follows the temperature in this class as in Class A, but there were 13 cases in which

in all but one. In that case the urine did not clear till the twenty-fourth day, but at no time contained casts.

Of the whole 52 cases, 22 were discharged to duty. The remainder were evacuated.

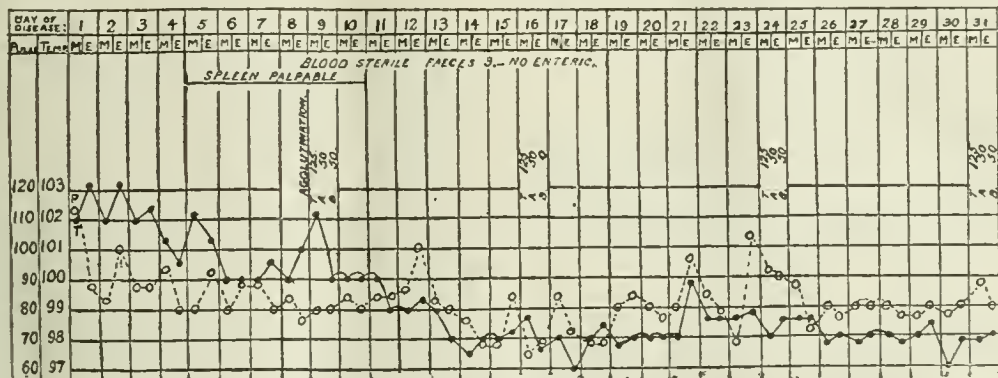


CHART 9.

It remained at about 90, and in 2 it was very irregular throughout.

Tachycardia supervened in a severe form in 16 cases, and was the cause of most of the evacuations to the base. It usually began in the third week. Ten patients had not been out of bed when the condition set in. In several cases tachycardia lasted until the fiftieth day or longer, though the patients were kept in bed. Fourteen cases were sent to the base on this account. Dilatation of the heart was noticed in 14 cases.

The situation and character of the pains do not differ from those of Class A.

Splenic enlargement was found by palpation in 22 cases. In two patients, of which one had had malaria, it was palpable throughout the stay in hospital. Albuminuria to a very slight degree was found in 8 cases. It was transient

CONCLUSIONS.

1. There are three forms of fever of unknown origin (P.U.O.) now prevalent: the relapsing (trench fever), the single short initial bout, and the prolonged initial fever.

2. These three are indistinguishable from one another by any other symptoms than the course of the pyrexia.

3. All exhibit similar pains, all produce enlargement of the spleen, none show intestinal or renal symptoms of any importance, and all are apt to produce tachycardia.

REFERENCES.

- ¹ Grabam: *Lancet*, September 25th, 1915. ² Hunt and Rankin: *Ibid.*, November 20th, 1915. ³ McNee, Brunt and Renshaw: *BRITISH MEDICAL JOURNAL*, February 12th, 1916. ⁴ Hurst: *Lancet*, October 14th, 1916. ⁵ Pappenheimer, Vermilye and Mueller: *BRITISH MEDICAL JOURNAL*, October 13th, 1917; and Pappenheimer: *Ibid.*, October 27th, 1917. ⁶ Patterson: *Ibid.*, September 29th, 1917. ⁷ Nankivell and Sandell: *Lancet*, November 3rd, 1917. ⁸ Dimond: *Ibid.*, September 8th, 1917.

THE MESOPOTAMIA DISPATCH.

APRIL-SEPTEMBER, 1917.

THE dispatch of Lieutenant-General Sir Stanley Maude, K.C.B., Commanding-in-Chief, Mesopotamian Expeditionary Force, dated October 15th, 1917, for the period April 1st to September 30th, was published in the *London Gazette* on January 10th.¹

During the five months ending April there had been continuous fighting, and during that month the enemy was driven back on divergent lines with the capture of 3,000 prisoners, 17 guns, and a considerable quantity of rolling stock and booty. All objectives had been secured, but the increasing heat rendered it necessary to redistribute the troops for the hot weather, and to make every possible provision to guard against the trying hot period approaching. The bulk of the troops were withdrawn into reserve and distributed in suitable camps along the river banks, where they could obtain the benefit of such breezes as blew, and where a liberal supply of water for drinking, bathing, and washing was obtainable. The heat was intense during the later part of June, in July, and at the beginning of August; consequently movements could not be undertaken by either side without grave risk of incurring substantial casualties from heat-stroke and heat exhaustion. The troops enjoyed a well-earned respite during the five months May to September. Sports, which are so essential to the well-being of the soldier, especially when temporarily inactive in a military sense, were freely indulged in, with beneficial results to the health and future fitness of the army for service in the field. Minor operations were, however, carried out during May, June, and July, and on July 8th Sinn El Zibban, on the Euphrates, was occupied. A further advance was interrupted by a blinding sand storm and a heat wave.

Active operations on the Euphrates were resumed on September 26th, and Ramadie was entered on September 29th, the Turkish commander and his staff being captured. During these operations the heat by day was considerable, and as they were conducted at some distance from the

river they were only rendered possible by the excellence of the arrangements for water supply. The captures included 3,454 prisoners, of whom 145 were officers, 13 guns, 12 machine guns, 2 armed launches, 2 barges, and large quantities of arms, ammunition, equipment, and stores. The dispatch contains the following reference to medical arrangements. Unfortunately before it could be received Sir Stanley Maude had himself succumbed to cholera.

The health of the troops during the summer months has been uniformly satisfactory, and many of the diseases from which we suffered in previous years—such as cholera, enteric fever, and scurvy—were either non-existent or negligible in their extent. This successful result was partly attributable to the untiring work of the officers employed in the bacteriological laboratories, without whose valuable assistance the difficulty of dealing with the epidemic diseases would have been considerably increased. But, although better conditions as regards accommodation and increased facilities for combating the heat resulted generally in a far lower sick-rate, an abnormal heat wave which swept over the area in July was responsible for a heavy casualty list. During this time the personnel of the medical services were severely taxed, but they resolutely and successfully responded to the calls made upon them. All ranks redoubled their exertions as the situation became more difficult, and the unremitting labours of the nursing sisters, many of whom suffered in health themselves, were worthy of the high record for devotion to duty which the nursing service has always maintained. The very practical assistance rendered by the British Red Cross Society and Order of St. John during this trying period was typical of the valuable services so consistently rendered by that organization.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died.

SURGEON E. Z. STIRRETT, R.C.N.

Surgeon Ernest Zavitz Stirrett, Royal Canadian Navy, whose death occurred in Toronto on June 22nd last, was born at Port Huron, Michigan, in 1889. He was educated at Toronto, and graduated from the university there in 1915. Soon after the outbreak of war he offered his services to the military authorities, and obtained a commission in the R.A.M.C. A few months later he was appointed ship's

¹ The preceding dispatch was noted in the *BRITISH MEDICAL JOURNAL*, July 14th, 1917, p. 60.

surgeon on one of the Allan Line steamers, and soon afterwards was transferred to duty on transports. He was subsequently appointed surgeon to the Patrol Fleet of the Royal Canadian Navy. His health, however, had been failing for some time, and at last he was obliged to give up his duties and return to his parents' home in Toronto, where he died a few weeks later at the age of 28 years.

ARMY.

Died on Service.

CAPTAIN R. W. CUNNINGHAM, A.A.M.C.

Captain Robert Wiseman Cunningham, Australian Army Medical Corps, died suddenly at Latrobe, Tasmania, on December 10th. He was the elder son of the late Surgeon-Major R. W. Cunningham, I.M.S., and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1916.

CAPTAIN S. H. MORRIS, R.A.M.C.

Captain Sydney Herbert Morris, R.A.M.C., died in the London Hospital on January 11th, aged 42. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1899. After filling the posts of house-surgeon at the Seamen's Hospital, Greenwich, and at the Poplar Hospital, he went to South Africa, where he served as district surgeon, and later as acting principal medical officer to the British South African Administration, and was also a Justice of the Peace for North-East Rhodesia. On his return to England he went into practice at Frizington, in Cumberland, where he held the appointment of parochial medical officer and public vaccinator, certifying factory surgeon, and medical officer to the Post Office, till he took a temporary commission in the R.A.M.C.

CAPTAIN S. G. SCOTT, R.A.M.C.

Captain Samuel Godfrey Scott, R.A.M.C., died on January 6th in a casualty clearing station, on active service, of pneumonia, aged 42. He was the eldest son of the late Canon S. G. Scott, and was educated at St. Thomas's Hospital and at Oxford, where he graduated B.A. in 1897, and M.A., M.B., and B.Ch. in 1902. After serving as clinical assistant in the throat department at St. Thomas's, and as demonstrator of pathology in Leeds University, he returned to Oxford, where he held the post of demonstrator of histology to the university, till he took a temporary commission in the R.A.M.C. He was the author of numerous contributions to the medical and scientific journals.

CAPTAIN C. G. SHERLOCK, R.A.M.C.

Captain Charles Gregg Sherlock, who is reported as having died on service in Bagdad on November 14th, 1917, was the eldest son of Mr. Henry Gregg Sherlock, F.R.C.S.I., Professor of Dentistry at the Royal College of Surgeons, Ireland. He received his medical education at the School of Physic, Trinity College, Dublin, took the degree of M.D. in 1907, and joined the R.A.M.C. in August, 1908. He was in India when war broke out, and was sent to Mesopotamia in May, 1917. As a student Captain Sherlock played for the University Hockey Team. He was the first medical officer attached to the medical unit of the Dublin University O.T.C., and much of the success of this unit, which has sent so many men into the R.A.M.C., was, in its early days, due to his energy, popularity, and ability. Captain Sherlock was present at the successful T.C.D. dinner organized at Bagdad last September, which was honoured by the presence of the late General Mande. At the time of his death Captain Sherlock was 35 years of age.

Lost at Sea.

DR. H. L. BURGESS, W.A.M.S.

Dr. Harold Lynch Burgess, of the West African Medical Staff, was recently lost at sea. He was educated at the London Hospital, where he gained a prize for surgery in 1898, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1903, and the certificate of the London School of Tropical Medicine in 1905. After filling the posts of house-surgeon and casualty officer at the North-East London Hospital for Children he joined the West African Medical Staff. In 1913 he was seconded for special service at the Colonial Office, and had since served as medical secretary to the Advisory Medical and Sanitary Commission for Tropical Africa, and to the West Africa Yellow Fever Commission.

Wounded.

Captain J. G. Hill, R.A.M.C. (T.F.).

Lieutenant G. H. G. Davie, R.A.M.C. (temporary).

Lieutenant J. W. Lindsay, R.A.M.C. (temporary).

Prisoners of War.

Lieut.-Colonel H. C. D. Rankin, R.A.M.C.

Captain H. D. Clementi-Smith, R.A.M.C. (T.F.).

Captain C. F. Dillon-Kelly, R.A.M.C. (temporary).

Captain H. H. Fairfax, R.A.M.C. (temporary).

Captain E. F. L. Nash, R.A.M.C. (S.R.).

Captain F. B. Ryan, R.A.M.C. (temporary).

Lieutenant A. S. Gariwal, I.M.S.

Lieutenant T. F. Ryan, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Cromie, W. H., LL.B., Captain, late R.E., son of the late Dr. Robert Cromie, J.P., of Clough, co. Down, died on January 1st.

Postlethwaite, Christopher J., Lieutenant Suffolk Regiment, son of Dr. Postlethwaite of Breamton, Devon, died in a casualty clearing station of wounds on January 9th.

Phillips, George Hugh, Flight Sub-Lieutenant, R.N.A.S., drowned on patrol service in Italy on January 7th, aged 18 years. He was the only son of Dr. Percy C. Phillips of Abridge, Essex, and joined the R.N.A.S. in April, 1917.

MEDICAL STUDENTS.

Cameron, Robert, Lieutenant Royal Flying Corps, killed recently, aged 22. He was the only surviving son of Archibald Cameron of Langside, Glasgow, and was a medical student at Glasgow until the beginning of the war. He got a commission in the Cameronians (Scottish Rifles) on April 29th, 1915, and subsequently transferred to the R.F.C.

Sprott, Douglas A., Lieutenant Border Regiment, died in Mesopotamia on January 4th from acute yellow atrophy of the liver, aged 24. He was the eldest son of Dr. Sprott of Appleby, and was educated at Bedford College and Edinburgh University, where he was studying for the medical profession; at the outbreak of the war he received a commission in the Border Regiment, and went to Burma in October, 1914, and as machine gun instructor travelled over India and Burma. Three months ago he was sent to Mesopotamia as second in command of a machine gun corps.

Many medical men in this country will desire to express to Dr. Henri Triboulet, the Paris physician through whom the visit of the French doctors to this country in 1908 was arranged, their sympathy with him in the loss of his son, a distinguished officer of the French Air Service. Adjutant Gilbert Triboulet had engaged in forty-eight air combats, had brought down three enemy airplanes and three captive balloons, and had received the Military Medal and the Croix de Guerre with four bars. He was killed on patrol duty on December 11th, 1917, aged 22.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL supplement to the *London Gazette*, issued on January 9th, gave the following particulars of the acts of conspicuous gallantry and devotion to duty for which the decorations announced in our issue of October 6th, 1917, were awarded:

Bar to the Distinguished Service Order.

Major James Samuel Ycaman Rogers, D.S.O., R.A.M.C.

Throughout several days' operations he attended to the wounded in the open under continuous heavy fire. Though all his stretcher-bearers were casualties, with utter disregard of danger he bound up the wounded and superintended their removal. His gallantry was most marked. (D.S.O. gazetted January 14th, 1918.)

Distinguished Service Order.

Major (temporary Lieut.-Colonel) Edwin Charles Montgomery-Smith, R.A.M.C.

For conspicuous gallantry and devotion to duty in the supervision of the arrangements for the evacuation of the wounded. By a systematic study of the ground, clever selection of aid and relay posts and routes, he evacuated a large number of casualties during the operations. He worked untiringly, regardless of his personal safety, visiting all the advanced aid posts. His work was invaluable.

Captain (acting Lieut.-Colonel) John Darling Bowie, M.B., R.A.M.C.

He worked continuously for thirty-six hours under heavy shell fire, supervising the removal of the wounded from the front line, and by his energetic example and personal assistance all casualties were cleared within a short time after the operations were completed. His disregard of danger and untiring devotion to duty had a splendid effect upon his men.

Temporary Captain John Boyd Orr, M.C., M.B., R.A.M.C.

He worked unceasingly for forty-eight hours without an aid post and under an almost continuous barrage, attending to the wounded of three units of his brigade. He found time to visit the front line twice and attended to numerous cases under machine gun and shell fire, and, although twice buried and rendered unconscious for two

or three hours, he remained at duty until his brigade was relieved, displaying devotion and personal courage which were worthy of the highest praise. His gallant conduct has been brought to notice on more than one occasion by officers commanding units to whose wounded he had attended.

Temporary Captain David Lees, M.B., R.A.M.C.

He passed through an intense barrage in order to attend to the wounded who were lying exposed to heavy fire of every description. Single-headed and under heavy shelling, he dressed the wounds of an officer, a sergeant, and a private, and carried each of them in turn to a place of comparative safety. To do this he had to pass through the enemy's barrage no less than four times, but with complete disregard for his personal safety he went forward a fifth time to attend to others, inspiring all ranks by his own splendid example of fearlessness and devotion.

Temporary Captain Ivan Clarkson Maclean, M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty in clearing the wounded. He took his stretcher-bearers well in advance of our forward positions and behaved with the most exemplary courage and devotion throughout, sparing no efforts to collect the wounded men. After his battalion was relieved he continued to work under the heaviest fire for another twenty-four hours, and was severely wounded on his way back after all the cases had been cleared. He set a splendid example of energy and contempt of danger.

Temporary Captain Hnbert Arnold Pallant, M.C., R.A.M.C.

Hearing that a number of men belonging to another battalion were on the enemy bank of a river, and unable to cross it owing to the bridge being destroyed, and to their being apparently unable to swim, he hurried to the scene, swam the river fully clothed, and induced the men to enter the water and cross with the aid of a rope. The most exhausted one he personally conveyed across. During this time the enemy were continually shelling both the river and the banks. He set a splendid example of energy and devotion to duty.

Temporary Captain Gwilym David Watkins, R.A.M.C.

When cries for help were heard coming from a tank which had been abandoned in an isolated position in the outpost line he went two hundred yards through a heavy barrage and rescued a badly wounded man from the tank. He dressed his wounds and carried him under heavy fire towards safety, until, being completely exhausted, he was compelled to put the man in a shell hole and go for assistance. He returned with another officer, and, still under heavy fire, brought the man to safety. Throughout six days he displayed the same indomitable courage and extraordinary devotion to duty, constantly going into the open, tending the wounded day and night. He undoubtedly saved many lives.

Bar to the Military Cross.

Captain William Barnsley Allen, V.C., M.C., R.A.M.C.

During an intense bombardment of a town with high explosive and gas shells, he left the advance dressing station to search for wounded men. Hearing that there were some in a remote part of the town, he proceeded there, collected them, and supervised their removal to the dressing station. On his return, bearing that a party under another officer had not come in, he was on the point of starting out again to look for them when they appeared. Although seriously gassed he continued to perform his duties with the greatest devotion and gallantry, until eventually evacuated to the casualty clearing station. (M.C. gazetted September 26th, 1916.)

Captain Hugh Roger Partridge, M.C., R.A.M.C.

During an intense bombardment of a town with high explosive and gas shells he led search parties into different parts of the town, collecting the wounded and placing them in a cellar, where he attended to them. Later, when the bombardment subsided, he superintended their removal to the advanced dressing station. On his return to the dressing station he continued to perform his duties, although his eyes were so swollen by gas that he was obliged to keep them open with his fingers. He undoubtedly saved several lives by his splendid devotion and total disregard of personal danger. He was eventually evacuated to the casualty clearing station. (M.C. gazetted October 26th, 1917.)

Captain John Dover Proud, M.C., R.A.M.C. (S.R.).

He worked for five days in charge of bearers practically without rest, personally assisting to evacuate stretcher cases under the heaviest shell fire, thus setting an example of gallantry and devotion to duty under most arduous circumstances. (M.C. gazetted June 18th, 1917.)

Temporary Captain Robert Inkerman Harris, M.C., M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty under exceptional circumstances. When his corps main dressing station was shelled on three separate occasions, whilst crowded with patients, he supervised and directed the collection and evacuation of the wounded to a place of safety. This was quickly done owing to his coolness, promptitude, and disregard of personal danger, which did away with all confusion and reduced the casualties to a minimum. (M.C. gazetted November 14th, 1916.)

Temporary Captain Wilfred McFarlane, M.C., M.B., R.A.M.C.

He carried on his work for five days under very heavy shell fire. His coolness under fire, his absolute disregard of danger, and his cheerfulness under all circumstances set a fine example to all ranks, and contributed greatly to the successful evacuation of the wounded. (M.C. gazetted December 11th, 1916.)

Temporary Lieutenant (Temporary Captain) Lancelot Gerard Bourdillon, D.S.O., M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty on numerous occasions. He worked continuously for many days, organizing stretcher-bearers and forming relay posts. This work was carried out under very heavy artillery and machine gun fire, during which he showed an absolute disregard of personal danger and set a splendid example to all the officers and men employed on stretcher work. It was largely due to his devotion that many lives were saved. (M.C. gazetted January 14th, 1916.)

Military Cross.

Captain Cuthbert Delavel Shatto Agassiz, M.B., R.A.M.C.

He worked continuously for thirty hours organizing his stretcher-bearers and collecting wounded from an area which was being constantly and heavily shelled. On three distinct occasions he had to go through the hostile barrage in order to do this, and, although working the whole time over marshy and waterlogged ground, he

kept such control over his men by his personal example of courage and coolness under most dangerous conditions that the wounded were successfully and rapidly evacuated.

Captain Arthur Cyril Bateman, R.A.M.C. (S.R.).

For conspicuous gallantry and devotion to duty in repeatedly going round the front line and attending to the wounded, who had been lying out in some cases for two days. Although continuously exposed to hostile sniping and machine gun fire, he displayed the utmost disregard of danger.

Captain Kenneth Biggs, R.A.M.C. (S.R.).

For conspicuous gallantry and devotion to duty in leading and organizing his stretcher-bearers, under intense fire of every description, in such a manner that our wounded were rapidly evacuated. He worked unceasingly in the open for twenty-four hours, until he was severely wounded, by his admirable courage and determination saving many lives.

Captain Ribton Gore Blair, M.B., R.A.M.C. (S.R.).

When his battery was heavily shelled, and the detachment of one gun had been either killed or wounded, he immediately went to the emplacement and dressed the wounded under heavy fire. It was owing to his gallant and fearless conduct on this occasion that the lives of many men were saved.

Captain Francis Dawson Blandy, M.D., R.A.M.C.

He worked continuously for thirty-six hours under heavy shell fire and adverse conditions of weather, not only collecting the wounded of his own brigade, but also those of another, who were lying in an advanced position. To do this he collected all the bearer parties that he could find, and personally led them to the spots under heavy shell fire. By his gallant conduct in going forward again and again, regardless of his personal safety, he undoubtedly saved many lives.

Captain Thomas Frederick Corkill, R.A.M.C. (S.R.).

For conspicuous gallantry and devotion to duty when in charge of a forward bearer party. He worked continually for four days under heavy shell fire, evacuating the wounded and setting his men a magnificent example of courage and disregard of danger. He personally led parties beyond the advanced aid post to collect the wounded, and his great zeal and energy enabled him to overcome very serious transport difficulties.

Captain William Ernest FitzGerald, M.B., R.A.M.C.

In attending to wounded and gassed men during a heavy gas shell bombardment. To do so he had to remove his mask, although he knew the risk, and was badly gassed in consequence. Although suffering badly from the gas, he remained on duty until the following day, when he was ordered to the dressing station, having displayed magnificent pluck and devotion to duty.

Captain John Canute Gordon Glassford, Australian Army Medical Corps.

For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station. He continued to work calmly for several hours under violent and accurate hostile fire, during which his dug-out was three times hit and considerably damaged. Throughout the operations he displayed a magnificent example of gallantry and devotion to duty and inspired all under him with a like disregard of personal risk. Much of his work was done in the open and under very trying and dangerous conditions, but the cheerfulness and imperturbability which he maintained in the face of danger were of the greatest assistance in the speedy evacuation of the wounded.

Captain Herbert Myer Goldstein, New Zealand Medical Corps.

For conspicuous gallantry and devotion to duty in establishing a forward aid post in our advanced lines over a mile in front of his regimental aid post. By his courageous decision to remain there in spite of heavy shelling, and his great gallantry and devotion in attending to the wounded, all the casualties were evacuated before the battalion was relieved.

Captain Gilbert William Rogers, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in attending to the wounded under heavy shell fire. He personally supervised the evacuation of the wounded, and by his ability and utter disregard of his own personal safety was able to ensure the work being rapidly and successfully carried out. He set a splendid example to all ranks.

Captain James Ellis Rusby, R.A.M.C. (S.R.).

For conspicuous gallantry and devotion to duty whilst acting as bearer officer during five days' heavy fighting. He led a party of stretcher-bearers through an intense artillery barrage, inspiring them and giving them courage by his own gallant and fearless example. Several of his men were wounded whilst passing through the barrage, and he stopped to dress them himself, although shells were falling all around. On many occasions he attended the wounded in the open, although exposed to very heavy shelling, very greatly inspiring his men by his personal coolness and disregard of danger.

Captain Herbert Mather Spoor, R.A.M.C.

Under an intense hostile bombardment he dashed out of a cellar, where he was sheltering, and ran across the open to attend to two men who had been wounded in a dug-out. After attending to them, he noticed that the house he had just left was hit, whereupon he ran back again through heavy shell fire to see if his services were required. He displayed splendid gallantry and total disregard of his personal safety.

Captain Robert Alexander Stark, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station under an intense bombardment. He worked steadily for over twelve hours, and, although seriously affected by gas, did not complain, until he finally collapsed from the effects, and was found lying on the ground. He personally supervised the clearing of a thousand cases, and it was largely due to his splendid self-sacrifice and devotion that the complete and successful evacuation of the casualties was effected.

Captain John Stephenson, R.A.M.C. (S.R.).

For conspicuous gallantry and devotion to duty when in charge of stretcher-bearers. He remained in charge of his sector for thirteen days, refusing to be relieved, although his bearers had to be reinforced and the aid post had to constantly change position owing to heavy shell fire. His personal example and gallant leadership were largely responsible for the way in which his bearers stuck to their duty.

(To be continued.)

MENTIONED IN DISPATCHES.

A special Supplement to the *London Gazette* issued on January 12th contains a list of officers, ladies, non-commissioned officers and men mentioned by General Sir Archibald Murray, K.C.B., late Commander-in-Chief Egyptian Expeditionary Force, in accordance with the concluding paragraph of his dispatch dated June 28th, for gallant or distinguished conduct in the field or for other valuable services. The following medical officers are included in the list:

Staff.

Colonels: R. M. Downes, A.A.M.C., H. T. Knaggs, C.M.G., A.M.S., R. H. Luce, C.B., F.R.C.S., V.D.(T.F.Res.), C. J. MacDonald, A.M.S.

Lieut.-Colonel (temporary Colonel) A. E. C. Koble, D.S.O., R.A.M.C.

Major (temporary Lieut.-Colonel) M. W. Cave, A.A.M.C., Captain J. H. Wood, R.A.M.C.

Royal Army Medical Corps.

Lieut.-Colonel E. E. Powell.

Majors (temporary Lieut.-Colonels): R. J. Cahill, A. W. Moore, C. R. White.

Captain (temporary Major) W. W. Greer.

Captains: H. J. L. Barefoot, D. W. Berry, E. D. Gairdner, D.S.O., W. Goldie, H. F. G. Hall, E. B. Hinde, C. W. C. Myles, N. MacInnes, D. J. Marr, J. M. Mitchell, P. J. Moir, A. Rankine, A. B. Sloan, C. F. Searle.

Temporary Captains: R. R. Archibald, J. T. Blesdell, O. Bruce, W. T. Collier, H. Coppock, H. S. de Boer, N. Duggan, J. W. C. Gunn, D. L. Hutton, J. M. Johnston, C. Loddiges, G. Wight.

Temporary Lieutenants: C. Speers, F. J. Waldmeier.

Special List.

Temporary Lieut.-Colonel L. P. Phillips.

Australian Army Medical Corps.

Lieut.-Colonel A. H. Thwaites.

Majors: W. Evans, W. R. C. Mainwaring, E. K. Parry.

New Zealand Medical Corps.

Lieut.-Colonel C. T. H. Newton.

Indian Subordinate Medical Department.

Subassistent Surgeons Kapar Karamchand, and Puroshottam Damodar Mahatekar.

The list also contains the names of 30 warrant, non-commissioned officers and privates of the R.A.M.C., 5 of the A.A.M.C., 1 of the N.Z.M.C., 2 of the I.S.M.D., as well as members of the nursing services.

ORDER OF THE BRITISH EMPIRE.

The name of Colonel Valentine Matthews, V.D., Inspector of Rest Houses, London District, was accidentally omitted from the list of appointments to be Commanders of the Order of the British Empire published last week, p. 67.

FOREIGN DECORATIONS.

Russian decorations have been awarded at various dates to the following medical officers for distinguished services rendered during the course of the campaign:

Order of St. Stanislas.—1st Class: Surgeon-General J. D. Edge, C.B., A.M.S. 2nd Class: Lieut.-Colonel W. W. O. Beveridge, C.B., D.S.O., R.A.M.C.; Temporary Major L. E. Owen, R.A.M.C. 3rd Class (with swords): Temporary Captain T. J. Kelly, M.C., R.A.M.C.

Order of St. Anne.—2nd Class (with swords): Acting Colonel H. Hewetson, D.S.O., R.A.M.C. 3rd Class: Temporary Captain A. H. Spicer, R.A.M.C.

England and Wales.

CHILD WELFARE AND A MINISTRY OF HEALTH.

On January 9th the President of the Local Government Board received a deputation representing the local authorities of England and Wales, which urged that the powers affecting maternity and infant welfare administration now possessed by local authorities in Scotland and Ireland should be extended to England and Wales. It was explained that there was no objection to the proposal for a Ministry of Health, but that if a consolidation of the various Government departments concerned was to be developed into a central authority, this authority ought to be the Local Government Board. Mr. Hayes Fisher, in reply, noted that there was no difference of opinion as to the urgent necessity for saving infant life; it was merely a question of the order of going. Without prejudice to the larger question of setting up a Ministry of Health, he believed that a small bill giving the required powers could be passed without opposition. Many months must elapse before a measure establishing a Ministry of Health could reach the statute book and the organization of such a department could be developed. The Local Government Board was anxious to push forward the prevention and cure

of disease, so that mothers might bring infants into the world without imperilling their own lives or those of their offspring. He believed that, building on the foundations of the Local Government Board, a central co-ordinating health authority could in time be systematized and developed. Dr. Addison, Minister of Reconstruction, who followed, stated that he had now got out a complete statement of the amazing number of Government departments concerned with health questions. The great need was for concentration and consolidation. With a single Minister in charge, the subject in which the deputation was interested would have a far better prospect of being considered on its merits. The Minister's duty would be to think out details of health policy and discuss them with representatives of the local bodies. It was inconceivable that a Ministry of Health could be formed that did not exercise nine-tenths of the functions of the Local Government Board; hence the Board must necessarily be the nucleus. In his opinion a brand-new Ministry was not needed. All that was wanted for the solution of the problem was a little common sense. Dr. Addison concluded by inviting the deputation to select a few of their number to discuss the matter with him.

In the *Times* of the following day appeared a letter from a group of ten members of Parliament, headed by Major Waldorf Astor, advocating the combination and reorganization of existing departments for the setting up of a Ministry of Health, and submitting the heads of a bill for the purpose. Their suggestion is that so soon as the new Ministry has been established by Parliament all the powers of the National Health Insurance Commissions for England and Wales, and all the powers of the Local Government Board should be transferred to it by Order in Council. In the same way the health functions of other departments would be taken over at such times as were found convenient. They propose also that there should be power to transfer from the new Ministry to other departments any functions transferred to it at first for the sake of convenience but found to be unsuitable for a Health Ministry to perform. In other words, the new Ministry would be simultaneously acquiring and shedding powers; this is a clumsy mode of proceeding, but the promoters advise it because they think that by this expedient matters of national health will be discussed on their merits undisturbed by the conflicting claims of rival authorities. Mr. Hayes Fisher immediately objected that such a measure would probably require a considerable amount of parliamentary time which might not be available in the coming session, and urged that a small bill to confer on local authorities the wider powers in regard to infant welfare, for which they unanimously asked, would stand a better chance; but he agreed that there was a good deal to be said in favour of bringing all health questions as far as practicable under one minister. Sir H. Kingsley Wood, of the London Insurance Committee, who has interested himself very much in the establishment of a Ministry of Health, read into the scheme of Major Astor and his friends the suggestion that they desired a Board of Health which would be able effectively to advise the Health Minister and to be a living link with local health administration; he showed himself very anxious to make it plain that such a Ministry would not mean the break up of the useful work of the county councils. His proposal he said would, in fact, concern central administration only, by unifying it, leaving the work of the local councils untouched and unimpaired. Then came Lord George Hamilton, who contended that the necessary preliminary to any local co-ordination of health powers is the abolition of the Poor Law guardians and their artificial areas of administration, and the transfer of their powers to the existing county or borough authorities. He argued that the Poor Law guardians are to a large extent entrusted with the care of the health of the poor, are solely in charge of the administration of the hospitals and infirmaries maintained out of the rates, and have a "singularly efficient staff, whose activities are hopelessly hampered by the existing prejudice against the organization to which they belong." The proposals he adumbrated have, he says, the unanimous approval of the Royal Commission upon the Poor Law, of which he was chairman, although there was difference of opinion as to the exact machinery to be substituted for the system they desired to abolish.

It is stated that the Local Government Subcommittee, of which we believe Sir Donald Maclean is chairman, of the

Committee of Reconstruction under the charge of Dr. Addison, has made a report recommending "the abolition of boards of guardians, a great reform of the Poor Law, and a rearrangement of the medical services of the country." The report, it is stated, was under the consideration of the Poor Law Association on January 17th.

THE LEEDS SCHOOL OF MEDICINE.

The Department of Physiology in the University of Leeds, so ably conducted by Professor de Burgh Birch until his recent retirement after more than thirty years' tenure of his chair, is now about to undergo extension. The work of the teachers of physiology has been divided: Dr. H. S. Raper becomes professor of physiology and biochemistry, and Dr. C. Lovatt Evans has been appointed to a new chair of experimental physiology, or, as it will probably be called, "experimental physiology and experimental pharmacology." It is becoming more and more evident that an increasing contribution to the progress of medicine and surgery is possible through a more detailed study of the chemical processes in health and disease, and the influence upon them of drugs and substances of known chemical composition. An example of this is furnished by the recent investigation of the antiseptic action of many substances containing active chlorine, which was undertaken early in the war by the department of organic chemistry of this university in conjunction with Dr. H. D. Dakin, F.R.S., a former student and member of the staff. These researches led to the introduction of chloramine-T and dichloramine-T, which are widely used in the treatment of war wounds. To carry out efficiently the new schemes increased accommodation will be necessary, chiefly in the form of additional laboratories for research. Considerable additions to the apparatus at present in the Department of Physiology must also be provided. The Council of the University has under consideration also a draft scheme for the extension of the teaching in pathology and bacteriology.

Professor Raper, after being a pupil of the Bradford Technical College, went to the University of Leeds as a student of science in 1899. He had a distinguished career, and during his tenure of an 1851 exhibition scholarship was engaged in research for two years at the Lister Institute and for one year at the University of Strassburg. He graduated M.B., Ch.B. Leeds in 1910, in which year he was appointed lecturer on pathological chemistry at the University of Toronto; in 1913 he became lecturer on physiological chemistry at Leeds. He is now on military service. Professor Lovatt Evans, who is also on military service, began work at Birmingham, but afterwards became a student at University College, London. In 1911 he was elected Sharpey scholar and assistant professor. He graduated D.Sc. in 1913 and took the diplomas of M.R.C.S., L.R.C.P. in 1916. In the previous year he had received the Schäfer prize at University College for the best research work during the three years 1911-14.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1917.

The Local Government Board announces that an Order has been made altering the Public Health (Tuberculosis) Regulations of 1912 and 1916 so as to provide that medical officers of health, instead of furnishing the Army Council with particulars of males between the ages of 16 and 45 years who have been notified as suffering from tuberculosis, shall in future furnish such particulars to the Chief Commissioner of Medical Services at the Ministry of National Service. The object of the Order is to assist the Ministry of National Service, which has taken over the duties of the Army Council with respect to enlistment into the army. The operation of the Order is limited to the duration of the present war. Notifications should be forwarded by post in a sealed envelope, which need not be stamped, and marked "O.H.M.S."

AN AMATEUR SYPHILOLOGIST.

At a meeting of the Denbighshire Insurance Committee, on January 2nd, of which a report appears in the *North Wales Guardian*, Dr. E. Moss, chairman of the Local Medical and Panel Committee, brought forward the following matter: Dr. Richard Evans, of Wrexham, attended last year a female patient whom he certified to be suffering from rheumatism. She was an insured person, and as such was reported by the sick visitor for being out late at night, for which offence her sickness benefit was suspended for a time. Subsequently she was seen by a woman supervisor of the approved society, who coolly reported "that the patient is supposed to be

suffering from rheumatism, as appears on the medical certificate, but I find that she is suffering from syphilis." This amateur diagnostician gave the date at which symptoms of "syphilis" appeared, and added that she had examined the breast and upper arms of the patient. Meanwhile, Dr. Evans was attending the patient regularly. The approved society next asked a medical referee to see the insured person. The referee, who was furnished with a copy of the supervisor's report, examined the patient and formed the opinion that she was not suffering from syphilis, thus confirming the view taken by Dr. Evans. In the course of a long correspondence between Dr. Evans and the society the latter expressed regret, but offered no apology, nor any guarantee against the recurrence of such an incident. Indeed, they argued that if Dr. Evans had stated in his first certificate what he did in his later ones—namely, that the patient was also suffering from psoriasis, the whole trouble would have been avoided. Dr. Moss submitted that there was ample evidence to show that the supervisor had violated the spirit of the society's instructions, while the society itself was guilty of want of courtesy towards Dr. Evans. The chairman said the case was a very regrettable one, but for the time being the only thing for the Insurance Committee to do would be to refer the matter to the Welsh Insurance Commissioners. This was agreed to.

Ireland.

At a meeting held at the Royal College of Surgeons on January 11th, when Mr. J. B. Story, vice-president of the College, was in the chair, a presentation was made by leading members of the medical profession in Dublin to Surgeon-General Sir Richard Ford, K.C.M.G., who has just relinquished the appointment of D.D.M.S. Irish Command. The presentation took the form of a replica of the famous Ardagh chalice. An address was read by the honorary secretary, and Sir Richard Ford replied. Lady Ford was presented with a silver chain bag and a blotter illuminated with the R.A.M.C. badge and other devices, the work of a wounded soldier in one of the Dublin hospitals.

GRADED SCALES OF SALARIES FOR POOR LAW MEDICAL OFFICERS.

Acting on the suggestions of the Local Government Board (Ireland) the Cork board of guardians has modified the scale of graded salaries it passed last August for Poor Law medical officers. The amended scale provides an initial salary for a dispensary medical officer of £175 a year, made up of £150 for dispensary duties and £25 for duties as medical officer of health for the district. There are annual increments of £4 until a maximum of £210 a year is reached in the salaries of dispensary doctors, and an increment of £1 annually until a maximum of £40 is reached in their salaries as medical officers of health of their dispensary districts. The present scale adopted by the Cork guardians is a very substantial improvement on the scale they fixed some dozen years ago.

The Mallow board of guardians has amended its scale, and now the initial salary is £140 a year for dispensary doctors, with triennial increments of £10 until a maximum of £200 a year is reached; the scale is made to apply retrospectively. On December 29th we mentioned that the Newcastle West (co. Limerick) board of guardians having rescinded, by a majority, a recent increase, the Poor Law medical officers at once sent in their resignations. The guardians have now resolved to offer an initial scale of £130 with triennial increments of £10 until a maximum of £180 is reached, the scale to apply retrospectively. This is undoubtedly a tribute to the vigorous action taken by the Newcastle doctors; it is, however, stated that they decline to accept the scale offered by the guardians until a further substantial improvement is made.

THE RED CROSS.

The result of the appeal made in September, 1915, by the *Irish Times* to raise £50,000 for the Red Cross has been gifts amounting on January 5th to £51,834. Very energetic means were taken to arouse interest in the fund. A house to house collection of copper and brass was made in Dublin, and a jewellery collection yielded £2,000. During the Christmas holidays all the Irish golf clubs had competitions, the proceeds of which were given to the fund, and collections were made in the churches on the first Sunday in 1917. All sections of the community have responded well, and it is hoped that when the fund is closed at the end of January it will amount to £60,000.

Correspondence.

THE VALUE OF THE SANATORIUM.

SIR.—Whilst the numerous letters, reports, and articles in the medical press were dealing with the question of the value of sanatorium treatment for the cases treated, the conclusions formed had their appropriate value; but when we find the field widened and these conclusions embodied in a statement dealing with the incidence of tuberculosis, it seems desirable to draw attention to the realities of the subject.

The problem of dealing with tuberculosis is many-sided, but, put briefly, the objects are to restore the health and working capacity of the affected person as far as possible, to limit infection and protect the general population. For these purposes many measures are necessary, and the first is to have adequate knowledge of the presence of disease. This is provided for by the tuberculosis notification order, and from the information gained in its observance all effective procedures must issue. Upon the action taken depends the efficacy of any scheme dealing with tuberculosis, and the provisions made should enable the tuberculosis officer to keep in touch with all the notified cases in a district, in order that he may direct the action referred to in such a way that the best interests of the patient and the community are served.

The success of a scheme depends upon the completeness with which this is effected. To those of us who were engaged in this work before the coming of the Insurance Act the provisions there made gave a welcome addition to this necessary control, and brought in the very valuable clinical information supplied by the panel practitioners. But there were unfortunate features of the campaign that preceded the passing of the bill, and a great deal too much was made of the sanatorium treatment clauses. Reckless statements, promises which were obviously impossible of fulfilment, and a general raising of hopes were to be noted as part of the political stock-in-trade of the time. There follows now a disappointment which is great in proportion to the ignorance which at the time allowed credence to be given to the statements. And, as some one has blundered, a movement is in danger of being discredited because it could not accomplish the impossible.

Why should it be sanatorium treatment that has failed? It is but an incident in the usual life-history of a case of tuberculosis. Why is it not dispensary treatment that has failed—or domiciliary treatment—under one or other of which most of the medical life of a patient is spent? Let us realize the true facts of the case. What has failed is public realization of the extent to which the country must be prepared to finance the campaign against tuberculosis if its elimination is desired. The nation must be prepared to provide conditions of housing and work that will not directly contribute to the contraction of tubercle. There must be colonies in which the afflicted persons, unfit for the rough-and-tumble of ordinary industry, may reside and work under the most ideal conditions, so that they become a source of production instead of a maintenance charge. There will have to be provided hospital accommodation for the advanced cases on a sufficiently generous scale to alter appreciably the present ratio of institutional to domiciliary deaths. And there should be sanatoriums to fulfil their main functions of inculcating the necessity of a disciplined life and starting the patient with early disease upon the road to recovery of his resisting powers.

These various elements in the campaign should be co-ordinated by an experienced tuberculosis officer who is in touch with the profession, public health office, and the charitable and hospital organizations of the area. Each unit of the scheme should have its true value given to it, and no one form of treatment need be played off against another. Each has its appropriate function to fulfil, each item is necessary, and progress will depend upon the extent to which the fullest use is made of every combative measure directed against those conditions which break down mankind's resisting power. The attempt to produce immunity need not limit our efforts to diminish the incidence of infection, and if tuberculinization must go on, at least we can see to it that it shall not proceed in advance of a capacity for resistance.—I am, etc.,

Manchester, Jan. 5th.

D. P. SUTHERLAND.

HOW IS THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS TO BE MADE?

SIR,—I think a very satisfactory answer to this question can be obtained from the "precipitin" test evolved by Carl Spengler of Davos. By means of this test, correctly interpreted, the following conclusions can be drawn:

1. Whether the patient is in a pretuberculous state or one likely to develop into phthisis.
2. Whether the patient is phthisical—that is, in a state in which the immunizing bodies in the blood are below safety.
3. If phthisical, whether the infection is due to the true bovine type of bacillus or the Koch (*brevis*) type.
4. A very good idea as to prognosis.

Subsequent tests are, of course, desirable, and enhance the value of any deductions made.

Another very important factor is the use of satisfactory methods of staining sputum, etc. By the ordinary Ziehl-Neelsen method bacilli are not infrequently missed. By Spengler's combine 1 carbol-fuchsin and picric acid method, and by his structural method staining with osmic acid vapour much valuable information may be gained. Spengler has demonstrated that the tubercle bacillus is composed of a sheath, and contains granules which are stained black by the osmic acid method. When a case of tuberculous infection is doing well and the patient's blood is rich in immune bodies, the sheath is broken and these contained granules are set free as individual bodies, which he has termed *Splitter*. Furthermore, he has shown that these splitter bodies are capable, under suitable conditions, of developing into tubercle bacilli. From this it is obvious that the detection of their presence is a valuable aid both to prognosis and diagnosis.

It might be argued that when the bacilli are capable of being demonstrated in sputum the case is not an early one. This is true, but less true if the method used to detect them is superior to the commonest one in vogue at the present time. In any case it does not detract from the value of the precipitation test.

For the details of the technique in performing the test and the methods of staining, reference can be made to Spengler's own publication, *Tuberculosc. und Syphilis-Arbeiten*, or to *I.K. Therapy*, by W. E. M. Armstrong, M.A., M.D. (Dubl. H. K. Lewis), or to *Tuberculosis and the Immune Substances Therapy*, by W. H. Fearis (John Murray).—I am, etc.,

Newick, Jan. 2nd.

J. CHASLEY MACKWOOD.

SIR.—I desire to add to Mr. E. D. D. Davis's letter in your issue of December 29th, 1917, the description of a method which I have adopted for some time, and which will appeal, I am sure, to him and to our fellow laryngologists.

In doubtful cases of laryngitis in which I have had suspicions of the condition being tuberculous I have frequently been able to procure immediately a satisfactory specimen of sputum by syringing a small quantity of a weak solution of sodium bicarbonate into the larynx and trachea with an intralaryngeal syringe. This may pass muster as merely "washing out the larynx." The patient then coughs vigorously, and in many cases can be induced to eject the liquid with a pellet of sputum into a basin. This proceeding is often invaluable in those not uncommon cases in which the secretion is inconsiderable and habitually swallowed by the patient instead of being coughed out. In these cases the patient, when asked to bring his morning sputum, produces as often as not a specimen of frothy saliva from the mouth. Again, in the case of very anxious patients the sputum may be obtained in this manner without their being alarmed by the suggestion of the possibility of tuberculosis.

More recently I have employed a simpler method. It consists in causing the patient to inhale the vapour of mustard oil. A few drops of strong aromatic oil of mustard are poured into an empty 6 or 8 oz. bottle. This may be corked up for about a minute to allow the vapour to fill the bottle, which may also be held for a few moments over a lamp. It is then uncorked, and the patient is instructed to take "a good sniff" of it. After one or more good sniffs he generally begins to cough, and may be induced to expectorate any secretion that may be present in the larynx or trachea. If no cough takes place, I think the probability of the existence of tubercle of the larynx at least is slight.

In several instances I have by these means been able to obtain fair specimens of sputum containing bacilli in which no physical signs of pulmonary tuberculosis were detectable, even in some in which the "morning sputum" was negative, being probably not a fair specimen.—I am, etc.,
London, W., Jan. 5th. DUNDAS GRANT.

THE PULSE PRESSURE TEST BEFORE OPERATIONS.

SIR,—I am sorry to see you give such prominence to "the pulse pressure test before operations" in the *JOURNAL* for January 5th, p. 26. Beyond supplying the force that causes the blood pressure the heart takes little part in the variations that occur, and the factors concerned in regulating the changes in blood pressure are so obscure that observations drawn from them are little better than guess-work. So many bogeys have been raised at one time or another about the heart being unable to stand anaesthetics that much confusion prevails, and the addition of this fallacious blood pressure claim cannot but add to the confusion.—I am, etc.,

London, W., Jan. 10th.

J. MACKENZIE.

* Sir James Mackenzie's opinion naturally carries great weight, but it does not appear from his letter whether or not he has read Cashman's article "On the pulse pressure test in pre-operative estimation of the reserve strength of the cardio-vascular system," which, in our humble opinion, justifies further investigation.

WAR NEPHRITIS.

SIR,—The letter by Captain Hendry in your issue of January 5th, p. 37, calls for comment. Trench fever and war nephritis have hitherto been regarded, on clinical and pathological grounds, as separate entities.

The term "trench fever" has been loosely applied to cases of pyrexia associated with a variety of symptoms of different etiology. What does Captain Hendry mean when he writes of trench fever?

We find his evidence as to the occurrence of nephritis in his series unconvincing. Profuse haematuria certainly can, and frequently does, occur in war nephritis without pre-existing trench fever. We have seen many cases of "P.U.O." in which the early provisional diagnosis of nephritis has had to be discarded on fuller inquiry. It is a common experience to find slight albuminuria, with the occurrence of a few blood corpuscles and endothelial cells, in the early stage of trench fever, and these may recur with each subsequent rise of temperature. In none of our cases, however, has there been any rise of blood pressure, dyspnoea, or any uraemic symptoms; in the absence of these, and in view of the transient nature of the albuminuria these cases cannot be regarded as nephritis. We are in agreement with Captain Hendry's statement that the cure of shin pains in most cases is slow; we are in complete disagreement with him when he suggests that the symptoms of trench fever and war nephritis are members of the symptom-group of one and the same disease.

It seems a pity that confusion should be introduced by the suggestion that these two diseases are related to each other—a suggestion for which, in our opinion, no satisfactory basis has yet been forthcoming.—We are, etc.,

C. E. SUNDELL,
Captain R.A.M.C.

A. T. NANKIVELL,
Captain R.A.M.C.

Stationary Hospital, B.E.F.,
January 10th.

VINCENT'S ANGINA AND PERIDENTAL GINGIVITIS.

SIR,—In their memorandum which appeared in the *BRITISH MEDICAL JOURNAL* for January 5th, Captains Eagleton, Mercer, and Hudson, of the Royal Army Medical Corps, express surprise that in the various articles on the prevalence of Vincent's angina, both amongst our overseas troops and amongst the home service units, they can find no mention of the condition of the gums in this infection.

May we be allowed to point out that this condition was very carefully and thoroughly described by us in a paper on "Fuso-spirillary peridental gingivitis," read before the

Odontological Section of the Royal Society of Medicine on November 27th, 1916, and published in the *Proceedings* of the Society for that date? In this paper, also, the differential diagnosis of fuso-spirillary peridental gingivitis and pyorrhoea is discussed, much confusion having resulted from the laxity with which the term "pyorrhoea" has often been employed. We agree with Captains Eagleton, Mercer, and Hudson that these two conditions may coexist.

The connexion between Vincent's angina and this condition of the gums was fully dealt with in a further paper by us on "The relation of peridental gingivitis to Vincent's angina," read before the Laryngological Section of the Royal Society of Medicine on February 2nd, 1917, appearing in the *Proceedings* of the society and also in the *BRITISH MEDICAL JOURNAL* for March 31st, 1917.

How thoroughly Captains Eagleton, Mercer, and Hudson's experience confirms our previous findings is shown by the final paragraph of our second paper quoted above, in which we stated that "as the result of our investigations we suggest that when a patient complains of a sore throat which presents the characters of Vincent's angina it is essential to examine the tooth margins for evidence of peridental gingivitis or pyorrhoea, and that smears be made from both sources for the detection of the causal organisms. When found to be present, the peridental gingivitis should be adequately treated as well as the Vincent's angina, otherwise the condition is likely to persist indefinitely and to cause repeated recurrence of the sore throat."—We are, etc.,

FRANK E. TAYLOR, M.D., F.R.C.S., D.P.H.,

W. H. MCKINSTRY, M.D., D.P.H.,

Captain R.A.M.C.

MEDICAL STUDENTS IN AND OUT OF THE RANKS.

SIR,—I read with deep sympathy the letter of "J. A. A." in your issue of January 12th.

There are many such cases, my own son, a first year student at Cambridge, among them. Within a stone's throw of my house a fellow student, a pacifist, has just become qualified.

Cannot something be done for these lads who have so bravely borne the hardships and given so much for their country? Many showed great talent too.—I am, etc.,

January 15th.

A PARENT.

The Services.

THE DIRECTOR-GENERALSHIP A.M.S.

RETIREMENT OF SIR ALFRED KEOGH, G.C.B.

THE Secretary of the War Office has issued the following communication:

"It is with great regret that the Secretary of State for War has decided that the time has come when Surgeon-General Sir Alfred Keogh, G.C.B., M.D., F.R.C.P., Director-General of Army Medical Services, must be permitted to resume his duties as General Executive Officer to the Imperial College of Science and Technology, and he will be replaced at the War Office from March 1st next by Colonel T. H. J. C. Goodwin, C.M.G., D.S.O., Royal Army Medical Corps, until recently the Assistant Director of Medical Services to the British Recruiting Mission in America, who will be appointed Acting Director-General of Army Medical Services.

"Sir Alfred Keogh's services were placed by the Governors of the Imperial College of Science and Technology at the disposal of the War Office at the beginning of the war, and although during the last three years they have on several occasions requested that he should return to his former duties owing to the development of matters of great national urgency which are delayed by his absence, it has not hitherto been possible to spare him.

"It is very largely due to Sir A. Keogh's intimate knowledge and grasp of all matters connected with the Army Medical Services and the medical profession generally that the medical needs of the army have been met to the fullest extent during the war, and he has been able to secure the assistance and advice of various committees of eminent consultants, which it is hoped will continue to be at the disposal of his successor."

Sir Alfred Keogh was born in 1857 and received his professional education at Queen's College, Cork, and Guy's

Hospital, London. He took the degrees of M.D. and M.S. at the Royal University of Ireland in 1878. After holding the appointment of house-physician at the Brompton Consumption Hospital he entered the medical department of the army in 1879, coming out second of nearly seventy successful candidates. This was the first batch of officers commissioned under the Warrant of 1879. For a considerable time before that the discontent in the service had been so acute that there had been the greatest difficulty in getting suitable men to come forward. At Netley Sir Alfred Keogh won the Martin Memorial Gold Medal and the Herbert Prize, and passed out with the highest total of marks of all the candidates—army, Indian, and naval. His first tour of foreign service was in Bermuda, whence he proceeded to India. On his return he was on duty at the Royal Arsenal, Woolwich, for five years; during that period he gained a large surgical experience. On completion of this appointment in the beginning of 1894 he was sent to India, where he served in the Madras Presidency; later he was transferred to Barrackpore, near Calcutta, where he was in charge of the Military Hospital. He was also civil surgeon there, and in that capacity had large opportunities of ordinary professional work among the operatives in the factories and civilian population. He returned to England in 1899, and in November went to South Africa as Secretary and Registrar of No. 3 General Hospital, which was at Rondebosch, near Capetown, in the early part of the war. When Bloemfontein was taken hospital accommodation was required on the lines of communication, and Colonel Keogh was sent to Springfontein with half of No. 3 General Hospital, and while there he was for a short time principal medical officer of the lines of communication from Bloemfontein to Norval's Pont.

He was soon transferred to Pretoria to take charge of No. 2 General Hospital, which he raised to a high state of efficiency. In November, 1900, it had 1,000 beds, and this number was maintained till the following March. He was also Senior Medical Officer of "Howitzer Camp," which included the Langman Hospital, and direction of the sanitation of the eastern outskirts of Pretoria. At the end of 1900 he contracted enteric fever, and was invalided home in February, 1901. He was mentioned in Lord Roberts's first dispatch, received the decoration of C.B., and was specially advanced from the lower to the higher rate of Lieutenant-Colonel.

When the reform of the Medical Service of the Army was undertaken, he was invited to join Mr. Brodrick's Reorganization Committee. His work as a member of that was of the highest value. He was appointed Deputy Director-General from January 1st, 1902.

On January 1st, 1905, he was appointed Director-General, and retained that office until 1910, when he was appointed Rector of the Imperial College of Science and Technology, South Kensington. During his first period of office as Director-General the medical service of the Territorial Force was organized, and the system of Territorial hospitals with staffs drawn from the civil hospitals in the various localities was brought into existence.

Colonel Goodwin is the son of Surgeon-Major J. Goodwin, A.M.S., and was born in Ceylon in 1871. He was educated at Newton College, Devon, and St. Mary's Hospital, London. He entered the Army Medical Service in 1893, passing out of Netley third of the batch. He served during the operations on the North-West Frontier of India in 1897 and was present during the operations against the Mohmands and in the action near Shabkadr, his services being rewarded by the D.S.O. He served with the British Expeditionary Force at Mons, the Marne, and Ypres; his services were three times mentioned in dispatches, and he received the C.M.G. in 1915. In the summer of that year he was the officer in command of No. 14 General Hospital at Wimereux. In May, 1917, he was appointed to accompany Mr. Balfour's mission to the United States of America as the representative of the Army Medical Department, where he has done much to facilitate the cordial co-operation between the medical profession in the United States and the British Army Medical Service.

THE late Dr. Thomas Tillyer Whiplam left £26,192.

A NEW weekly medical journal has recently been established at Milan. It is entitled *Il Medico Italiano* and is to be the organ of the Union of Medical Men for National Resistance and of the Sanitary Association.

THE French Government has appointed M. Paul Strauss, Senator and Member of the Paris Academy of Medicine, president of the Superior Consultative Committee of the Health Service in the room of M. Louis Barthou.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

A MEETING of the Executive Committee of this Fund was held on Monday, January 14th, at the offices of the *Lancet*, Sir Rickman Godlee presiding. Dr. Sprigge, the honorary secretary, reported that a letter signed by the Executive Committee, and including the letter from Mr. W. B. Poland, Director for Europe of the Commission for Relief in Belgium, had appeared in the medical and pharmaceutical journals in the last week of December (*BRITISH MEDICAL JOURNAL*, December 29th, p. 863). Arrangements were made to hold a meeting of the General Committee of the Fund at the house of the Royal Society of Medicine on January 31st at 3 p.m.; the propriety of subsequently calling a meeting of the whole constituency of the Fund was discussed, but a decision on this point was deferred until after the meeting of the General Committee. The importance of getting local committees to work, as was arranged when the appeal was first made, was pointed out by Dr. H. A. Des Vœux, the honorary treasurer, and Dr. C. O. Hawthorne.

Dr. Des Vœux made a financial statement which showed that there remained in the Fund now a total of only £1,096, while over a third of this sum had been received from the second appeal. The Committee felt that in these circumstances it would not be possible to send more than £400 to Belgium for the month of January, although they deeply regretted having in this manner to curtail the work which had been maintained without check for so long, and concerning whose great value to medical and pharmaceutical practitioners in Belgium they had received definite and pathetic proof.

SUBSCRIPTIONS.

The following subscriptions to the Fund have been received during the week ending Monday, January 14th:

	£	s.	d.		£	s.	d.
Dr. T. F. Keenan ...	1	0	0	Sir Rickman J. Godlee ..	34	8	0
Dr. N. J. McKie ...	1	1	0	Dr. A. S. Hedley ...	1	1	0
Mr. Alfred Wright ...	0	5	0	Dr. Allan ...	1	1	0
Dr. A. Gordon Watson ...	1	1	0	Dr. E. L. Bunting ...	2	2	0
Dr. Annie E. Clark ...	2	2	0	Dr. Percy Kidd ...	5	0	0
Captain H. H. Taylor ...	5	0	0	Dr. Dawson Williams ...	5	5	0
Dr. W. J. Dewar ...	2	2	0	Dr. Elsie M. Chubb ...	2	2	0
Dr. E. T. McDonnell ...	1	1	0	Dr. J. Quinton Bown ...	2	2	0
Sir Clifford Allbutt ...	5	0	0	A Friend ...	10	0	0
Dr. A. H. Peniston ...	1	1	0	Dr. S. Squire Sprigge ...	5	5	0
Dr. H. Simmons ...	2	2	0				

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Obituary.

WILLIAM JULIUS MICKLE, M.D. TORONTO,
F.R.C.P. LOND.

WE regret to announce the death of Dr. Julius Mickle after a protracted illness. He died at Ottawa in November last at the house of his sister, Mrs. Bell, with whom he lived during the last few years of his life.

Dr. Mickle was a graduate of Toronto, where he took the degree of M.D. in 1867; he had a distinguished career as a student in Canada; he then came to England, studied at St. Thomas's Hospital, and took the diplomas of M.R.C.S. and L.S.A. in 1869. Later he became assistant physician at the Derby and Warwick Asylums, and it was here that he first recognized the importance of syphilis in the production of organic disease of the nervous system. In 1879 he became a Member of the Royal College of Physicians; afterwards he was appointed medical superintendent of Grove Hall Asylum, Bow, E.

In 1876-77 he published a paper in the *British and Foreign Medico-Chirurgical Review* entitled Syphilis and Insanity. Subsequently he published a number of papers on general paralysis of the insane, and in 1886 the second edition of his work *General Paralysis of the Insane* appeared. It is by this book that Dr. Mickle's name will be most remembered, for he was one of the first in this country to point out the close relation between the incidence of general paralysis and syphilis. Evidently his work

attracted considerable attention in the profession, for he was elected to the Fellowship of the Royal College of Physicians in 1887, and the following year he delivered the Goulstonian Lectures, the subject being "Insanity in Relation to Aortic and Cardiac Diseases." In 1895 a valuable article on syphilis of the nervous system was contributed by Dr. Mickle to *Brain*, and not long after he was elected president of the Neurological Society. He published many other papers bearing upon mental diseases, of which he had a wide experience. For many years he lectured on mental disease at University College and at the Middlesex Hospital.

Dr. Mickle was a careful and reliable observer and he did not fail, as happens with some specialists, to see the obvious. His long association with the Neurological Society (at the meetings of which he was a regular attendant) showed his bent, as an alienist physician, was to seek where possible a material cause of mental disorders. The present advance in our knowledge regarding syphilis as the sole and essential cause of general paralysis shows that Dr. Mickle was a pioneer in recognizing the association between syphilitic lesions of the aorta and general paralysis.

For a long time he took an active interest in the work of the British Medical Association. He was a member of the Parliamentary Bills Committee and the organizer and director of the work of its Lunacy Laws Subcommittee. He had a very extensive and accurate acquaintance with lunacy laws and administration, and his assistance in dealing with questions of this nature was always readily placed at the disposal of the Subcommittee and of this JOURNAL. He was secretary of the Section of Psychology at the annual meeting in Liverpool in 1883 and vice-president at Glasgow in 1888. He was president of the section at the annual meeting in London in 1895 and again at the meeting in Toronto in 1906, when he was given the Hon. LL.D. of his Alma Mater.

Dr. Mickle retired about ten years ago; his health failed during the last few years, and as he had no close ties in England the writer advised him to return to Canada a few years ago, where he remained with his relations until his decease.

F. W. MOTT.

THE death occurred on January 14th, at Coatbridge, of Dr. CHARLES O'NEILL, Nationalist M.P. for South Armagh since 1909. Dr. O'Neill was born in 1849. He received his medical education at Glasgow University, where he graduated M.B., C.M., in 1892. From 1897 to 1899 he was assistant professor of botany at St. Mungo's College, Glasgow. He was J.P. for the County of Lanarkshire, and was for some years the senior magistrate at Coatbridge. He was first returned as member for South Armagh at a by-election in November, 1909; he was re-elected unopposed in the following January, and held his seat at the next general election in December, 1910, thus being thrice elected for the same constituency within thirteen months.

COLONEL SIDNEY KEYWORTH RAY, Army Medical Staff (retired), died at West Kensington on January 2nd, aged 81. He took the diplomas of M.R.C.S. in 1858 and L.S.A. in 1859, and the F.R.C.S. Edin. in 1889. He entered the Army Medical Department as assistant surgeon on April 20th, 1859, became surgeon on April 20th, 1871, surgeon-major on March 1st, 1873, and retired as brigade surgeon on July 31st, 1891; but was promoted to colonel on October 18th, 1902, for services in England in connexion with the South African war. He served in the Egyptian war of 1882 and received the medal with a clasp and the Khedive's bronze star.

SURGEON-LIEUT.-COLONEL WILLIAM BENJAMIN CHATTERTON DEBBLE, R.A.M.C. (ret.), died at a nursing home at Ryde, Isle of Wight, on December 28th, 1917, aged 59. He was educated at St. Bartholomew's Hospital, took the diplomas of M.R.C.S. and L.R.C.P. Edin. in 1881, and entered the army as surgeon on February 3rd, 1883, becoming surgeon-lieut.-colonel on July 23rd, 1903, and retiring on September 27th, 1911. Most of his service was passed in the Household Brigade, as medical officer of the 1st Life Guards.

Universities and Colleges.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on December 19th, 1917. Sir Seymour Sharkey, M.D., F.R.C.P., has been appointed chairman of the Graham Legacy Committee for the remainder of the year 1917-18; Dr. A. E. Boycott, F.R.S., has been re-appointed Director of the Laboratory, and Dr. C. Bolton acting Director during the absence of Dr. Boycott on military duty.

University Medal.—The University medal at the M.B., B.S. examination in October last has been awarded to A. E. P. Parker, of Westminster Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At a quarterly council held on January 10th, when Colonel Charters Symonds was in the chair, the thanks of the Council were given to Colonel C. E. Shepherd for his gift to the Museum of a collection of otoliths of bony fishes and other gifts during the last eleven years, to Sir Robert Jones for presenting to the library a collection of the published works of the late Mr. H. O. Thomas, and to Sir Rickman Godlee for a copy of his biography of Lord Lister.

Surgeon-General Sir Anthony A. Bowlby, K.C.M.G., will deliver the Hunterian Oration in 1919.

The names of two members, previously erased from the *Medical Register*, were removed from the College list.

Medical News.

It is proposed to make venereal diseases notifiable in Philadelphia.

CAPTAIN HENRY L. MARTYN, M.B., F.R.C.S., R.A.M.C., has been appointed one of the Surgeons-Apothecary to His Majesty's household at Windsor.

THE Carmarthen Town Council has decided to confer the freedom of the borough upon Captain Ernest Emrys Isaac, R.A.M.C., who has been awarded the Military Cross with a bar.

DR. CECIL P. LANKESTER (Guildford), secretary of the Surrey Branch of the British Medical Association, has been appointed an honorary associate of the Order of St. John of Jerusalem in England.

A PERUVIAN Medical Commission is making a tour of inspection of the schools of medicine in the United States with the object of collecting information to be used for the reorganization of the medical schools of Peru in accordance with American standards.

A COURSE of advanced lectures on infant care for nurses, health visitors, teachers, infant welfare workers, and mothers has been arranged by the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy, and particulars can be obtained on application to the secretary, 4, Tavistock Square, London, W.C.1. The lectures, which will be given at the house of the Royal Society of Medicine, 1, Wimpole Street, begin on January 28th, at 5.30 p.m.

THE Local Government Board has issued a circular drawing attention to the revised arrangements for the provision of treatment for men discharged from the army and navy on account of tuberculosis. Hitherto accommodation has been found by the Insurance Commissioners, or by Insurance Committees, for insured men needing residential treatment; while in the case of uninsured men the Local Government Board has arranged for the provision of residential treatment for such as were not in the position to obtain this at their own expense. Under the provisions of the National Insurance Amending Act, 1917, the Insurance Commissioners, after consultation with the Ministry of Pensions and the Local Government Board, have made regulations extending sanatorium benefit to all invalided uninsured sailors and soldiers whose income from all sources does not exceed £160 a year. Uninsured officers, nurses, non-commissioned officers and men whose income exceeds that sum will be dealt with by the Ministry of Pensions. While county and county borough councils are now relieved of the duty of providing directly for the treatment of uninsured army and navy cases, it is anticipated that Insurance Committees generally will desire to arrange with the Councils of their areas for the provision of residential treatment for discharged sailors and soldiers suffering from tuberculosis. Steps are being taken to provide additional accommodation at convenient centres in different parts of the country. A further circular will be issued on the subject of home-visiting and after-care.

Letters, Notes, and Answers.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES.

RATIONS IN SANATORIUMS.

THE medical superintendent of a sanatorium for consumptives, finding it impossible adequately to feed patients suffering from tuberculosis on the proposed rations, asks whether any special provision is made in respect of sanatoriums.

* The rations are voluntary, and there is not, we believe, any intention that patients should be strictly confined to them if that would mean that their successful treatment would be endangered. The special position of sanatoriums for consumption will, we understand, be brought before the Rationing Committee at an early date.

FINGER CRACKS.

A CORRESPONDENT asks advice as to the treatment of deep cracks in the skin of the ends of the fingers, which recur each winter and cause some disability.

* The hard edges of really deep cracks should first be ground away with pumice stone, sandpaper, or a suitable file; if this be not done the dried hard epidermis prevents the more elastic layers underneath having free play, with the result that the hard edges cause the cracks to become deeper and therefore more painful. For immediate relief, when rough or dirty work has to be done, strips of Mead's plaster should be used. To attempt a permanent cure a stiff ointment is probably the best application. It should be applied at night, and gloves or finger-stalls worn. The ointment should be renewed as often as necessary during the day to keep the cracks well greased. Some years ago Dr. Alfred Eddowes suggested the following ointment, which has proved very useful: White beeswax 300 parts, gum arabic of good quality 350 parts, boiled in 300 parts of water; to this 50 parts of glycerin and 100 of water are added. The ointment should be quite stiff; for this purpose a little lanoline may be added and the proportion of water reduced.

TERRITORIAL DECORATION.

A CORRESPONDENT on active service with the British Expeditionary Force, having noticed the recent grant of Territorial Decorations to several medical officers, asks as to the conditions at present in force.

* We find that the grant is governed by the following paragraph of Army Council Instructions, 1916 (p. 48):

782. Recommendations for the award of the Territorial Decoration for officers and . . . of the T.F. when serving with an expeditionary force will be held in abeyance during the war. In the case of officers . . . killed in action or who die of wounds, etc., the necessary recommendations will continue to be forwarded to the War Office in order that the decoration or medal may be issued to the next of kin.—68 Gen. No. 2731 (T.F.).

EXCESS PROFITS DUTY.

J. W. inquires as to the position of a medical man who conducts a private hospital.

* So much depends on the exact nature of the services for which payment is received that a definite answer cannot be given without more knowledge of the facts; it would depend on the consideration of evidence tending to show whether the profits arise from the successful organization and working of the hospital or from the professional exercise of our correspondent's personal skill. In view of the reference in the Acts to the criterion of the employment of capital we think that *prima facie* a hospital would be on a footing similar to that of a nursing home. We assume that the hospital in question is not merely ancillary to "J. W.'s" practice, in which case he would have stronger grounds for objecting to an assessment. The percentage charge has varied. For the first period of twelve months ending after August 4th, 1914, the rate is 50 per cent., then 60 per cent. to January 1st, 1917, when it becomes 80 per cent.

INCOME TAX.

"A MEMBER" inquires as to allowance for fire insurance and agent's charges from the assessment of rents on properties.

* One-sixth is allowed from the gross rental value of the properties when they are assessed, and this has been held to cover the allowances claimed. But if the property concerned consists of lands or houses not exceeding £12 in gross rental value, a repayment can be claimed reducing the amount of tax to the sum due if the total expense of maintenance had been calculated on the average of the five previous years, and deducted from the rents. If the property in question consists of houses exceeding £12 in rental value our correspondent has no claim; otherwise he might request the local surveyor of taxes to send him a form of claim under Section 69 of the Finance (1909-10) Act, 1910, giving further information on the point.

LETTERS, NOTES, ETC.

ON WRITING WITH THE LEFT HAND.

DR. HEYWOOD SMITH (Dove) writes: Following Sir Frederick Treves's interesting review of Professor D'Urso's book (p. 16) I write to ask whether it would not be easier for some men to write backwards (mirror writing) with the left hand. In our ordinary writing with the right hand the majority of letters are formed by curves from right to left, and if we try and write backwards (that is, from right to left with the right hand it takes some effort, and the result is rather that of a child's writing; whereas if we write backwards with the left hand the curves are from left to right. If we write simultaneously with both hands, with the right as ordinarily and with the left backwards, this will be quite evident. Again, it is a curious fact, depending probably on unconscious brain work, that the backward writing by the left hand shows all the individual characteristics of the right hand writing, and can therefore be recognized as the writing of the individual. The left hand writing can be easily read in a mirror, or, if on thin paper, can be read by holding the paper up to the light.

* If any one will make the experiment he will find that it is comparatively easy to write mirrorwise with the left hand. Sir James Barr has pointed out to us that a very practical way of utilizing mirror writing is to let the man write on thin paper, with under it an ordinary piece of type-writing carbon paper face upwards. When the top page is turned over, the writing, though done from right to left, appears in the correct way, from left to right. A curious fact is that if with the eyes shut a pencil is taken in either hand and curves made simultaneously, they will be found to be nearly symmetrical.

HONOURS AND REWARDS.

R.A.M.C. writes: I have been reading in the paper the curiously conglomerate list of names of those people who are included in the Order of the British Empire. I have been carrying on, doing my miniature bit, in a public service for three years, but I hope ere long to be enabled, at the termination of this great war, to return to my home and to my diminished practice, and the honours which I anticipate will be bestowed upon me, and on other general practitioners, will be the knowledge that in the unprinted list, in which will be included the comparatively few of those who have served their country, my name will appear.

It is apparent to me that those desirous of public decoration should have stayed in England, to have enjoyed their own home comforts, and to have posed before the grateful authorities as patriots who have not forsaken their native soil. For myself, contrary to the example set by a personal friend of mine, who has hitherto given his war service in the intervals of professional private practice, and has received so far two decorations from his thoughtful country, and has not deserted the London atmosphere, I find as one who has expended his personal energies at a very mature but healthy age in travelling more than 100,000 miles with our sick and wounded in various parts of the war zone, that the recognition of my services remains, and will doubtless remain, wrapped up in the bosom of my own family.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 6 0
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Whole single column	4 0 0
Whole page	12 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

Observations

ON

WAR SURGERY OF THE CHEST.

BY

CAPTAIN A. L. LOCKWOOD, M.C., R.A.M.C.,

AND

CAPTAIN J. A. NIXON, R.A.M.C.(T.F.).

PART I.

THE surgery of gunshot wounds of the chest has attracted considerable attention during the past few months, and there has been a general trend in the direction of more active surgical measures. Any discussion upon war surgery of the chest must nowadays include abdomino-thoracic as well as thoracic wounds. It is no longer possible to separate for treatment or discussion "pure chest wounds."

At the outset of our work we felt that one chief problem to be faced was the recognition of those cases which recover without operation as distinguished from those which, unless operated upon, are inevitably fatal. Speaking broadly, the cases upon which we now perform a complete intrathoracic operation, and for which we advise this operation, belong solely to the latter group.

We feel compelled to add that in our opinion the complete intrathoracic operation stands at present in some danger of being performed upon cases in which it is neither necessary nor justifiable. We do not advocate it for haemothorax *per se*. We are aware that our conclusions and our methods do not accord with those in vogue elsewhere or advocated in articles recently published, but we are convinced that the procedures which we shall describe, especially the early resuscitatory methods, the diagnostic measures, the exact localization of missiles, the operative technique, and the post-operative treatment, are essential and indispensable.

From our own experience, and from our intimate association with Duval, we believe that unless surgeons have kept their chest cases under their own observation until convalescence is complete it is impossible for them to form correct conclusions as to the value and ultimate results of their treatment.

During the whole of the Somme offensive from July, 1916, it was found possible to retain all serious chest cases in the unit even until thoroughly convalescent. This was due to the fact that Sir Wilmot Herringham underlook the care of these cases at a time when the regular officers of the unit were fully employed in dealing with what were then considered more urgent cases. By degrees the importance of not evacuating severe chest cases was appreciated. Since August, 1917,* all chest cases, whether serious or slight, have been retained in the casualty clearing station until they were up and about and able to do light duty. Apparently the opportunities for holding cases for such a long time have not existed in any other British front unit.

In forming conclusions as to treatment and mortality figures it must be borne in mind that chest wounds, in common with all other wounds, show wide variations in their course, dependent upon the soil of the battle ground, the nature of the weapons used (rifle, shell, or bomb, etc.), the use of gas, the weather conditions, and the facilities for rapid evacuation.

Up to the middle of 1916 we had treated wounds of the chest for the most part expectantly. We had not even considered it necessary to excise the parietal wound unless badly infected, although excision of all other wounds was regarded as of paramount importance.

While the treatment of wounds involving the chest alone consisted in the early stages in absolute rest and non-interference, and later operations were dictated by infection of the thoracic cavity, nevertheless, injuries extending to the abdomen and involving the diaphragm were recognized by us as demanding immediate operation, and not being "necessarily fatal."

As early as the middle of July, 1916, it was realized that practically all wounds of the diaphragm left unrepaired proved fatal. From that period all cases diagnosed or suspected of having a diaphragmatic lesion were operated upon. Repair of the diaphragm was found to be of

greater urgency than the repair of any hollow or solid viscus in the abdomen.

But repair of the diaphragm was not always sufficient. In some cases there existed a serious lesion of the thorax or its contents. At first we did not appreciate that in such cases the operation should extend further, and that for complete success repair of the intrathoracic lesion must be included.

The stages by which we gradually evolved our treatment of thoracic and abdomino-thoracic injuries were briefly as follows:

1. The parietal wound was excised, the comminuted fragments of rib removed, and the pleura, if possible, closed. No attempt was made to clear out the haemothorax, or to follow the missile into the chest. Repair of the thoracic contents was not embarked upon.

2. In July, 1916, repair of the diaphragm became a routine procedure by the abdominal route.

3. Extensive injuries to the bony skeleton of the thorax were seen to be almost invariably fatal. The principal cause of death was not sepsis. The patients did not recover from the shock and exhaustion of gross bony lesions until we began to remove all comminuted bone and sharp spicules. From this time it became an established rule to operate on the parietes on all "stove-in" chests.

4. An important advance was made when a case was recognized in which the diaphragm was injured by a purely thoracic wound. A successful operation was performed by the thoracic route instead of, as previously, by the abdominal. Thenceforward we adopted the practice of dealing with thoracic injuries of the diaphragm through the thoracic wound.

5. Up to the end of 1916 open (sucking) wounds of the chest—traumatopnoea—had shown a mortality of almost 100 per cent. Various methods of plugging the hole in the chest wall were found to postpone, but not to avert, the fatal result. At this time we realized that it was practicable to excise the parietal wound, clear out completely the haemothorax, and close the opening in the chest wall.

EVACUATION AND EARLY HANDLING.

At the advanced dressing station, apart from cases which die before they can be moved, certain cases are received which are not fit to travel until they have rallied to some extent. Into this category come cases of traumatopnoea. This type of wound requires to be carefully cleaned without an anaesthetic and the skin sutured with silkworm gut through a plug of gauze so that there is no leakage of air. The improvement in the patient's condition is often marvellous within an hour or two of being sutured. The mental distress which accompanies traumatopnoea is at once relieved. The lung often expands and the respirations become deeper, easier, and more regular. Cases should travel direct from the advanced dressing station to the surgical unit dealing with chest wounds.

We believe that chest cases requiring early operative treatment require it as urgently and as promptly as abdominal cases.

RESUSCITATION.

Immediately on admission to the casualty clearing station these cases are dressed in clean pyjamas, laid between warmed blankets in a heater in the position most comfortable to the individual case, but, if possible, with the injured side dependent. Continuous rectal administration of sod. bicarb. and glucose (5 per cent. each in water) is started. Intravenous sod. bicarb. (2 per cent.) is given if required, and in a large percentage of severe cases immediate blood transfusion (600 to 800 c.cm.) is administered with the minimum of disturbance to the patient, preferably by the new "No. 17" or the Kington Browne tube.

Hot drinks by the mouth, especially cocoa, are given freely, but no stimulants whatever. As Crile has insisted, sleep is the great restorative, and should be procured by every means and device, such as a plug of cotton wool in the ears, subdued lights, perfectly quiet surroundings, and omnopon or morphine, the former for choice. Urgent dyspnoea from haemothorax or pneumothorax should be relieved before operation by aspirating. If fresh haemorrhage is suspected, the aspiration should be partial and combined with oxygen replacement.

DIAGNOSIS.

As soon as his condition permits, the patient should be thoroughly examined by the surgeon and the physician

* Throughout this paper the term A Group refers to cases prior to August, 1917, and the term Z Group refers to cases after August, 1917.

together with the *x* rays, at the patient's bedside, in order to decide whether immediate operation is required.

SURGICAL MEASURES.

The surgical measures which these cases appear to justify should not be attempted unless:

- (a) Active resuscitation can be carried out immediately after admission.
- (b) The services of an expert radiographer are at all times available.
- (c) The physical signs can be carefully studied and judiciously interpreted.
- (d) The most perfect asepsis can be secured at the operation.

Given these conditions, we are guided by the following general rules for operation:

1. Operate as soon as the patient's condition allows. (This is much earlier with local than with general anaesthesia.)
2. Operate at a place where early evacuation will not be necessary.
3. Operate in all cases where injury of the diaphragm is suspected.
4. Operate on all cases with open pneumothorax (traumatopnoea).
5. Operate on all badly "stove-in" chests, where the pleura is lacerated, even though there is no external wound.
6. Operate on all cases where a large missile has traversed the pleural cavity, whether lodged in
 - (a) The chest wall,
 - (b) The pleural cavity,
 - (c) The lung,
 - (d) The mediastinum, or
 - (e) The pericardium.
7. Operate on all very acutely infected cases, even although the missile is not retained.

Accurate localization of the missile and correct interpretation of the *x*-ray plates are essential and of the greatest value in diagnosis. Movements of the thoracic contents and the diaphragm, as well as the position and degree of movement of the missile, can only be determined with the screen.

Full-size stereoscopic plates showing both sides of the chest and the diaphragm should be taken.

The *x* rays show the approximate amount of haemothorax, the presence of pneumothorax, haematoma of the lung substance, the degree of collapse of the lungs, the position of the diaphragm, and the position of the heart and mediastinum and the comminution of the ribs. Repeated *x*-ray examination of the chest is essential during the progress of the case. A sectional atlas of the Symington type is found of the greatest assistance in determining the relative position of the missile and the structures probably traversed. An aluminium-topped combined operating and *x*-ray table of the type of the Bonnette Eclipse du Dr. Dessane is of the greatest service.

CLINICAL SYMPTOMS AND SIGNS.

The physical examination of the patient should always be limited in the first instance to ascertaining whether an immediate operation is advisable or possible.

If the patient has any of the conditions enumerated above as indications for operation, and he can stand one hour's surgical interference, a meticulous examination of all the physical signs which the chest may present is unnecessary, and will not influence the decision to operate. But it should be borne in mind that if the missile has traversed the mediastinum and penetrated both sides of the chest early operative treatment should never be undertaken.

The presence of considerable surgical emphysema obliterates or distorts every other physical sign except the position of the heart. When considerable surgical emphysema has developed in the chest wall there is, as a rule, pneumothorax underlying it. Marked displacement of the heart may indicate that the heart has been pushed out of position by fluid or air. In disturbances of the respiratory mechanism due to injuries of the diaphragm, displacement of the heart to the injured side has been found. The signs described as those of "contralateral collapse" have been recognized by us in very few cases.

Early operation on cases showing the signs and symptoms of bronchopneumonia on the uninjured side must not be lightly undertaken, but if undertaken local anaesthesia alone must be used.

Physical signs suggesting involvement of the pericardium or heart do not constitute a contraindication to operation; they are, moreover, most fallacious.

The churning sound usually associated with haemopneumopericardium has been met with where this condition did not exist. A tumultuous and irregular heart-beat has been seen when the pericardium had not been even penetrated. This phenomenon undoubtedly results when the heart has been hit by a large missile which has rebounded, and—with the *x* rays—is seen to be lying at some distance from the heart. Autopsy has revealed two such cases, with severe bruising of the heart. The regularity of the heart-beat is disturbed when the position of a missile is such that, with each beat, the posterior aspect of the heart touches the missile. A cardiac impulse visible with the *x* rays is frequently seen in a missile lying some little distance outside the pericardium and not in actual contact with the heart.

Respiratory distress does not always accompany even the largest effusions. The degree of movement in a chest is not always proportionate to the intrathoracic injury. Immobility may be very complete without intrathoracic lesion. There is a condition met with when the chest has been hit without production of haemothorax or pneumothorax in which the injured side remains retracted, resonant, and silent, but with normal vocal fremitus and normal *x*-ray appearances. This condition persists for one or two days and recovers completely.

Tactile vocal fremitus is not always diminished, and is occasionally increased over haemothorax. The level of dullness does not indicate the size of a haemothorax. Bronchial breathing is not uncommon over a haemothorax. Haemothorax occurs although the pleura has not been penetrated.

Amphoric breathing is frequently heard over pneumothorax. The coin sound is sometimes absent even in large pneumothorax. The heart has been found in normal position in total pneumothorax of the left side. Physical signs alone will not distinguish gas from air. Pneumothorax does not always develop rapidly after the injury; it is sometimes a late and gradual occurrence.

Signs of increasing effusion after twenty-four to thirty-six hours are scarcely ever due to active haemorrhage, and recurrent haemorrhage has been seen by us only in five cases.

It has been a puzzle to us why haemothorax so constantly develops in chest injuries. Seldom have we found the intercostal artery to be ruptured, or, at any rate, still bleeding; rarely, if ever, have we seen anything but the slightest oozing from lacerated lung except when it is held up by adhesions. At operation, even in lungs only partially collapsed, excision of the track or bed of the missile is accompanied by remarkably little haemorrhage.

The portion of the paper dealing with operation and post-operative treatment is postponed for lack of space in this issue, and will appear as Part II next week. The remainder of Part I consists of statistical tables and case summaries.]

STATISTICAL TABLES AND CASE SUMMARIES.

I.—Analysis of Admissions.

Z GROUP.

(August to November, 1917.)

Total cases, 158.

Operated, 82.*				Non-operated, 55.†	
Thoracic, 53.		Abdomino-thoracic, 29		Lived, 55.	Died, 31.
Lived, 40. (Table V.)	Died, 13.	Lived, 18. (Table IV.)	Died, 11.	Thoracic, 20.	Abdomino-thoracic, 11.

* The figures in thoracic cases show a high percentage of recoveries in cases that previously showed a mortality of nearly 100 per cent.

† A high proportion of non-operated cases were brought in dead (9), or died within a few hours of admission (21). In the cases that lived longer than a day or two the serious nature of their injuries will be seen in the analysis of fatal cases (Table VI).

II.—Comparative Number of Abdomino-thoracic Operations Performed before and after August, 1915.

A GROUP.

(Before August, 1915.)

Total chest cases admitted	1,254
Abdomino-thoracic operations (Table III)	60
Lived	32
Died	28

Z GROUP.

(After August, 1915.)

Total chest cases admitted	168
Abdomino-thoracic operations	29
Lived (Table IV)	18
Died (Table VI)	11

* A Group: No percentage mortality is given in this group, which consists of 1,254 admissions. This is partly due to the difficulty of tracing cases which were evacuated early. The figures for one month illustrate the small value of comparing records of percentage mortality from chest wounds. In September, 1915, 203 cases were admitted to a special chest ward; of these only 16 died. The explanation of this low death-rate—in a group which might be represented as the total of chest wounds admitted—lies in the fact that abdomino-thoracic injuries were taken into surgical wards and classified separately.

III.—Analysis of Abdomino-thoracic Operations.

A. GROUP.

	Died.	Alive.
Chest and diaphragm only	2	11
Chest and diaphragm		
+ Liver	4	10
+ Kidney	2	0
+ Spleen	5*	1
+ Small intestine	1	0
+ Liver and kidney	1	1
+ Liver and colon	0	2
+ Liver and spleen	0	1
+ Liver and stomach	2	0
+ Liver and small intestine	1	1
+ Spleen and kidney	2	1
+ Kidney and stomach	0	1
+ Spleen and stomach	3	1
+ Spleen and small intestine	1	1
+ Liver, spleen, and small intestine	1	0
+ Liver, kidney, and small intestine	1	0
+ Spleen and spine	1	0
+ Colon (general peritonitis)	1	0
Double diaphragm + liver (right) and kidney (left)	0	1
	28	32

* Two splenectomies.

V.—Analysis of Thoracic Cases Operated on (Recoveries only).*

Z GROUP.

Cases 1 to 10.—Each of these patients was admitted with a large parietal wound of the chest with haemothorax. In all cases the wound was excised, without opening the chest. After-treatment consisted of aspiration. There were no complications. Case 3 was evacuated on the third day, and Case 6 on the fifth; the other cases were out of bed on the 20th, 12th, 13th, 20th, 18th, 8th, 11th, and 11th days respectively.

Case 11.—Large parietal wound of chest with haemothorax: multiple wounds. At operation the chest and other wounds were excised (chest not opened), and the right arm was amputated. Subsequently the patient developed bronchopneumonia (right and left). He was evacuated on the seventeenth day.

Case 12.—Large parietal wound; two ribs comminuted; haemothorax. Wound excised; ribs trimmed; chest not opened. Aspirated. Patient got up on the twentieth day.

Case 13.—Large parietal wound; two ribs comminuted; haemothorax; multiple wounds. Chest and other wounds excised; ribs trimmed; chest not opened. Aspirated; later bronchopneumonia developed. Patient got up on the twenty-eighth day.

Case 14.—Large parietal wound; one rib comminuted for four inches. Chest wound excised; rib trimmed; chest not opened. Later the chest was aspirated, and the patient was out of bed on the twentieth day.

Case 15.—Large parietal wound admitting two fingers; two ribs comminuted. Chest wound excised; ribs trimmed; chest not opened. Aspirated. Patient got up on the twentieth day.

Cases 16 and 17.—Large parietal wound; traumatopnoea; gutter wound; missile not traversing pleural cavity; no gross comminution of ribs. Parietal wound excised; opening in chest closed without exploration. Subsequently both cases were aspirated. Case 16 was up on the twentieth day. Case 17 developed gas gangrene of the chest wall, but was out of bed on the fifty-fifth day.

Case 18.—Traumatopnoea. Complete operation. Later, chest aspirated. Got up on the thirty-fifth day.

Case 19.—Traumatopnoea. Complete operation, except left open at end of operation. Extensive gas gangrene of chest wall and lung at time of operation. Evacuated on the eighty-sixth day.

Cases 20 to 24.—Traumatopnoea with laceration of lung. Complete operation. Aspirated. Case 20 was up on the

(Continued on p. 109.)

* Haemothorax or haemopneumothorax was present in every case. Fatal cases (49 in number) are shown in the general table of deaths in Z Group (Table VI).

IV.—Analysis of Abdomino-thoracic Operations (Recoveries only).

Z GROUP.

No. of Case.	Chest.	Lung.	Diaphragm.	Liver.	Spleen.	Kidney.	Empyema.	Other Lesions.	Operation.	Day of Getting up or of Evacuation.
1	Penetrated		★	★				Missile free in abdomen. Blood in peritoneal cavity. No hollow viscera injured	Chest and abdomen	30th.
2	Penetrated		★		★			Multiple wounds	Chest	12th.*
3	Penetrated		★		★			Multiple wounds	Chest	41st.
4	Penetrated	★	★	★					Chest	(35th.
5										28th.
6										17th.
7										25th.
8										24th.
9	Penetrated		★	★			Yes		Chest	40th.
10	Penetrated		★	+++			Yes		Chest	56th.
11	Penetrated	★	★	★					Chest and abdomen	85th.
12	Penetrated		+						Chest	35th.
13	Penetrated		★			★			Chest and repair of kidney	40th.
14	Penetrated		++			★			Ditto	28th.
15	Traumatopnoea	★	Right and left						Chest	50th.
16	Traumatopnoea		5-inch laceration	+++		★		Large intestine herniated	Chest and nephrectomy	55th.*
17	Traumatopnoea	★	★	★			Yes		Chest	50th.
18	Penetrated	★	★	★			Yes	Empyema (streptococcus) developed late after operation; cellulitis of chest wall; wound not reopened	Chest	14th.*

* These cases were evacuated, Case 2 as a lying case, and Case 18 with an empyema not drained.

The mark ★ indicates that the organ was wounded. Each + mark indicates a laceration admitting one finger. Fatal cases (11 in number) are shown in the general table of deaths in Z Group (VI).

VI.—Analysis of all Fatal Cases in Z Group.

No. of Case.	Chest.	Lung.	Diaphragm.	Mediastinum.	Liver.	Spleen.	Spine.	Other Lesions.	Operation.	Day of Death.
1	Penetrated							Carotid sheath and contents lacerated		Brought in dead.
2	Traumatopnoea	+						Pulmonary vein lacerated		Brought in dead.
3	Penetrated							Multiple wounds		Brought in dead.
4	Traumatopnoea	++		★				Descending aorta punctured	Yes	Brought in dead. Under 12 hrs.
5	Penetrated	★						Bronchopneumonia, double		" "
6	Penetrated both chests	++		★				Oesophagus and superior vena cava traversed		" "
7	Penetrated	★		★				Superior vena cava traversed		" "
8	Penetrated			++				Pulmonary vein opened		" "
9	Penetrated right and left	★		★				Double hæmothorax; multiple wounds		" "
10	Penetrated		★			★		Abdomen traversed; bronchopneumonia	Yes	" "
11	Penetrated	★						Multiple wounds		" "
12	Penetrated						★	Pulmonary vein opened; multiple wounds		" "
13	Traumatopnoea	★	++++		++					" "
14	Traumatopnoea	+	++		+					" "
15	Traumatopnoea +++ through-and-through		Right and left ++			++		Stomach; two perforations		" "
16	Traumatopnoea		+++		★	++		Kidney lacerated; multiple wounds		" "
17	Penetrated	★	★		★			Kidney lacerated		" "
18	Penetrated right and left						★	Kidney lacerated; multiple wounds		" "
19	Parietal wound, penetrated							Pulmonary vein opened; gas gangrene		" "
20	Traumatopnoea through-and-through							Multiple wounds		" "
21	Parietal wound, penetrated					★		Stomach, small intestine, and kidney perforated	Yes	Under 24 hrs.
22	Penetrated						★			" "
23	Traumatopnoea ++	++							Yes	" "
24	Penetrated		++			★		Hernia of omentum through diaphragm; kidney lacerated	Yes	" "
25	Penetrated	★	++		+			Portal vein traversed; gas gangrene	Yes	Under 24 hrs.
26	Large parietal wound +++ penetrated	★					++	Gas gangrene	Yes	" "
27	Wound of neck only	★					+++	Hæmatoma, apex of left lung; hæmothorax, left	Yes	" "
28	Wound of neck only	★					++	Hæmatoma, apex of left lung; laceration of brachial plexus and vessels	Yes	" "
29	Penetrated	★	Two wounds			★		Multiple wounds; gas gangrene	Yes	2nd day.
30	Penetrated	★			+			Heart injured	Yes	" "
31	Penetrated	++	++		++				Yes	" "
32	Penetrated	+++	★					Gas gangrene	Yes	" "
33	Penetrated		+++		++				Yes	" "
34	Traumatopnoea +++	Two wounds	++					Bronchopneumonia, double	Yes	Died on table. 2nd day.
35	Penetrated	★	★		★			Bronchopneumonia	Yes	3rd day.
36	Penetrated	+++						Bronchopneumonia	Yes	" "
37	Penetrated		Two wounds		★			Bronchopneumonia, double	Yes	" "
38	Penetrated	++						Bronchopneumonia, double	Yes	4th day.
39	Traumatopnoea +++		★		★			Four ribs comminuted; peritonitis	Yes	" "
40	Penetrated		+++					Hernia of omentum	Yes	5th day.
41	Penetrated	★		★				Sternum and left clavicle fractured; internal mammary artery lacerated		7th day.
42	Large parietal wound							Bronchopneumonia, double		8th day.
43	Traumatopnoea	★						Bronchopneumonia, double; gas gangrene	Yes	10th day.
44	Penetrated					Two wounds		Multiple wounds; injury thoracic duct suspected, not proved <i>post mortem</i>		15th day.
45	Penetrated right and left			★				Fractured sternum; pulmonary vein traversed; secondary hæmorrhage		16th day.
46	Penetrated	★		★				Thoracic duct injured and stenosed; bronchopneumonia, double		18th day.
47	Traumatopnoea	★			★			Gas gangrene; multiple abscesses of liver	Yes	22nd day.
48	Penetrated	★						Bronchopneumonia, double; empyema		26th day.
49	Traumatopnoea +++		++					Four ribs comminuted; bronchopneumonia		34th day.

V.—Analysis of Thoracic Cases Operated on (Recoveries only).— (Continued.)

twentieth day; Case 21 on the nineteenth; Case 22 on the fifteenth; Case 23 on the thirtieth; and Case 24 on the twenty-first.

Case 25.—Traumatopnoea with hole in lung admitting two fingers. Complete operation. Aspirated. Got up on the thirty-fifth day.

Case 26.—Traumatopnoea with hole in lung admitting two fingers. Complete operation. Aspirated, but leaked pus (staphylococcus) from localized empyema. Was out of bed on the sixty-fourth day.

Case 27.—Traumatopnoea with missile lodged in mediastinum. Complete operation; missile removed from mediastinum. Aspirated. Got up on the fiftieth day.

Case 28.—Traumatopnoea (hole into chest admitting two fingers) and laceration of lung. Complete operation. Aspirated; leaked pus (staphylococcus) from localized empyema; closed completely and spontaneously. Patient was out of bed on the ninety-sixth day.

Case 29.—Traumatopnoea (admitting three fingers); laceration of lung, pericardium perforated. Complete operation; small missile not removed. Aspirated. Got up on the twentieth day.

Case 30.—Penetration of chest and mediastinum; laceration of lung. Complete operation; missile removed from mediastinum. Aspirated; leaked pus (staphylococcus) from mediastinum; closed completely and spontaneously. Got up on the twenty-eighth day.

Case 31.—Penetration of chest; laceration of lung; multiple wounds. Complete operation; multiple wounds excised. Aspirated. Got up on the forty-first day.

Case 32.—Penetration of chest; multiple wounds. Complete operation; multiple wounds excised; amputation of left arm. Aspirated. Evacuated on the thirty-fifth day.

Cases 33 to 36.—Penetration of chest; laceration of lung. Complete operation; missile removed, except in Case 35. Aspirated. Case 33 got up on the fortieth day; Case 34 on the forty-fifth; and Case 35 on the sixty-fifth. Case 35 was evacuated on the twenty-first day.

Case 37.—Penetration of chest (through-and-through); laceration of lung. Complete operation on the ninth day, because of *B. perfringens* infection. Infected haemothorax (*B. perfringens* and streptococcus); operation late. Developed empyema after operation; aspirated four times (cultures unchanged). Recovery without drainage. Was out of bed on the fortieth day.

Case 38.—Penetration of right and left chest; mediastinum traversed; missile lodged in heart; right haemothorax. Aspiration of right chest only at first. Later, complete operation on left side; missile not removed. Patient got up on the sixty-fifth day.

Case 39.—Penetration of right and left chest; one large parietal wound; double haemothorax. Complete operation on side of parietal wound. Aspirated. Got up on the forty-fifth day.

Case 40.—Crushed chest, no external wound; four ribs fractured on the left side, and two on the right; left haemothorax. Complete operation, left side. Aspirated; empyema developed. Patient was out of bed on the seventieth day.

Note.—In the Z group the proportion of bomb and shell wounds was unusually high; only two cases were wounded by rifle bullets and two by shrapnel ball. The severity of the group, considered as a whole, was exceptional.

As regards the operations performed, none were left open at operation, except one with extensive gas gangrene of the entire left lung and chest wall. The case was considered absolutely hopeless, but made a good recovery, and has been evacuated with a large opening (2½ in. in diameter) in the chest wall not yet healed.

No case was reopened, but five leaked pus from their incisions—as a rule, at the most dependent part. We believe this was due to localized collection of pus in the pleural cavity adjacent to the incisions, because the lungs as a whole were well expanded.

Spontaneous closure of the sinuses took place without interference with the wound or sinus, except in one case still discharging a little pus at the time of evacuation, and one case—with gas gangrene of chest wall and lung—which reopened completely and died twenty days after operation.

The improvement in results of the abdomino-thoracic operations we believe to be due to the more complete thoracic operation which is being done as part of the combined operation.

All cases in the Z group were anaesthetized with novocain and gas and oxygen (if required), except two (multiple wounds), who had not ether.

In every fatal case complete autopsy was performed, except five in which the lesions of the chest and the accompanying multiple wounds were so gross that there remained little more to expose.

VII.—Empyema occurring in Non-operated Cases. (Five Cases.)

Case 1.—Penetration of chest, through-and-through (rifle bullet). Patient moribund on admission. Haemopneumothorax aspirated repeatedly; condition scarcely improved. Later empyema developed (streptococcus and staphylococcus). Treated by repeated aspirations. Condition remained very grave. Resection and drainage on the thirty-ninth day. Evacuated (not convalescent) on the forty-seventh day. He reached England and had got out of bed, January 9th, 1918.

Case 2.—Penetration of chest, right and left; fractured ribs both sides, comminuted on right; probable injury of liver (developed jaundice); right haemothorax. Moribund on admission. Developed double bronchopneumonia. The case appeared hopeless and operation impossible, but recovered with late development of empyema (right); cultures sterile! Resection and drainage on twentieth day. Evacuated on the twenty-seventh day, convalescent but still draining.

Case 3.—Small parietal wound of chest; multiple wounds; chest not penetrated. Developed pneumonia with empyema (pneumococcus) on side of parietal wound. Aspirated, and eventually drained without resection of rib. Closed rapidly after drainage. Evacuated, convalescent, on the forty-third day.

Case 4.—Penetration of chest; left haemothorax with active haemorrhage on aspiration. Aspiration repeated with oxygen replacement. Moribund on admission. Developed empyema (staphylococcus); repeated aspirations (28½ oz. withdrawn in all). Developed acute parenchymatous nephritis. Empyema cleared without resection; nephritis improved greatly; trace of albumin remained. Evacuated, convalescent, on the eighty-third day.

Case 5.—Penetration of chest, through-and-through; small haemothorax, right. Haemothorax aspirated. Developed double bronchopneumonia and empyema on side of haemothorax. Aspirated; not resected. Died on the twenty-sixth day.

THE TREATMENT OF SEPTIC HAEMOTHORAX AND EMPYEMA.

By CAPTAIN J. CAMPBELL, R.A.M.C.(S.R.).

QUITE a number of cases of septic haemothorax in the early stage can be successfully treated by resection of a portion of rib and careful removal of all fluid and clot, followed by washing out and complete closure of the pleural cavity. On the other hand, a severely septic haemothorax does not yield to such treatment, and frequently leads to death of the patient (50 per cent. of cases) either from septicaemia or general toxic absorption. Short of this unfortunate result, drainage as usually carried out by the insertion of a large tube in the pleural cavity is followed by long severe pyrexia and exhausting suppuration.

The excellent results obtained elsewhere by the Carrel-Dakin method suggested that considerable advantage might be obtained from its use in some modified form in these cases also. Accordingly, I made several attempts to use it in different ways, but found that the most convenient and beneficial method is as follows:

The patient is *x* rayed, and any foreign body carefully localized. Under a general anaesthetic the wound is explored, the fractured portions of rib resected, and the wound sewn up if its condition allows.

The pleural cavity is then drained in the usual fashion, resecting about three and a half inches of rib as far forwards and as low as possible—that is, usually the eighth rib in the mid or anterior axillary line. Through this opening the cavity is explored, and an easily accessible foreign body and fragments of loose bone lying in the cavity or on the surface of the lung removed. Blood clot and fibrin are swabbed out as far as possible, and any septa forming loculi broken down. The cavity is next washed out with a warm mixture of hydrogen peroxide and eusol, or Dakin's solution. A rubber tube of a quarter of an inch internal diameter, with a large lateral opening a quarter of an inch from one extremity is then inserted, so that this end lies in the most dependent part of the pleural cavity when the patient is lying on the normal side—that is, in the costo-vertebral recess behind the pericardium. Finally, the wound is loosely sewn up, but no attempt is made to effect an airtight closure round the tube.

When the patient has recovered from the operation, the size of the cavity is estimated by filling it carefully (but usually incompletely) with warmed Dakin's solution, and then emptying it. After this the cavity is filled through the

tube every four hours to about one-third of its capacity or less with Dakin's solution. At the end of two hours another long tube is attached to the tube in the chest and the fluid siphoned out, the patient meanwhile lying on the sound side with the chest opening uppermost, or as nearly so as possible. The patient is told to pant or cough slightly at frequent intervals as long as the fluid remains in the chest, and by this means splash the fluid about inside the cavity, and so bathe with it the entire infected surface and any recesses that may exist.

In this way the pleural cavity contains for two hours a large quantity of sodium hypochlorite solution and is more or less empty for a like time. During the former period the patient lies rigidly on the sound side, without any raising of the shoulders, to prevent escape of the fluid and consequent flooding of the bed; during the latter he is free to lie as he chooses. Thus the patient gets a reasonable amount of rest and comfort and is saved the exhaustion associated with the maintenance of one constant position. In addition, once daily, the tube is removed, sterilized, and replaced, and the cavity washed out as in the usual treatment for empyema. To overcome the disadvantage of injecting cold fluid into the chest, I have found that it is better to make the Dakin's solution of double strength and, prior to filling, to dilute it with an equal quantity of warm sterile water.

If the original wound and site of fracture lie sufficiently far forwards, advantage is taken of this site for the insertion of the tube.

Sometimes difficulty is met with in siphoning out the fluid; this may be due either to the tube that is connected to the tube in the chest not being first filled with liquid or else to air being unable to enter the pleural cavity; in the latter case, it is well to slip an open-ended Carrel tube into the chest alongside the first. When this is done I use the smaller tube for filling up the pleura, as then the liquid cannot be injected too quickly.

When treatment is carried out in this way, it is found that pus formation and offensive odour largely disappear at the end of thirty-six hours and are absent at the end of three to four days; the patient's tongue becomes clean and moist almost at once; delirium and emaciation, so frequently seen in these cases, are absent, and the temperature and pulse rates fall much more rapidly than usual; indeed when looking at them, it is hard to distinguish these cases from those that are not infected.

If pus continues to form under this method of treatment, it appears to be due to one or more of the following causes:

1. The Dakin's solution is not of proper strength or is used in insufficient quantity.
2. The cavity is not regularly filled and emptied.
3. A loculated cavity exists which the fluid does not reach.
4. A foreign body or loose bone fragments still remain in the pleural cavity.
5. Sloughing or abscess formation is taking place in the lung substance.

After using this method of treatment on a number of cases I have found that it is superior to other methods of treatment that I have tried. The benefit derived from it can easily be demonstrated by the rapid diminution of the number of organisms per field of the microscope in films made from the surface of the pleura. By this method, too, it is comparatively easy to raise the pleural cavity to "suture standard" and sew up the wound at an early date, with the result that lung expansion becomes more perfect and pleural thickening is largely avoided. I think another great advantage is that cross infection of the empyema cavity from without is avoided.

It is only recently that vitiligo, or leucoderma, has been associated with syphilis. E. M. Auer (*Amer. Journ. Med. Sci.*, Phila., 1917, vol. cliv, pp. 592-596) gives about a dozen references from literature to this subject, and quotes Zelenev's analysis of 52 cases of leucoderma with the conclusion that, etiologically, they fall into two groups—tuberculous and syphilitic. Auer also reports four cases of leucoderma in patients with late syphilitic lesions of the central nervous system, and draws attention to the early appearance of leucoderma as compared with the other symptoms: he points out also that the symmetrical and segmental distribution of the areas of leucoderma suggests a lesion of the central rather than of the peripheral nervous system.

THE ENDOTOXIN OF THE MENINGOCOCCUS

A METHOD OF EXTRACTING IT FOR THE PURPOSE OF
STANDARDIZING ANTIMENINGOCOCCUS SERUM.

BY

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Few who have studied acute cases of cerebro-spinal fever during an outbreak can fail to be impressed by the potency of the toxin of the meningococcus, and if the observer is a bacteriologist he may be struck also by the relative infrequency with which this micro-organism is to be cultivated from the blood of the patients. Although the meninges are one of the chief sites of infection, a further feature of the disease that calls for notice is the relatively large number of pus cells that it may be necessary to search in film preparations of the cerebro-spinal fluid before one is found that contains meningococci. While there are occasional and striking instances in which the meningococcus is detected in large numbers in the cerebro-spinal system, or in the blood, in many cases of cerebro-spinal fever actual proliferation of the meningococcus in the tissues of the patient appears to be limited. Nor is this relatively restricted proliferation apparent only in cases that recover; even in fatal cases bacteriological investigation after death may reveal that the degree of meningeal suppuration is out of all proportion to the number of cocci present either in films or cultures of the meningeal exudate. There is little doubt that this limited proliferation of the meningococcus is often apparent rather than real, owing to the autolytic tendency of the coccus as well as to the lytic action of the secreted body fluids, both of which tend to liberate its endotoxin. In this relation it is of interest to recall that during the classical researches in course of which he reproduced the essential lesions and symptoms of cerebro-spinal fever in monkeys, and studied the fate of this micro-organism when introduced into the peritoneal cavity of guinea-pigs, or into the spinal canal of monkeys, Flexner observed this same point, and remarked that multiplication on the part of the cocci is not at all essential to the production of the peculiar symptoms and lesions: the meningococcus causing death by a poison liberated from the bacterial bodies.

For the purpose of comparing the pathogenic value of the meningococcus when alive, and when all chance of proliferation is eliminated, a series of experiments has been undertaken, and is still in progress, at the Central Cerebro-spinal Fever Laboratory. In the first place, three specimens of meningococcus were selected of definite pathogenicity to the mouse when introduced alive into the peritoneal cavity of that animal; and the effect on their individual pathogenicity was determined by killing the coccus by ether and then evaporating the warm broth suspension containing it to dryness *in vacuo* at 37° C. A series of falling doses of the suspension of living cocci was injected intraperitoneally into mice, and then duplicates of these doses were etherized, dried *in vacuo*, and next day (or later) redissolved by grinding up in distilled water, and, cultures having been taken to prove that the meningococcus was dead, injected intraperitoneally into mice. Proceeding in this way, it was found that, in the case of two of the meningococci, the coccus was fatal to the mouse in a smaller dose when alive than when killed in the manner described. In the case of the third meningococcus, however—which was a specimen of Type II recently isolated from a rapidly fatal case of cerebro-spinal fever—the coccus was fatal to mice in the same dose when killed, dried, and dissolved in the manner described, as when alive. While it would appear, therefore, that in the case of this particular meningococcus the endotoxin was either exceptionally potent, or more easily extracted than usual, the observation nevertheless furnishes a striking illustration of the great pathogenic importance of the endotoxin of this micro-organism.

It is generally agreed that exotoxin is not formed by the meningococcus in culture. On several occasions virulent specimens of the meningococcus have been cultivated at the Central Laboratory, in flasks of broth enriched by horse serum or by diluted rabbit's blood, and after incubation at 37° C. for a time, varying from a fortnight to a month, a portion of the broth was removed, the cocci contained by

it thrown down by centrifuge, and the clear supernatant fluid injected intraperitoneally into mice. In all cases the mice remained unaffected, so that no evidence has been obtained of the presence of soluble toxin in such cultures.

Up to the present two methods have been employed to obtain a solution of the endotoxin of the meningococcus. The first of these, which is the method favoured by Flexner and Dopfer, makes use of the autolysis of the meningococcus for the purpose of disintegrating the coccus, and setting free its endotoxin. All that is necessary is to make a suspension in saline of a young culture of the meningococcus, then to add some disinfectant such as toluol, and to leave the suspension at 37° C. The cocci undergo autolysis, and a proportion of their endotoxin passes into solution. The second method has been used by Kolle and Wassermann, Kraus, and others. Young cultures of the meningococcus are suspended in distilled water, or in decinormal soda solution, and submitted to agitation for several days in a shaking machine. The suspension is then centrifuged, and the clear supernatant fluid is found to contain endotoxin in solution. It is decanted, phenolated, and kept in the dark in the ice chest.

Neither of these methods would seem to be entirely satisfactory. The autolysate is open to the suspicion that during the process of lysis the toxin may be altered. The "shake extract" is obviously an incomplete procedure. The first step, therefore, in the present investigation was to attempt to find an improved method for the purpose of extracting its endotoxin from the meningococcus.

Besredka's Method of Extracting Endotoxin.

An examination of the literature on the subject of endotoxin soon showed that a method that was likely to be of service was that introduced by M. Besredka, of the Pasteur Institute, in 1905, and used by him and others since with much success for extracting their respective endotoxins from *B. pestis*, *B. dysenteriae*, *E. typhosus*, *B. diphtheriae*, *B. influenzae*, *Micrococcus melitensis*, gonococcus, etc. The method, however, does not appear to have been applied previously to the meningococcus. The procedure of Besredka is as follows:

The growth is removed from numerous cultures of the organism and dried *in vacuo* over sulphuric acid. The dry deposit is then scraped off, reduced to powder in a mortar, and stored in a dry place in the dark. This material Besredka calls "solid endotoxin," and it is found as a rule to be exceedingly toxic to animals. To extract the soluble toxin from it, a weighed amount of the solid endotoxin is mixed with a definite quantity of salt and ground up by hand in an agate mortar most carefully and thoroughly. When the mixture of dried bacteria and salt has been reduced to an impalpable powder, distilled water is added drop by drop, grinding the while, until the proportion of salt present is that of normal saline. The whole process takes about an hour, and at the end the mixture is allowed to stand, and if necessary is centrifuged until all detritus has settled to the bottom. The supernatant fluid, which is slightly opaque, is then removed and its toxicity determined in the usual manner.

In applying this method to the meningococcus a few modifications have been made. In the first place, as the result of comparative trials in which the degree of disintegration of the coccus was followed microscopically, and the toxicity of the extract determined on mice, I have abandoned the salt and use sterile sand instead, the extract being made entirely with distilled water. The procedure is as follows:

A meningococcus is selected of known serological type, and of such pathogenicity that one-tenth part of an eighteen hours' slope culture on tryptic agar when injected intraperitoneally into a mouse produces death within forty-eight hours. Such a culture being available, as many Petri dishes as possible of ordinary tryptic agar are inoculated with it and incubated for eighteen hours at 37° C. It is hardly advisable to work with less than fifty of such plates at a time. To remove the growth, 2 c.cm. of saline is poured on each plate, the growth is then raked off by a bent iron wire, and the suspension poured into a sterile test tube. A film preparation is made from each tube, stained by Gram and examined microscopically in order to exclude possible contaminations. The pure suspensions are mixed and centrifuged at top speed for an hour or more until the bulk of the cocci have been deposited. The top fluid is then thrown away, and the sediment of cocci evacuated into a Petri dish, 5 per cent. of ether added, and the dish placed with the cover off in a desiccator the bottom of which contains sulphuric acid. This desiccator is already connected to a manometer, and also to a powerful vacuum hand pump, designed and made for me some years ago by Mr. Fleuss of the Pulsometer Company. After receiving the dish, the desiccator is exhausted until a minus pressure of about 70 cm. of mercury has been obtained;

the tap is then closed, the desiccator disconnected, and placed in the incubator at 37° C. overnight. Next morning the contents of the Petri dish are seen to be quite dry; the dish is taken out, the deposit scraped off, reduced to powder in a mortar, and examined microscopically. The powder consists entirely of dried bodies of meningococci. It is weighed and stored in a glass-stopped bottle kept in a dry cupboard in the dark.

Before a desiccator is used for this purpose trials must be made to see how much water it will absorb in a night at 37° C. after being exhausted; and care must always be taken to ensure that the suspension of sedimented cocci placed in the Petri dish does not exceed this quantity. The ether is added to prevent the growth of air contaminations, which at first gave much trouble. Once the apparatus is in good working order, the manufacture of dried coccus proceeds without hitch; but microscopical examination both of the suspensions from the plates, and of the dried end-product, must never be omitted. We have found that by this method a hundred ordinary plates of meningococcus yield on an average about 1.8 grams of dried cocci.

Mode of Extracting the Soluble Endotoxin from the Dried Cocci.

A solution of the endotoxin is prepared in the following manner:

0.1 gram of the dried cocci is weighed out and placed with an equal amount of sterilized sand in an agate mortar. The mixture is carefully and thoroughly ground up by hand until the whole has been reduced to an impalpable powder. This generally takes about half an hour. Sterile freshly distilled water is then added drop by drop, and the grinding continued for another half-hour, until 5 c.cm. of distilled water has been added. The mixture is next poured off into a graduated centrifuge tube, and the amount made up to 5 c.cm. if any loss has occurred through evaporation. The tube is stood overnight in the ice chest, and next morning centrifuged at top speed until all detritus has settled to the bottom. The opaque supernatant fluid, which has an appearance somewhat resembling that of concentrated lemonade, is then decanted. This is the standard extract. If it is to be used for rabbits, 0.5 per cent. of phenol may be added, but if for mice intraperitoneally, phenol is better avoided, and a few drops of ether added as a preservative.

When larger amounts are required, successive lots of the dried coccus and sand are ground up and the aqueous extracts mixed.

Toxicity of the Dried Meningococcus and of its Aqueous Extract for Laboratory Animals.

The following are the results in mice and rabbits:

1. *Mice.* It has been found that the dried and powdered meningococcus prepared in the manner described is fatal to mice intraperitoneally in a dose varying from 2 to 10 mg. The results are generally quite regular, provided that the powder is ground sufficiently fine. For purposes of testing samples of serum, chief use has been made of the aqueous extract, the toxicity of which is always determined in duplicate, and the lowest dose at which both mice succumb within forty-eight hours taken as the M.L.D. Mice submitted to the action of the endotoxin of meningococcus become extremely prostrated, and their appearance suggests that the toxin has a direct action on their central nervous system. A proportion of these mice develop diarrhoea. *Post mortem* the right heart is usually dilated, and the spleen is often much enlarged.

2. *Rabbits.* When injected intravenously into rabbits the aqueous extract of the dried coccus seems to act in exactly the same manner as a large dose of the living meningococcus. From some observations carried out in conjunction with Major A. S. G. Bell, it would appear that when a rapidly fatal dose either of the living meningococcus or of the aqueous extract of the dried coccus is administered intravenously to these animals the temperature falls continuously until death, which may be ushered in by convulsions. A similar lowering of temperature was observed by Flexner in guinea-pigs that received a fatal dose of the living coccus intraperitoneally. Rabbits that die from an intravenous injection either of the living coccus or of the aqueous extract of the dried coccus often show *post mortem* petechial haemorrhages. These are especially frequent under the skin, and are thus similar to the subcutaneous haemorrhages seen in some acute cases in man of cerebro-spinal fever.

The aqueous extract of the dried meningococcus contains a considerable proportion of the bacterial protein in solution as well as the toxin. This is evident from the fact, amongst others, that extracts made in the same way from non-virulent meningococci, while containing the coccal endoprotein in solution, show a relatively small amount of endotoxin.

The extract of the dried coccus prepared in the manner described has recently been found to contain a substance lytic for the red blood corpuscles of man and also of the rabbit, mouse, and guinea-pig. From present observations, this substance appears to withstand heating for

half an hour to 60° C., though haemolysis may be delayed by the treatment. The haemolytic substance is present in extracts of the dried bodies of specimens of all four types, and observations are now in progress to determine (1) whether it is the same in all of them, or not; (2) whether it forms, as seems possible, an index to the degree of disintegration of the coccus; and (3) whether the presence of antihæmolyisin in antimeningococcus serum does, or does not, form an index of the presence of anti-endotoxin.

Some further experiments are in progress with a view to determining whether its charge of endotoxin can be increased by passing the meningococcus through a succession of mice. A number of meningococci have been passed through mice without increasing their virulence. In the case of one meningococcus, however—a specimen of Type I from a fulminating case—it was found that, after passage through five mice in succession, the virulence of the living coccus for the mouse had increased tenfold; but, in spite of this increase in virulence for the mouse, no increase could be detected in the amount of endotoxin for that animal contained by the coccus when dried and extracted. This result is of considerable interest because it suggests that, in addition to the charge of endotoxin, another factor may be concerned in the virulence of the meningococcus. The matter is at present being investigated by Dr. C. Shearer, F.R.S.

The antigenic value of the aqueous extract of the dried meningococcus is at present under investigation at the Central Laboratory. From present results it would appear to be serologically specific in much the same manner that the whole coccus is when injected into an animal such as the rabbit.

The Anti-endotoxic Value of Current Examples of Antimeningococcus Serum Supplied for Therapeutic Use.

By extracting their endotoxin in the manner described Besredka and his colleagues have been able to define the anti-endotoxic value of serums prepared against the micro-organisms of bacillary dysentery, plague, and typhoid respectively. It was found that in the case of the particular serums examined by him 1 c.cm. of the antidysentery serum neutralized 2,400 lethal doses of the dysentery endotoxin; 1 c.cm. of the antiplague serum neutralized 200 lethal doses of the plague endotoxin; and 1 to 2 c.cm. of the antityphoid serum neutralized 30 lethal doses of the endotoxin of the typhoid bacillus.

The anti-endotoxic value of antimeningococcus serum has been determined by Dopter and also by Wassermann, Kraus, and their co-workers. Dopter, who used an autolysate for this purpose, considers, as a result of his observations, that 1 c.cm. of antimeningococcus serum suitable for clinical use should neutralize five lethal doses of endotoxin. As a result of the observations of Wassermann and Leuchis, Kraus, and others, who used "shake extracts," it has been laid down that 1 c.cm. of antimeningococcus serum suitable for therapeutic use should neutralize four lethal doses of meningococcus endotoxin. The subdivision of the meningococcus group into a number of serologically distinct types had not been effected at the time when these observations were made.

Now the anti-endotoxic standard laid down for antimeningococcus serum by these observers cannot be regarded as anything but low in comparison with the anti-endotoxic values found by Besredka in case of the three antibacillary serums. Since there is at present no evidence, so far as I am aware, that the endotoxin of the meningococcus is more toxic to the horse than the powerful endotoxins of plague or dysentery, it would seem probable that the relative scarcity of anti-endotoxin in antimeningococcus serum is due to some special difficulty in the case of the meningococcus that has not yet been defined and overcome. For reasons given later the cause is most likely to lie in the form of meningococcus antigen used for preparing the horses. Some preliminary experiments upon this subject will be mentioned.

The method which I have used for testing antimeningococcus serums in respect of their content of anti-endotoxin is as follows:

All the serums are examined in duplicate, and in addition to the specimens of antimeningococcus serum for trial, a control is always carried out with normal horse serum. Two sterile watch-glasses are put out for each serum, and every watch-glass is enclosed in a Petri dish. With a 1 c.cm. pipette, graduated

in tenths, the M.L.D. of endotoxin is measured out into each watch-glass. A measured amount of serum is then added, the covers are replaced, and the Petri dishes placed for thirty minutes in the incubator at 37° C. in order to allow the endotoxin and anti-endotoxin to unite. When taken out of the incubator, many of these serums are seen to have produced an excellent precipitin reaction, which, however, by no means necessarily implies the presence of anti-endotoxin. The contents of the watch-glasses are then injected intraperitoneally each into an individual mouse. The mice are placed in sets of stalls specially designed for the purpose by Major T. G. M. Hine, and are kept under observation for three days.

TABLE I.—*Details of an Experiment in which Five Specimens of Antimeningococcus Serum were Tested against a Minimal Lethal Dose of Endotoxin of Type I and Type II Meningococcus respectively.*

Serum.	Amount.	Type I Endotoxin.	Result.	Type II Endotoxin.	Result.
Normal	0.5	0.2	+	0.2	+
	"	"	+	"	+
A.	0.5	0.2	+	0.2	+
	"	"	+	"	—
B.	0.5	0.2	—	0.2	+
	"	"	—	"	—
C.	0.5	0.2	—	0.2	—
	"	"	—	"	—
D.	0.5	0.2	+	0.2	—
	"	"	+	"	—
E.	0.5	0.2	+	0.2	—
	"	"	+	"	—

+ = Mouse died.

It is clear that in the dose tested (0.5 c.cm.), serum A, in spite of having an excellent amount of precipitin, agglutinin, and, from Captain Tulloch's observations, of opsonin also for the two commonest types of the meningococcus, is deficient in anti-endotoxin to Type I and weak in this antibody to Type II. Serum B, which gave excellent clinical results two years ago, still contains anti-endotoxin to Type I, but is now weak in this antibody to the endotoxin of Type II. Serum C, recently made by pooling the serums of univalent horses, has anti-endotoxin to both these types of the meningococcus. The two remaining serums only neutralize the endotoxin of Type II in the amount tested—namely, 0.5 c.cm.

Now this result cannot be considered satisfactory. The horses providing the serum had received numerous injections of cultures of current meningococci, yet a proportion of these samples of their serum put up for therapeutic use fails to show an appreciable amount of anti-endotoxin for one or other of the two commonest types of the meningococcus in 0.5 c.cm. As the cause almost certainly lies in the kind of antigen used for preparing the horses, a series of observations is now in progress for the purpose of defining the relative value of various preparations of the meningococcus for stimulating the production of anti-endotoxin.

As a preliminary measure the matter is being worked out on rabbits, and if successful, it is hoped, with the co-operation of those who are preparing antimeningococcus serum, to apply the result to horses at present in course of immunization against the meningococcus.

In the first place an investigation was made of the anti-endotoxic value of the serum of a set of rabbits already in course of immunization at the Central Laboratory. Two of these animals had been prepared for over six weeks against first killed, and then living cultures of meningococcus Type I (strain Littledale). Two more had been under similar treatment for the same period against living cultures of meningococcus Type II (strain Harrison). All these rabbits stand intravenously the whole of the growth of an eighteen hours' slope culture of these respective meningococci without more than temporary loss of weight, and without marked symptoms; and their blood contains a good yield of agglutinin for the homologous coccus; yet none of the rabbits contain enough anti-endotoxin in 0.5 c.cm. of their serum to neutralize one lethal dose of endotoxin of the homologous type of meningococcus. Now neither of the meningococci injected into these rabbits is particularly virulent for the mouse—the fatal dose for the mouse intraperitoneally being from one-half to the whole of an eighteen hours' slope culture, and also the dried bodies of the particular meningococci in question have been found to yield but little endotoxin. Some more rabbits, therefore, are at present under immunization with further samples of meningococci of the same two types, but of higher virulence for the mouse, and giving a good yield of endotoxin in aqueous extracts of their

dried bodies. At the same time, further rabbits are being prepared with antolysates of these virulent meningococci, and others with the aqueous extracts of the same cocci after being dried and powdered. The value is also being determined of sensitizing the cocci, or its contents, before injection. By this means it is hoped to define the relative value of each of these preparations respectively of the same meningococcus for exciting the production of anti-endotoxin. It may be of interest to state that one rabbit that had received intravenously a dose of 0.1 c.cm. of the aqueous extract of a virulent example of Type I meningococcus prepared in the standard manner described previously, followed a week later by a dose of 0.2 c.cm., in spite of considerable loss of weight, showed on the sixteenth day after receiving the first dose sufficient anti-endotoxin in 0.5 c.cm. of its serum to neutralize completely a lethal dose of Type I endotoxin for the mouse. Captain Tulloch also found this serum to contain a good yield of opsonin for Type I. Here the matter at present stands.

CONCLUSION.

It would seem, then, that, as regards anti-endotoxin, there is at the present time much room for improvement in, at any rate, a considerable proportion of the samples of antimeningococcus serum supplied for therapeutic use. But it should be stated that several of these serums, though deficient in anti-endotoxin, have been found by Captain Tulloch, who is making a special study of meningococcus opsonins, to contain a good amount of opsonin which in the eyes of Flexner and some other authorities is of almost, if not quite, equal clinical importance. However this may be, few, I think, will deny that it is very desirable that all antimeningococcus serum sent out for therapeutic use as "multivalent" should contain as high a yield as possible not only of opsonins but also of anti-endotoxins capable of neutralizing the toxic principles of the commonest members of the meningococcus group.

The chief obstacle hitherto has been the absence of a trustworthy and simple procedure for determining the amount of anti-endotoxin in antimeningococcus serum. It is hoped that the present method may be found to contribute towards the end in view, because it would seem that some of the best results in the way of lowering the mortality from cerebro-spinal fever during the present outbreak have been obtained by early intrathecal administration of serum that, in addition to a good yield of opsonins, has also been found to contain an appreciable quantity of antibodies capable of neutralizing the endotoxins of each of the two commonest types of the meningococcus.

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NOTES ON ASTHMA.

BY

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GLASGOW.

SEVENTEEN years ago I put forward the view that asthma is in most cases essentially a toxæmia. More than once in this JOURNAL I have given arguments for this view and have amplified them in my book, and details will not be repeated, but some of the criticisms of that book and much recent writing show that that view is still far from being widely accepted, and yet the proof that asthma is a toxæmia is based not only on the clinical facts but on the best of all evidence—therapeutical success. Of 390 cases about 70 per cent. can fairly be reckoned as cured, or almost so. These cases have come from all parts of this country as well as from some of the colonies, so that "place" has less influence on asthma than was believed.

Among these 390 cases two groups become prominent clinically. One group is that of week-end asthma. The asthmatic attacks in working-class patients tend to appear at the week end, and are clearly associated with the over-feeding and under-exercise of the week end. I have

repeatedly dealt with this point. The only possible explanation of this periodicity is the upset metabolism resulting in a form of toxæmia which induces asthma. This class of case is usually, and for obvious reasons, readily amenable to treatment. This week-end periodicity is not confined to asthma or to man. It is found in some forms of albuminuria, angioneurotic oedema, and epilepsy; also in the "Monday morning disease" of horses (Wood's Hutchinson). The toxæmia in this group is interesting as helping to explain the next group.

The second large group shows a clinical history of bronchitis in children, recurrent year after year, until ultimately what is called spasmodic asthma is diagnosed. The patient may be adolescent or adult before he realizes that he has asthma. In this class eczema is a prominent concomitant. Treatment proves this eczema and this asthma to be due to coddling, to confinement, and to carbohydrate excess, chiefly in the form of milk puddings; for alteration of these conditions means immediate improvement and ultimate cure of the diseases. Here again we have an imperfect metabolism leading to toxæmia, which, in turn, reveals itself in catarrh—of the skin as eczema; of the respiratory tract as various forms of rhinitis, enlarged adenoids, laryngismus stridulosa, bronchitis. This toxæmia acts not only on skin and mucous membrane, but, sooner or later, on the nervous system. And so the catarrhal condition may be accompanied or followed by a spasmodic state, hence—sometimes in combination—urticaria, angioneurotic oedema of the mucous membranes, laryngismus, paroxysmal sneezing, asthma.

Two points are of great importance in this connexion. First, the nose as the respiratory orifice, and the most sensitive area of the whole respiratory tract. If the nose is not right the lower mucous membrane is sooner or later likely to become affected by spasm as well as catarrh; hence, in treatment, attention must be directed to the nose as well as to the toxæmia. Secondly, the widespread connexion of the vagus with the digestive as well as with the respiratory tract has ever to be kept in mind. It is possible the vagus may be directly affected by the toxæmia. All this points to the importance of dietetic treatment, which Hyde Salter so rightly emphasized. Treatment of these two classes of cases is usually soon and absolutely successful; but where the toxæmia has lasted many years, and the mucous membrane has become so altered that *restitutio ad integrum* is not to be expected, the most we can hope for is improvement, though even here the spasmodic attacks may be abolished. I have seen recovery after twenty, thirty, and even forty years of asthma.

Consideration of the circumstances under which asthma arises in domesticated animals goes to support the view that it is a toxæmia. The subject is disappointingly dealt with in British veterinary textbooks, but the account in the American one by Law (1896) is excellent. What he says as to the origin of asthma in dogs and horses exactly bears out what I have written here and elsewhere as to its origin in man. Asthma in dogs "is almost exclusively confined to those kept indoors, over-fed, without exercise, plethoric, and constipated." Everyone is familiar with the wheezy, asthmatic pet pug, but is apt to miss the fact that it frequently belongs to a pampered mistress—fat, wheezy, and asthmatic for a like reason. Law continues: "The disease is one of pet dogs, kept in towns, deprived of exercise, of fresh air, and of the opportunity to relieve the bowels at will; and gorged with highly spiced meats and sweets at least three times a day. Sluggishness and obesity are marked characteristics of the dog when first attacked, though in the advanced stages the violence of the paroxysms and their frequent recurrence may have induced extreme emaciation." And Mr. Dan Hamilton, M.R.C.V.S., informs me that eczema in dogs is caused in precisely the same way. Similarly, Law connects asthma in horses directly with the feeding and want of exercise. Veterinary surgeons have often told me that it is possible to induce asthma in almost any colt by improper feeding. For the following instance I am indebted to Mr. Begg, veterinary surgeon to Lanark County Council. The case is too long to give except in summary; but the details all support the views stated:

A six-year-old van horse, which had cost £46, was seen in January, 1903, on account of asthma, was put in a loose-box, fed on soft oleaginous rations and damped fodder. By the end of March he was reduced to a skeleton—weak, staggering, and

brought almost to his knees by paroxysms of coughing; value £3. He was turned out to grass in April, improved at once, and by July there were no signs of asthma. He was returned to work, but during the following winter, probably owing to the confinement and altered feeding, he developed a less severe attack of asthma. This passed off, and in July he was sold for £40, and was hale and working five years later.

It is likely that many diseases in animals, such as pleurisy and tuberculosis, are lumped together as asthma; but it is trifling with the subject to dismiss asthma in birds as aspergillosis. If the disturbed metabolism arising from over-feeding and under-exercise is the cause of asthma, the bird in which we should most expect it is the canary; and canary breeders are quite familiar with what they rightly call asthma. A bird has naturally a more active respiration and metabolism than man; but a caged canary can get no exercise, and has little to do but feed.

A canary breeder got an asthmatic canary from a neighbour to destroy. It had been fed *ad lib.* on all sorts of seed and other food. He himself had been cured of asthma many years ago, and instead of destroying the bird, thought he would try a plan similar to that I had laid down for him. Instead of filling up its dish with a day's food, he gave it small regular feeds of plain canary seed, and thus cured it. I have had many asthmatic canaries examined by pathologists, who have found tuberculosis in none.

Asthma is probably a disease of civilization. While man had to hunt and kill what he ate, asthma was not likely to arise. An asthmatic visited a Red Indian location in Canada. An old squaw said to him: "You breathe heavy." "Yes; I have asthma." "You English eat too much." "What would you have me do?" She held up two fingers: "Two days no eating." Which was exactly the advice I had given, and which elicited the story. Inquiry among medical friends in various parts of the globe has elicited a number of interesting facts which, however, require sifting, which cannot be detailed here, but of which the following is a summary:

In Central Africa, still uncivilized, there is no overcrowding, the diet is mixed; tuberculosis, asthma, and enlarged tonsils and adenoids are unknown. In China and Manchuria, while the day is largely spent in the open air, overcrowding is common at night; the diet is largely carbohydrate (rice), but no milk is drunk; teeth are often filthy; asthma and enlarged tonsils and adenoids are rare, tuberculosis of glands and lung common. In Siam the life is rather more indoors, the diet more mixed, and milk is drunk and betel chewing common; teeth are filthy; asthma and enlarged tonsils and adenoids not uncommon; tuberculosis greatly increasing. In India conditions vary in different parts and among the different races, but carbohydrate forms a large proportion of the diet, and milk is drunk; tuberculosis is common, asthma also in some parts, but enlarged tonsils and adenoids do not seem to be common.

The inference seems to be that asthma tends to appear in proportion as the life is spent indoors, as there is overcrowding, as carbohydrate forms the staple diet, and as milk is drunk. This about milk is interesting, because my experience proves beyond doubt that asthma cannot be cured when much milk, raw or boiled, is taken. I have cured two cases of hay fever in adolescents who took large quantities of milk by simply cutting it down.

Asthma, then, being in many if not in most cases a toxæmia due to want of adaptation of food, not only to the needs, but to the biochemical peculiarities of the individual, its essential treatment is obvious, simple, but involving much painstaking trouble in every case. I have dealt with this elsewhere at length.

Some think that attention to the nose has been over-emphasized, but, for reasons given above, this is doubtful. After that the main thing is to procure elimination of toxins and prevention of further toxæmia; or, to use Guelpa's phrase, "*Désintoxication et renouvellement des tissus.*" Long before the appearance of Guelpa's book the fact of week-end asthma and the voluntary fasting of the asthmatic during his paroxysm till it ceased had taught me the value of fasting, and it was practised with success. And Hyde Salter sixty years ago rightly took pains with the individual diet. But not enough attention has been paid to cookery. With an unusually irritable *vagus* it is important that the digestive organs be taxed as little as possible.

THE value of the estate of Sir Leander Starr Jameson has been sworn at £45,082 18s. 10d., the net personality being £42,747.

A SURVEY OF 1,064 OPERATIONS FOR THE COMPLETE REMOVAL OF TONSILS AND ADENOIDS,

WITH A CONSIDERATION OF THE POSSIBILITY OF A REDUCTION IN THE NUMBER OF OPERATIONS.

BY

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THE consideration of the large number of operations performed for the removal of the faucial tonsils and adenoid growth, or hypertrophied pharyngeal tonsil, makes one pause to wonder whether all these operations are really necessary. It must be remembered that the tonsils, both faucial and pharyngeal, are normal structures present for some definite purpose in every child.

When the tonsils and adenoid growths are septic, diseased, or hypertrophied, so that their presence produces definite and harmful symptoms, every one will agree that they should be efficiently removed, but the predisposing and exciting causes of infection and enlargement of these structures should be reviewed before deciding that operation is necessary. The experience gained by a close study of 1,064 cases, in addition to those seen during seven years in charge of a London County Council school clinic for affections of the nose, throat, and ear, may throw some light on their etiology. The cases have been carefully examined before operation, they have been seen two or three hours after operation, again one week afterwards, and, finally, six months later.

Etiology.

The age at which children require operation varies, but I have not seen one case of congenital enlargement of the tonsils or adenoid tissue, and agree with Lambert Lack¹ in doubting its occurrence. The youngest case was aged 16 months, and there were only five under 2 years. Children operated on under 2 often have recurrence, and the best results are obtained when the operation is performed between the ages of 3 and 6.

The strumous or scrofulous child is a common victim of "tonsils and adenoids" and has a typical appearance with enlargement of the lymphatic glands, phlyctenules of the cornea, excoriation of the nostrils by nasal discharge; such children lack immunity to catarrhal affections and to tuberculosis. This type of child runs in families, several members of the same family are strumous, and there is a family history of tuberculosis, suggesting that the condition is due to a tuberculous predisposition, in addition to bad surroundings in a poor home in a large city. The removal of tonsils and adenoids in such a child, followed by a visit to the seaside with good surroundings and food, leads to a vast improvement in health.

The most marked cases of enlarged tonsils and adenoids amongst children occur in those in whom there is evidence of dirty, badly ventilated, unhealthy homes with their cheaper carbohydrate diet. In these cases parasites, particularly *Pediculus capitis*, are invariably present, and the fact that they cause enlargement of the superficial cervical glands makes one consider what influence pediculi have on the lymphatic tissue of the pharynx. To operate on these children and to send them back to their squalid surroundings is to court failure. The removal of tonsils and adenoids in these cases is almost as illogical as scouring the hair of patients to remove pediculi and immediately allowing them to use the same dirty, infected pillow and clothes. The percentage of well-cared-for children with good surroundings seen in private practice who require operation is much smaller than in the case of poorer children seen at hospital.

Cameron² has shown that excessive carbohydrate diet among the poorer classes, which is the rule owing to its cheapness, produces a catarrhal tendency. Again, there is evidence to indicate that infection—for example, the tubercle bacillus—is conveyed to the tonsils by contaminated water, milk, and food.

The effect of locality is difficult to estimate, and at one time it was found that a large number of the cases came from the low-lying districts of the river banks, and from a valley town where there were watercress beds and a stream running through its centre, but statistics of this

sort tend to be erroneous. In the dry climate of southern Italy adenoid operations are extremely rare.

Scarlet fever, diphtheria, measles, and whooping-cough have been credited with a predisposing influence. Measles certainly has preceded operation in a large number of cases, but since the majority of children have had the various fevers, the estimation of their effect on the lymphoid tissue is difficult. Children with enlarged tonsils and adenoids are much more liable to have acute otitis media as a complication of scarlet fever, measles, and diphtheria.

Some general infections enter the body through the tonsil, and this organ is said to be a portal for infection of the vermiform appendix, for acute rheumatism, tuberculosis of the cervical glands, and, most probably, scarlet fever. Tonsillitis frequently precedes or follows appendicitis, and tonsillitis can be part of a general intestinal infection. Poynton and Paine⁵ record a case of appendicitis following follicular tonsillitis, in which the organisms in the tonsils and appendix were identical; they showed that the appendicitis was a result of a blood infection, and that the cause of appendicitis may be a streptococcal invasion through the blood stream from a follicular tonsillitis. Brian Metcalfe⁴ records two cases of appendicitis immediately following tonsillectomy. Appendicitis associated with tonsillitis is always severe, and requires immediate operation. It is stated that the tonsil is the portal of infection for acute and chronic rheumatism: tonsillitis frequently precedes rheumatism. I have often removed unhealthy tonsils in patients who have had acute rheumatism; also in cases of chorea and chronic rheumatism. In the cases of acute rheumatism and chorea both diseases may recur, and P. R. Cooper⁶ records a case of severe acute rheumatism which followed a few months after tonsillectomy.

In two of my cases, seen three years after enucleation, there had been no return of acute rheumatism, and their general health had been excellent. In one case of erythema nodosum and chronic rheumatism the symptoms had disappeared since enucleation of the tonsils three years before. A similar result was obtained in three cases of chorea.

Mitchell found the bovine tubercle bacillus in the tonsils of fifty-one out of seventy-two cases of children with tuberculous cervical glands and also traced the source of the bacillus to infected milk. Of the tonsils of ninety children with no infection of the cervical glands, 6.5 per cent. gave histological evidence of tubercle bacillus, and 10 per cent. gave a positive result with the guinea-pig. My experience coincides with this result, and in practically all the cases of tuberculosis of the cervical glands (upper deep cervical set) seen the tonsil was unhealthy and required removal. It was a small flat, spongy tonsil, and not a large hypertrophied tonsil.

The most frequent exciting cause of enlarged tonsils and adenoid growth is the common or influenzal cold, measles, or some other specific infection. In a large number of colds there is a mild or even severe tonsillitis—in fact, tonsillitis is frequently called influenza by the patients and their relatives. The doctor is generally asked to see a child during these illnesses, and as the symptoms of a prolonged cold resemble those found when the tonsils and adenoids require removal, an operation is advised; but when the child is seen some time after the cold or acute infection has disappeared there may be no signs of tonsil enlargement or adenoid growth and all the symptoms have disappeared. In cases of this kind it is advisable to wait until the acute infection has subsided before deciding to operate. It occasionally happens when a child is seen during the winter or catarrhal season that the hypertrophy of the tonsils and adenoid growth and the necessity for removal are well marked, but for various reasons operation is delayed until the warmer, drier months of summer, and then the small amount of adenoid growth and the small, normal-looking tonsils removed, make the operator wonder whether he has done an unnecessary operation. This occurrence bears out the fact that the tonsil and adenoid enlargement is often temporary, and that a child should be kept under observation before finally deciding to operate. Removal of tonsils and adenoids before an acute infection has completely subsided, or during the acute stage, leads to increased sepsis, otitis media, suppuration of the cervical glands, and all the septic complications of such an opera-

tion, which, under the best of conditions, is always accompanied by a certain amount of sepsis confined to the wound.

Local sepsis, particularly bad teeth and nasal suppuration, are frequent causes of enlargement and inflammation of the tonsils. It has been my custom for many years to send all tonsil and adenoid cases with bad teeth to the dentist to have the mouth put in thorough order before operation, and no operation is performed until the gums have completely healed. I am in entire agreement with T. B. Layton,⁶ who stated that the number of cases sent for dental care who were found on their return not to require operation was surprising. Even in adults the tonsils will visibly shrink, so to speak, after the removal of oral sepsis. Practically all cases of suppurative tonsillitis or quinsy are accompanied by oral sepsis, and, in a clean mouth, severe follicular tonsillitis will recover without suppuration or abscess. A tonsil and adenoid operation done in the presence of oral sepsis leads to septic complications, particularly otitis media.

Nasal sinus suppuration is rare in children, but the great majority of young adults with nasal suppuration have enlargement of the adenoid tissue of the nasopharynx and tonsils which disappears with the successful treatment of the suppuration. One attack of tonsillitis does not call for removal of the tonsils, but frequent attacks occurring once or twice a year with enlargement of the cervical lymphatic glands (tonsil glands) indicates a thoroughly septic tonsil which requires enucleation.

Causes of Operative Failure.

The first of the common causes of the recurrent operation for removal of tonsils and adenoids is tonsillotomy, or the incomplete removal of the tonsil; the septic stumps are more susceptible to repeated attacks of tonsillitis; I have seen a schoolboy who has had tonsillitis every term after tonsillotomy, and a girl who had nine attacks of tonsillitis in a year following tonsillotomy, and other similar cases.

At a discussion on the relative values of tonsillotomy and tonsillectomy at the International Congress, 1913, the majority present were strongly in favour of tonsillectomy, or complete enucleation of the tonsil. My figures down to 1913 showed that, out of 1,520 cases operated on, 41 had had tonsillotomy performed elsewhere and enucleation of the tonsil stumps had to be done. The examination of another 78 cases of tonsillotomy showed that 39, or 50 per cent., were failures, and in 36 enucleation of the stumps had to be performed. Every surgeon has his own method of enucleation, but the most satisfactory and surest method is that of "dissection" as described by George Waugh.⁷

The second cause of failure or recurrent operation is the performance of the operation by inexperienced and occasional operators. The removal of tonsils and adenoids requires considerable practice.

The third cause of recurrence has to do with the adenoid operation. Children are frequently seen with anterior nasal obstruction, such as a septal spur or marked deformity and deviation of the septum, in which the obstruction is in front of the nasopharynx and produces symptoms and signs of adenoid growth, yet the nasopharynx has been repeatedly scraped for adenoids with no beneficial result. Of fifty-two recurrent operations, ten were due to this cause of nasal obstruction.

Enlargement of the posterior ends of the inferior turbinates has been stated by some to be a cause of recurrent operations, and some operators remove the posterior ends of the turbinates when removing the adenoid growth. I have looked for this condition for many years and have not found permanent enlargement of the posterior ends in children, and I do not consider it necessary to add to the operation by their removal.

There are cases of recurrent adenoid growth, fortunately rare, which, in spite of the fact that the growth has been thoroughly and efficiently removed, require second or third operations, and this suggests that the effect rather than the cause has been removed.

Complications.

The complications of operation are remarkably few, usually remote and due to sepsis. The absence of complications and of any observed disadvantage to the patient

by the loss of the tissues removed will perhaps account for the great popularity of the operation. The immediate complications consist of haemorrhage and shock, both of which are uncommon, more particularly shock. Neither haemorrhage nor shock occurred in any of the 1,064 cases. Most operators see that haemorrhage has ceased, or is insignificant, before the operation is completed. Shock, when it occurs, is the result of insufficient or inefficient anaesthesia.

The remote complications are chiefly the result of sepsis. Acute otitis media occurred in 4 of the 1,064 cases, and one of the four required a simple mastoid operation. The incidence of otitis media can be diminished by careful management before and after operation. It is more common in hospital practice where the patients are treated as out-patients, and is practically absent in private practice where care is taken before and after operation and the patient's surroundings are better. The preparation of the mouth, the avoidance of operation during acute infections, and the rest in bed for three days after operation in a clean home diminishes the incidence of otitis media. In order to avoid operation during an acute infection or in children who are possibly sickening for any infectious fever, such as scarlet fever, measles, etc., the temperature is taken while they are waiting their turn for operation, and if the temperature is above 99° operation is postponed.

Severe scarlet fever and measles are known to follow operation with disastrous results. I have known of two cases in twelve years' experience; such cases do not return to hospital, and are not always observed, but E. W. Goodall and J. D. Rolleston, from a long experience of fever hospital work, both state that they have not seen more than a dozen such cases of scarlet fever or diphtheria following operation in twenty-five and seventeen years' experience respectively. In all cases before operation it is advisable to see that the ear passage is clear and does not contain wax, as a blocked meatus adds to the difficulty of treatment of otitis media. Suppuration of the cervical lymphatic glands is very rare, and I can only remember two or three cases in a period of twelve years; in the series here discussed there were none.

Results.

The results of operations in the carefully selected and well-marked cases are excellent; not only are the symptoms relieved, but there is a great improvement in the general health and comfort, due to the fact that the child sleeps better, its appetite is increased, the hearing improves, the frequent and prolonged colds cease, the flat chest develops, and growth is more rapid. The removal of adenoids in the so-called idiopathic asthma of the nervous, wheezy child has no beneficial effect, and most of these children have no adenoid growth. Idiopathic asthma must not be confused with the intermittent suffocative attacks during sleep, which are due to adenoids, and are cured by the removal of the growth.

A large number of children have attacks of earache and deafness during colds, with retraction of the drums, which frequently suppurate; and if such a case is allowed to continue without operation, the deafness or dullness of hearing becomes permanent, and is beyond cure. The affection of the ears makes operation imperative. In all cases of earache and deafness operated on the ears become normal, except in the older patients, in whom the damage has been done by the long duration of the inflammation. Cases of recent suppuration rapidly heal and the otorrhoea ceases.

The mouth breathing and frequent colds disappear if the patient is made to perform suitable exercises to expand the chest and to promote nasal breathing. No operation is complete unless followed by a course of breathing exercises and the teaching of children to blow their noses efficiently every morning. The parents are told that breathing exercises are as important as the operation, and should be carried out every day for at least six months, commencing a fortnight after operation.

Occasionally a school child will have a temperature, of obscure origin, of 100° with a rise to 102° or more for some weeks following a so-called influenzal cold which on careful inquiry is seen to have been tonsillitis. There is slight tonsillitis with enlargement of the cervical tonsil lymphatic glands. The enucleation of the tonsils cures the fever, and the cervical glands slowly disappear. There are two types of enlargement of the upper deep

cervical set of glands as the result of infection of the tonsils. The first is inflammatory, and accompanies most attacks of acute tonsillitis, and disappears with the tonsillitis. In repeated attacks of tonsillitis the enlargement, which is limited to the tonsil gland of the upper deep cervical group, becomes chronic, but gradually disappears after the removal of the tonsils. The second type of enlargement is tuberculous, is more marked, and there is extension to the other glands of the deep cervical group. If the case is early and the glands are not caseating, removal of the tonsils with suitable antituberculous treatment results in their disappearance, but the majority of hospital cases require removal of the glands in addition to the tonsils.

Nocturnal enuresis has been stated to be due to adenoid growth and its accompanying suffocative attacks during sleep, but in my experience true regular enuresis occurring every night is rarely, if ever, due to adenoids. Very few children with well-marked adenoid growth have this symptom, and I have seen a number of cases of enuresis with absolutely no adenoid growth. Moreover, the removal of the adenoids has not cured the enuresis.

Whatever the function of the tonsil may be its structure and behaviour are similar to that of a lymphatic gland, and it is reasonable to suppose that the remaining lymphatic tissue of the pharyngeal wall, the lingual tonsil, and cervical glands compensate and take on the function of the tonsils and tissue removed, but I have not seen hypertrophy of any of these structures after operation, not even the cervical glands.

I have carefully examined a large number of children six months or more after operation, and have endeavoured to follow up cases, and I have not observed any deleterious effects or disadvantages following removal of tonsils and adenoids. I have not obtained any evidence to indicate that the removal of the tonsils predisposes these children to diphtheria, scarlet fever, or other acute infections, but I have seen several cases of unhealthy spongy tonsils yielding cultures of the Klebs-Loeffler bacillus weeks after the quarantine period had elapsed. E. W. Goodall and J. D. Rolleston both state that in their experience there is no reason to think that children who have had tonsils and adenoids removed are more susceptible to scarlet fever or diphtheria. I have not seen and have no records of tuberculosis of the cervical lymphatic glands appearing after removal of the tonsils.

In conclusion, when a child has a specific set of injurious symptoms which can be definitely attributed to the tonsils and adenoid growth, nothing but benefit results from removal, but there is a need for careful examination and selection of operation cases. An attempt should be made to ascertain and eliminate the cause of the condition under observation before the question of operation is finally settled.

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THE TREATMENT OF AMOEBIC DYSENTERY WITH EMETINE AND BISMUTH IODIDE.

BY

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DURING the months of July and August, 1917, 40 cases of amoebic dysentery admitted to a military hospital in Mesopotamia were treated with emetine and bismuth iodide, used either alone or in conjunction with emetine hydrochloride.

These cases formed in July 25 per cent. and in August 34 per cent. of all cases admitted in which blood and mucus were present in the stools. They also furnished all the severe cases and the deaths from dysentery during the above period. Four deaths occurred, in two of which hyperpyrexia from the intense heat undoubtedly hastened the end. The remaining two were due to peritonitis following perforation of dysenteric ulcers, and occurred in very debilitated subjects two or three days after admission.

The duration of the disease before admission to this hospital varied from three days to a fortnight, the average being about six days. In many cases a history could be elicited of previous attacks of dysentery in either Mesopotamia or India.

All patients treated were natives of India, and came from widely separated districts of that country. As this was the first opportunity I had of making a trial of emetine and bismuth iodide in a series of cases of amoebic dysentery the diagnosis of which could be confirmed, and the results of treatment checked by microscopical examination of the fresh stools, the following points were considered worthy of investigation:

1. The tendency, or otherwise, of the drug to produce vomiting.

2. Its action, either when given alone, or in conjunction with emetine hydrochloride, in

(a) Acute cases showing active amoeboid forms in the stools;

(b) Less acute cases in which encysting forms are appearing in the stools;

(c) Chronic relapsing cases;

the results in all cases being checked by microscopical examination of the stools.

I. VOMITING.

The action of the drug in producing vomiting had to be taken into consideration, as keratin capsules were not available, and the drug had to be administered in the form of a powder or pill. Happily, it was found that the Indian tolerates the drug very well. The maximum single dose of three grains was never exceeded, and not more than four grains were given during the twenty-four hours. The most suitable dose was found to be two grains, in pill form, given once or twice a day, half an hour after a feed of milk, the pills being freshly made from the powder with a little gum excipient. A few of the cases complained of nausea after taking the drug, and sometimes the patient would vomit an hour or two later, but this was readily checked by the administration half an hour before of 15 drops of tincture of opium; tolerance was established in two or three days, and in no case did it become necessary to discontinue the drug from this cause.

II. CLASSIFICATION OF CASES.

The cases divided themselves pretty definitely into the three classes given above, so that the action of the drug can be considered in its relation to each class.

Acute Cases.

In those cases in which the disease had been present three or four days, and in which several stools containing mainly blood and mucus were passed during the twenty-four hours, microscopical examination showed the presence of numerous amoebae of *histolytica* type. In the treatment of this class the best results were obtained by using 2 grains of emetine and bismuth iodide in pill at night and 1 grain of emetine hydrochloride hypodermically in the morning. A more rapid relief of the acute symptoms was obtained by this method than by the use of either drug alone; in fact, emetine and bismuth iodide, when given alone in acute cases, did not appear to have the same rapid action in relieving pain and tenesmus as emetine, but when used in combination with the latter drug in the above manner it certainly shortened the attack and established a more complete and earlier convalescence. The rapidity with which the stools became faecal and lost their blood and mucus was in some cases remarkable. Furthermore, there did not appear to be the same tendency to constipation, which so frequently follows the use of emetine alone.

The microscopical findings showed a rapid decline in the number of amoeboid forms in the stools after twenty-four hours, and by the end of a week the stools were reduced to one a day, were in appearance normal, and apparently free from amoebae in any form.

Case 1.

Havildar Major, admitted August 5th, 1917, with symptoms of dysentery, had been in hospital a fortnight previously with diarrhoea, which cleared up under salines. No amoebae were found at that time in the stools. On the second admission he was passing five or six stools daily, consisting solely of blood and mucus and containing numerous amoebae of *histolytica* type. Emetine 1 grain hypodermically in the morning and emetine and bismuth iodide 3 grains in pill at night were commenced on August 6th; there was slight nausea, but no

vomiting after taking pill. Tolerance was established after two days. On August 10th the dose of emetine and bismuth iodide was reduced to 2 grains. Blood and mucus were absent from the stool on August 8th, and pain and tenesmus disappeared. Stools one daily, semi-solid, until August 14th, when they became solid and free from amoebae. Returned to duty on August 17th. Total emetine injected, 12 grains; total emetine and bismuth iodide given 28 grains.

Case 2.

Driver, admitted July 23rd, 1917, with severe acute dysentery of four days' duration; passing numerous stools containing much blood and mucus. Active amoeboid forms of *E. histolytica* present. Treatment commenced on July 24th with emetine 1 grain hypodermically in the morning, and emetine and bismuth iodide 3 grains at night. Gripping and tenesmus relieved after twenty-four hours. Blood and mucus in diminishing quantities present in stools up to August 1st. One normal stool passed on August 3rd which was free from blood, mucus, and amoebae. Patient then transferred to another hospital.

Subacute Cases in which Cysts were Present.

In cases which had passed the acute stage when admitted, and whose symptoms consisted of pain and tenderness along the course of the large bowel, more marked over the caecum and lower part of the descending colon and rectum, and the passage daily of two or three semi-solid or liquid faecal stools containing a little mucus and a trace of blood, good results were obtained by giving 2 grains of emetine and bismuth iodide in pill morning and evening, with an occasional dose of $\frac{1}{2}$ oz. of sodium sulphate. Mucus and blood disappeared rapidly under this treatment, the tongue became clean, and the abdominal tenderness diminished, while, so far as could be judged with the laboratory appliances at disposal, cysts ceased to be found after five or six days of treatment. Treatment was continued until a total of 36 to 40 grains of emetine and bismuth iodide had been taken. The diet consisted of milk, sago, and rice pudding, chicken soup, and eggs.

Case 3.

Sepoy, admitted on August 18th, 1917, complaining of diarrhoea, pain, and tenderness along the course of the large bowel and the passing of small quantities of blood and mucus in the stools, of which he had two or three daily. Duration of illness fifteen days. No history of previous attacks. Two and four nuclear cysts found in stools. After a preliminary dose of oil ricini, treatment was commenced on August 19th by giving 2 grains of emetine and bismuth iodide morning and evening. Blood and mucus were absent on August 21st, and the stools were normal and apparently free from cysts on August 23rd.

Case 4.

Driver, admitted on August 16th, 1917, complaining of diarrhoea, with the passage of small amounts of blood and mucus. Two to three stools daily. Illness of about a fortnight's duration. No history of previous attacks. Cysts in stool containing up to four nuclei. Emetine and bismuth iodide in 2 grain doses twice daily commenced on August 18th. Stools normal and free from cysts on August 21st.

Chronic Relapsing Cases.

Under this category are classed cases which had had one or more previous attacks of dysentery from which they had never fully recovered. When admitted to hospital they were very debilitated and anaemic. Usually of the "follower" class, they had continued their duties long after they should have reported sick. The stools passed—often sixteen to twenty in a day—consisted of blood, mucus and sloughs, while not infrequently blood alone was passed, and in considerable quantity. Great tenderness was complained of along the whole course of the large bowel, and there was much gripping and tenesmus. Emaciation was extreme in some cases. These cases furnished all the four deaths occurring during the period under review, and the *post-mortem* examinations showed extensive ulceration and gangrene of the whole of the large bowel from caecum to anus. The stools contained numerous amoebae in all stages of development. Owing to the severity of the symptoms it was necessary to get these patients as quickly as possible under the influence of emetine, in order to destroy the amoeboid forms which were doing such harm to the already damaged coats of the bowel. Emetine hydrochloride, therefore, was given at first in doses of from a half to one grain hypodermically twice daily. Later on, as the symptoms improved, one or two grains of emetine and bismuth iodide were substituted for one of the doses of emetine. Small doses of morphine were used to allay pain and tenesmus, and promote sleep. Stimulants, such as brandy or port wine,

table reading a book, and was increased by eating. It was associated with swelling and redness of the nose, extreme restlessness, and a loss of brain power. I found that this train of symptoms never arose unless the left nostril was seriously blocked.

Some light seems to be thrown on the case by a passage from Purves Stewart's *Diagnosis of Nervous Diseases*, in which he says: "A certain amount of clinical evidence supports the view that there is a special cortical centre associated with the sensations of hunger and thirst. It would appear to be in the temporal lobe at or near the olfactory centre." With regard to the constant "dreamy" feeling complained of by the patient, I found in the same work: "Disease of the tip of the temporal lobe causes a sudden subjective sensation of smell or taste (often associated with a characteristic 'dreamy' mental state)."

I found no evidence of disease of the temporal lobe in my patient. He refused operation for the deflected septum, but I cured him of his attacks of acute blocking by getting him to exercise his alae nasi muscles. A week's exercise in front of the glass gave him well arched nostrils with disappearance of the subjective symptoms, particularly the dreamy mental state.

CHARLES J. HILL AITKEN, M.D.

THE PHENOMENA OF PURULENT BRONCHITIS.

A suspicion arises that many cases which we have hitherto classed as pneumonia of a peribronchial type were really instances of purulent bronchitis. These patients had a very rapid pulse, exceedingly frequent respiration, painful whistling cough, high temperature, headache, profuse expectoration, sometimes purulent, sometimes prune-juice-like. They—or at least the worst of them—had a heavy heliotrope hue of the lips and even of the face. The clinical signs of pulmonary consolidation were indeed sometimes wanting, but the patients were so weak and distressed by movement that one hesitated to harass them by too frequent examinations, and the rapidity of pulse and respiration seemed to justify a diagnosis of pneumonia.

It is suggested that the lesion is really pneumococcal infection supervening on influenza, and that it is infectious. Post-influenzal pneumonia is so convenient and generally accepted a diagnosis that we are tempted to put the label on many doubtful cases, but I submit that the disease is due to a mixed infection—rather an acute pneumococcal septicaemia than a mere pneumonia following influenza. The cases which have been under my care were all of a mixed infection but not necessarily influenza. They were in patients who had had malaria, dysentery, or some form of sepsis. None of the fatal cases were very young. Their lungs were not absolutely free from solid patches, but the parts chiefly affected were the bronchioles, from which grey frothy pus exuded.

The affection is far more fatal than ordinary pneumonia, and the influenzal type is generally contagious, hence the necessity for early diagnosis and isolation treatment. Stimulants freely, with oil of wintergreen externally, and stimulating expectorants combined with nuxvomica and gum resins seem to be useful.

J. C. McWALTER, M.D., F.R.F.P. and S.Glasg.

Dublin.

SYPHILIS INSONTICUM.

As an example how syphilis may be contracted through no fault of the patient, I wish to record the case of two officers who were attended by the same barber in the army somewhere in France. The barber had a sore on his hand which proved to be of syphilitic origin. Both officers developed a rash in due course, and the army doctor diagnosed secondary syphilis, confirmed by a positive Wassermann reaction. One of the officers became a patient of mine, and an independent Wassermann test was positive. I may add that the trouble in my patient's case started on his scalp as a sore.

London, S.W.

N. WALMSLEY.

THE French Government has issued an urgent appeal for the cultivation of the castor oil plant in all suitable localities. It is made not in the interests of pharmacy, but because castor oil is the best lubricant for air engines. The oil was formerly obtained chiefly from South America, but the amount imported is now small. The plant will grow in sheltered situations where it is not exposed to late frosts or rough winds. It is raised from seed, the seedlings being set out about two yards apart.

Reviews.

OBSERVATION AND COMPILATION IN SURGERY.

THE accidents of transport in these days bring together for review two books which present a striking contrast that may perhaps be considered typical of much. The one is a sound piece of clinical observation and deduction, the other a compilation demonstrating once more by its very pretentiousness the German professor's incapacity, when left to his own resources, of throwing any useful light on new problems.

Criticism of the volume on the peritoneum in war surgery,¹ by MM. STASSEN and J. VONCKEN, is disarmed by a foreword of the authors, who wrote in an advanced hospital on the Yser, far from books and without opportunity for laboratory research. But, indeed, the essay calls not for criticism; assuredly not from those who in like circumstances have painfully learnt similar lessons without, maybe, the industry to make a faithful record of their errors and misfortunes, or the candour to describe the tragic steps leading to a settled policy in the face of abdominal wounds. Here we find, well documented by case records, an account of the "false abdomen," the "doubtful case," the extraperitoneal visceral lesion, the parenchymatous-organ solus, the hollow viscus injury, the haematoma, infection. We follow the authors in their recognition of peritonism, simulating true intraperitoneal wound so closely as to be differentiated in the end only by the absence of some one—any one—of all the signs present together in the latter; of genuine wounds devoid of symptoms; of the necessity for sending to the special hospital every wound that might by any chance lead to the abdomen, and especially all those of the upper part of the thighs and the buttocks. We find them at last coming to the decision that in every case the wound should be excised in such a way that the track can be followed right to the peritoneum—and further if need be. To those going fresh to work in a casualty clearing station we commend the study of this book from cover to cover; there is hardly a page which does not disclose an experience or an observation that must be familiar to those who have operated in an advanced abdominal centre, and few, we think, who, even if they do not always agree with the authors, will not admit that these Belgian surgeons have fulfilled their hope and written "*un livre de bonne foy*."

A textbook of war surgery,² a thousand pages long, written by a score or more of the best-known German surgeons, and published after two years of war experience, should prove of great interest, but it does not. Is it that the Censor has cut out all the epoch-making discoveries of Teuton surgeons lest the enemy should profit? or can it be that Teuton surgery has made no extraordinary contributions to the solution of problems common to them and to us? In favour of the former hypothesis there is a notable absence of any reference to a prophylactic for gas gangrene, though there has been some reason, in the greater resistance of the Boche, wounded in like conditions with our own men, to infer or surmise its existence. Be that as it may, the deeper one plunges into this volume the clumsier it appears—clumsy in arrangement, clumsy in attitude of mind, clumsy in treatment. There is little or nothing here to be extracted for the instruction of our M.O.'s in the field or the betterment of their methods. If we turn to any chapter at hazard we find this. The section on the abdomen is from the pen of Schmieden himself, and it is full of good clinical observation, by no means lacking in descriptive power, but it smacks of Halle, not of the front. The real problems of gut injuries through the buttock, the back, the thorax, receive no proportionate share of attention, and the details of technique, from the author of a textbook of operative surgery, are meagre. It is the same with the chest, with the head, with other regions. Fresh from dealing with such work behind the lines one seeks guidance on knotty points, only to be disappointed. Take, again, the question of fractures of the femur; assuredly the British army has nothing to

¹ *Le péritoine en chirurgie de guerre: Etude clinique*. By MM. Stassen et J. Voncken. Paris: Baillière et Fils. 1917. (Roy. 8vo, pp. 160.)

² *Lehrbuch der Kriegs-Chirurgie*. Edited by A. Borchard and V. Schmieden. Leipzig: Johann Ambrosius Barth. 1917. (Roy. 8vo, pp. 988; 5 plates, 429 figures.)

learn if this be German practice. There is nothing really whole-hearted about excision of the wound—nothing to match Sinclair-type methods for securing extension—instead, a final reliance on plaster-of-Paris. No bipp, no flavine, no brilliant green, no chloramine-T, and the Carrel-Dakin method ill understood and discredited. Does one look at the section on the jaws and face, there are at least half a dozen men in the British service who could write a better account of better methods, and expose the whole of their personal results to put the matter to the test. The book is comprehensive, and as a storehouse of the past has a certain value, until a French or British textbook appears. Finally, we cannot but think the illustrations a pain and grief to the soul of Johann Ambrosius Barth—we are sorry, for to him every one is indebted.

BLOOD PRESSURE.

STUDENTS of sphygmomanometry will welcome the appearance of a second edition of Dr. FAUGHT'S *Blood Pressure*.³ It is a comprehensive work; the author has embodied a summary of all the recently published literature dealing with his subject, and has, in addition, given the results of his own research and clinical experience.

The first ten chapters are devoted to physiology. The variations of blood pressure in health, due to such factors as age, posture, exercise, altitude, etc., are fully discussed. In considering posture stress is laid on the fact that pressure is decreased on standing, not raised, as is often stated. The second part of the book deals with abnormal pressures and their significance in conditions ranging from Addison's disease to aviation sickness. Of especial interest are the chapters on hyperpnoea, arterio-sclerosis, and nephritic hypertension. The author insists on the fact, often overlooked, that in certain individuals high tension is a physiological necessity, and is Nature's method of compensation for loss of renal function. Lowering such a pressure will lead to renal insufficiency and must be carefully avoided. It is unfortunate that, in dealing with nephritis, Dr. Faught has treated the various chronic forms of the disease as one group; and his conclusions, drawn from a mixture of cases, are at times decidedly confusing. This disadvantage is, however, compensated by the large amount of valuable information given. Space is devoted to blood pressure in relation to surgery, obstetrics, and anaesthetics. The question of the advisability of operation in patients with high tension is dealt with in a thoroughly sound and practical manner. His final chapters on the use of drugs, and the physical means for controlling blood pressure, will appeal to all who are called upon to treat difficult cases where arterial tension is at fault. Throughout the volume stress is laid on the importance of the regular estimation of blood pressure in nearly all medical and surgical disorders. The advice is good, and should be more generally followed, though we think it is perhaps an excess of zeal which advocates the sphygmomanometer test in the diagnosis of asphyxia neonatorum.

The author's aim, to present in an easily accessible form the pith of medical literature bearing on blood pressure studies, has been achieved with eminent success. Nevertheless, the volume is one to be read with discrimination. As often as not no conclusion is drawn from the mass of evidence produced, and diametrically opposite statements frequently appear on the same page. It is evident that the reader must possess a sound knowledge of physiology and a wide experience of medicine if he would make good use of the mine of information placed at his disposal. The fault, if it be a fault, is one of the subject rather than of the writer, for lack of finality is inevitable in the present state of knowledge. But the immense value of such a survey to anyone about to undertake a study of blood pressure is easily realized, and the book will appeal to all who are interested in this difficult and complicated subject.

THE MENTAL DISORDERS OF WAR.

WHATEVER the effect of the war on the numbers of the insane—and so far there does not seem to be evidence that it has increased the total under care in Great Britain—there is no doubt that it has raised some new

problems, and that some of these have come under the notice of members of the profession who would not in the ordinary way have sought out such cases. We may be grateful, therefore, to Professor JEAN LÉPINE⁴ of Lyons for writing a handbook (in the Collection Horizon) which is intended not to express final opinions but to serve as a guide to medical officers at the front, and especially to those who have had little or no training in psychological medicine. The circumstances of service in the field react on the mind in so many ways and so differently from the influences of peace that new forms of mental disorder may result; but, in addition, they may revive or colour pre-existing disturbances. The repetition of nervous stimuli may lead to a state that may be called psychological anaphylaxis. From analysis of six thousand cases Professor Lépine draws the conclusion that alcoholism was the sole cause in more than a third and played some part in more than half.

Discussion of the numerous acute disorders occupies about half the volume. They are considered in various groups and subdivisions, which are admittedly somewhat artificial. In contrast to the works of German and Russian writers hysterical psychoses receive little attention, at least under that title, and are included under the manifestations of the confusional states. The onset of acute mental confusion is seldom acute, though it may be thought to be so when the prodromal stage has been overlooked. Emotional experiences are the sole or main causes, and thus take the etiological place occupied by toxic or infective agencies in time of peace. A description is given of cases of acute encephalitis of obscure origin with paralysis, which may be extensive, and mental symptoms resembling Korsakoff's polyneuritic psychosis. After reference to the mental sequelae of enteric fever attention is drawn to fits, mania, melancholia, and various tropho-neurotic manifestations after antityphoid inoculation.

The chronic mental disorders being commonly antecedent to the war and less responsive to treatment receive less attention than the acute derangements. Simulation of mental disease is, Professor Lépine says, extremely rare, both because it is difficult and because its success would result in confinement and not in return to a free civilian life. On the other hand, there is considerable risk that the manifestations of mental disease, such as dementia praecox and general paralysis, may be misunderstood and punished by the commanding officers as breaches of discipline. The concluding part of the book is devoted to an explanation of administrative details concerning soldiers with mental disorders.

POPULAR WORKS ON THE PHYSIOLOGY OF NUTRITION.

MEDICAL men are frequently asked by educated patients to suggest the names of books which treat intelligibly of this subject, upon which so much attention is now concentrated. The standard general treatises are not easy reading for the layman. Different aspects of the food problem have been excellently handled by such writers as Professors Hopkins, Wood, Hill, Dr. Spriggs, and Sir William Thompson, but there is still room for two new books addressed to the general public. *An Adequate Diet*,⁵ by Professor PERCY STILES of Harvard, is clearly written, but is perhaps a little too concise, and the author might with advantage have illustrated his arguments more frequently by examples. Professor BAYLISS, in *The Physiology of Food and Economy in Diet*,⁶ has provided a book which can be unreservedly commended. The general physiological principles of dietetics are lucidly explained, the advantages and disadvantages of specific foods are set out, the vexed question of alcohol and its use is handled judiciously, while all the general reader needs to know about vitamins is provided. The food situation changes so rapidly that practical suggestions as to diets necessarily become obsolete soon after they are made, while statistical data of consumption have accumulated during the last few months. Much of the information

⁴ *Troubles mentaux de guerre*. By Jean Lépine, Professeur de Clinique des Maladies Nerveuses et Mentales à l'Université de Lyon. Collection Horizon. Précis de Médecine et de Chirurgie de Guerre. Paris: Masson et Cie. 1917. (Cr. 8vo, pp. 200. Fr. 4.)

⁵ Cambridge: Harvard University Press. 1916. (Fcap. 8vo, pp. 51. 2s. 6d. net.)

⁶ London: Longmans, Green and Co. 1917. (Cr. 8vo, pp. 107. 2s. net.)

³ *Blood Pressure from the Clinical Standpoint*. By Francis Ashley Faught, M.D. Second edition. Philadelphia and London: W. B. Saunders Co. 1916. (Med. 8vo, pp. 478. 15s. net.)

published in our own columns was not available when Professor Bayliss wrote, but none of it invalidates his arguments and much of it strengthens them. There are a few points upon which some difference of opinion is permissible, but none of them are of sufficient importance to need comment, and we believe that the book is one which, if widely circulated, will do great good at the present time.

NOTES ON BOOKS.

THE first set of English translations of the Collection Horizon has been completed by the publication of the translation of the book on *Dysentery, Asiatic Cholera, and Typhus Fever*,⁷ by VINCENT and MURATET. It is edited by Dr. G. C. LOW. Dr. ANDREW BALFOUR, C.M.G., says in a short introduction that, leaving the Western front out of count but taking all the other war areas together, there can be no doubt that dysentery has been the most common of the communicable diseases. At Gallipoli it was extremely prevalent, and accounted for a great deal of the sickness and invaliding which so seriously interfered with military operations. In all the war areas, Dr. Balfour says, the bacillary form has been much more frequent than the amoebic, which accounted for only about 20 per cent. of the whole number of cases. Cholera and typhus have both been kept under control: the native labour corps in Egypt have suffered from typhus fever, but the immunity of the British forces, in spite of the great prevalence of lice, is held to be evidence of the efficiency of the measures taken for disinfection and for "delousing" not only the troops, but the prisoners taken in action. The book is valuable to medical officers, inasmuch as it deals very fully with prevention, diagnosis, and treatment. It is less complete in its handling of pathology and bacteriology.

Lieut.-Colonel W. J. BUCHANAN, I.M.S., C.I.E., has contributed to *Bengal, Past and Present*, an account of his own journeyings through Sikkim and Nepal in the footsteps of Sir J. D. Hooker, as a centenary tribute to that great naturalist, who was born in 1817. J. D. Hooker was the son of Sir W. J. Hooker, Director of Kew Gardens, was educated at the University of Glasgow (M.D. 1839), joined, like Huxley, the Medical Department of the Royal Navy, and went with Ross to the Antarctic when 22 years of age; he returned four years later, and went to India when 30. His first journey among the great mountains was made in 1848, his last and greatest in the following year. Colonel Buchanan, who has himself wandered much in Sikkim, traces Hooker's routes, and provides many notes and explanations. The paper is illustrated by two photographs of the Mt. Everest-Makalu group and of Kinchenjunga, which, even after reproduction and crushing in the post, are very fine. They may make those in populous city pent think that the chance now and again "to breathe the air of Sikkim free" is some compensation for eastern exile. The beauty of the views from Darjeeling is legendary, and Mr. Burlington Smith's diagram of the snow peaks seen from there helps the untravelled imagination to an understanding of what must be the most glorious mountain prospect in the world.

*The New Hazell Annual and Almanack*⁸ for the year 1918, by T. A. INGRAM, M.A., LL.D., is, like preceding issues, intended to provide the information with regard to all the countries of the world, and on topics of the day, which is likely to be looked for in such a work. It contains, for example, lists of members of the Houses of Lords and Commons, of orders of knighthood, and a detailed directory to the Civil Service, lists of societies and institutions, statistics of the British Empire and foreign countries, and a section on agriculture and the world's crops: it contains also a special section on Home Rule for Ireland, and a medical review for 1917, giving a number of abstracts from the medical literature of 1917; these seem to have been judiciously selected, but references are given or omitted in a rather capricious manner. The article on the navy and army is of value, as giving particulars of the various departments of the Admiralty and the War Office; it is illustrated by diagrams of some of the badges of rank in the Royal Navy, the British army, and the United States army. The concluding part of the volume contains a

detailed review of the war, preceded by a summary of events, and followed by an article on the financial aspects of the war, and lists of commissions and committees appointed to consider questions arising out of it. The volume, which is supplied with an excellent index, has been carefully adapted to its purpose.

MEDICINAL AND DIETETIC PREPARATIONS.

Scopolamine Hydrobromide.

IN view of the increasing application of scopolamine-morphine narcosis, Burroughs, Wellcome, and Co. have added to their list two strengths of pure scopolamine hydrobromide in 0.5 c.c.m. sterile solution. The dose of medicament in sterile solution is contained in a hermetically sealed glass phial, which is opened when required for use, and its contents drawn into the syringe. The new strengths are those usually employed, gr. $\frac{1}{32}$, as an initial injection, and gr. $\frac{1}{64}$ for subsequent use. They are issued each in boxes of ten phials.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on Tuesday, January 8th, fifteen cases were considered, and £154 voted to fourteen of the applicants. The following is a summary of some of the cases relieved:

Daughters, aged 76 and 71, of M.D.Lond., F.R.C.S.Eng., who practised at Rochester and died in 1855. Joint income from pensions £90 a year. Present cause of distress due to death of brother who used to help them. They pay 15s. 6d. a week for rent. Owing to high cost of living, unable to manage. Voted £18 in twelve instalments.

Widow, aged 35, of M.R.C.S.Eng. who practised in Liverpool and died in 1914. Left entirely without means, with one daughter, now aged 9, at St. Anne's School, Redhill. Applicant is a chronic invalid, and lives with her mother, who is unable to provide for her. Relieved three times, £35. Voted £12 in twelve instalments.

L.R.C.P. Edin., aged 60, widower, who practised at Old Kirkpatrick. Applicant is suffering from spastic paralysis and is unable to work. His son allows him £50 and he has a pension of £20 a year from another society. Pays £26 10s. for his rooms. Relieved thirteen times, £156. Voted £12 in twelve instalments.

Daughter, aged 51, of M.R.C.S.Eng. who practised in London and died in 1900. Applicant is a confirmed invalid. Only permanent income £5 a year from investments. The Guild allows 3s. 6d. a week. Relieved four times, £58. Voted £18 in twelve instalments.

Daughter, aged 65, of M.R.C.S.Eng. who practised at Watford and died in 1879. Applicant has a pension of £26 from the R.U.K.B.A. Used to earn a little by crochet work, but owing to failing eyesight is unable to continue this. Relieved eleven times, £126. Voted £9 in twelve instalments.

Daughter, aged 63, of M.B.Lond. who practised at Ladbroke Grove and died in 1881. Applicant is practically blind, and receives a pension of £20 from a society for the blind. Has a little help from friends. Relieved five times, £54. Voted £12 in twelve instalments.

Widow, aged 31, of L.R.C.P. Edin. who practised at Leeds and died in 1916. Income just over £100 a year. Has five children, aged 2 to 11 years. Owing to increased cost of food unable to manage. Relieved once, £10. Voted £10 in two instalments.

Widow, aged 47, of M.B.Glasg. who practised at Nottingham and died in 1914. Applicant left with two daughters, now aged 12 and 13, and very limited means. Earns a little by taking in paying guests, but wants help towards the education of the eldest daughter. Voted £10, and referred to the Guild.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

DR. LEYVA speaks well of the value of injections of sodium persulphate as an adjuvant in the treatment of tetanus by antitetanic serum. He treated three cases in the American Hospital, Paris. The injections appeared to relieve the pain and spasmodic attacks so much that the patients begged for their repetition. The dose is 20 c.c.m. repeated thrice a day of a 5 per cent. solution of the salt in sterilized distilled water. The solution must be freshly prepared and kept cold in a shaded place, as it is easily decomposed.

⁷ *Dysentery, Asiatic Cholera, and Exanthematic Typhus*. By H. Vincent and L. Muratet. With an introduction by Andrew Balfour, C.M.G., M.D., Lieut.-Colonel R.A.M.C. Edited by G. C. Low, M.A., M.D. London: University of London Press. (Cr. 8vo, pp. 227. 6s.)

⁸ London: Henry Frowde, and Hodder and Stoughton. 1918. Thirty-third year of issue. (Crown 8vo, pp. 920 + iii. 5s.)

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SATURDAY, JANUARY 26TH, 1918.

THE LAW OF THE HEART.

THE lectureship in physic at St. John's College, Cambridge, founded in 1526 by Thomas Linaere, remained an ordinary college lectureship until 1908, when, after the translation of the then holder, Sir Donald MacAlister, to Glasgow, the college authorities changed the terms of the lectureship and invited distinguished strangers, if this title may be applied to such well-known men as Sir William Osler and Dr. Norman Moore, to give an annual discourse.

Professor Starling's important Linaere Lecture on the Law of the Heart¹ gives an account of his recent researches, and thus differs from the retrospective essays of the two masters of medical history mentioned above. He discusses the mechanism by which the heart muscle adapts itself to the variations in the work imposed upon it by alterations in blood pressure. By means of an ingenious arrangement the isolated "heart-lung preparation" of a dog is provided with an artificial peripheral circulation in which all the mechanical conditions of the heart can be controlled. Two important conclusions are thus at once established: that, provided the inflow of blood remains constant, it is immaterial to the heart what blood pressure within physiological limits (44 to 200 mm. Hg) it has to contend with; and the more the blood pressure rises, the greater the quantity of blood that passes through the coronary arteries; in other words, the more work the heart has to do, the better its blood supply. The heart has a wonderful power of adjusting not only its output of mechanical energy, but also its total chemical changes, to the work occasioned by the mechanical conditions of the circulation. When as the result of exercise the heart receives a larger quantity of blood and has a higher blood pressure opposed to it, temporary dilatation with lengthening of the muscle fibres follows. The change in the muscle fibres brings more active surfaces into play, and this increase in the extent of active surface increases the energy of the heart muscle. At the same time more blood passes into the coronary arteries. The tone of the healthy heart is thus soon restored, and the organ returns to its normal volume, although it is doing more work. In a diseased or fatigued heart, on the other hand, the organ remains dilated during the whole period of increased work, and if the work be prolonged the dilatation may become permanent, and eventually cardiac failure may result.

The important deduction as to the connexion between the length of the muscle fibres and the energy of the heart's contraction justifies the labours of past physiologists on muscle-nerve preparations, the practical application of which was entirely obscure at the time, and in the lecturer's closing words shows that this, like every advance achieved in the quest of pure knowledge, will sooner or later play its part in the service of man.

DISCHARGED DISABLED MEN.

IN France a Government department has been set up to supervise the re-education of men crippled by wounds. It has been placed under the direction of a senator, M. Astier. He takes a wide view of his duties. He recognizes that it is an obligation on the state to re-educate men when crippled in its service, and that the mere grant of a pension, however liberal, cannot suffice to restore them to their place in society. He recognizes also that France, rich as it is, cannot afford to do without the work in industries, agriculture, or commerce, of the thousands of men whose war wounds render them incapable of resuming their former occupations; recent French legislation, while it recognizes the obligation of the state to pension the wounded man and to re-educate him, distinctly places upon him the obligation of submitting to this re-education.

We are very much afraid that things are not going at all well in this respect in our own country. It is the custom to speak evil of the War Office, and it has recently been denounced in the House of Commons as soulless, but in this matter it has shown more sympathy and enterprise than the civilian department which takes over the crippled man when he is discharged from the army. The Military Orthopaedic Department of the army, though it has taken rather a long time to get established on a sufficiently broad basis, and though it is not yet fully equipped, is a very big and well conceived enterprise upon which the country may look with real satisfaction. Sir Alfred Keogh wisely called to his assistance Sir Robert Jones, who has been able to rally round him all that is most progressive in surgical thought in this country. As is clear from the address published in our columns a fortnight ago, Sir Robert Jones is not satisfied; he experiences a divine discontent, but, with the goodwill of the medical chiefs of the War Office and the loyal backing of his consultant colleagues, he has accomplished the greater part of his task, and will win through to complete success. Military orthopaedic centres already in existence cover the whole country fairly well, and in England, Wales, and Scotland there are special hospitals with their workshops and training schools for providing men who have lost limbs with artificial substitutes, and instructing them in their use. We are bound to say that the War Office has been brought to realize its duty towards soldiers crippled in the war. We say nothing of the Navy because the problem has not been so great for it, and, moreover, it has the knack of managing its own affairs. But we are bound to say also that the Ministry of Pensions is not yet doing all that it was hoped it would speedily accomplish for the crippled man discharged from the army. If it be asked why the Army Council allows a soldier to be discharged before he is restored to the best possible condition for earning his own living, the answer is that it is in accordance with the decision of Parliament, which laid it down that when it was established that surgery had done its best for the crippled man, and it was certain he could not be useful again in the army, he was to become the charge of the Ministry of Pensions. The Ministry has made rules and regulations, and it has issued a pamphlet for the use of disabled sailors and soldiers, telling them "how they are being rebuilt at the nation's cost." The motto of this pamphlet is the statement by Mr. Hodge, Minister of Pensions, that "our first principle is restoration," and it tells the men of the advantages of being medically treated and

¹ *The Linaere Lecture on the Law of the Heart.* Given at Cambridge, 1915, by Ernest H. Starling, M.D., D.Sc., F.R.C.P., F.R.S. London: Longmans, Green, and Co. 1918. (Pp. 27; 8 diagrams. 1s. 6d.)

specially trained. It asserts that if a man consents to let the Pensions Ministry try to cure him he will be well looked after. His pension while he is being cured free of cost is put upon the highest scale, and if he lives away from home his wife will get an allowance for herself and the children. It also says that it is most important that a man, after being cured, should be trained for a new job; but, so far as we can ascertain, its arrangements for the continued treatment and training of the men are at present inadequate—that is to say, it has not fully realized the importance of the medical and educational sides of the matter. It is true that a medical department has now been set up of which Sir John Collie has been appointed Director. We wish him success in his new office, but he has a difficult task, and is known to his profession mainly as the author of a book on malingering. The detection of malingering is one of the duties of the Ministry of Pensions, but we should have supposed that the continued treatment and education of crippled men after their discharge from the army was a far more important function, and we are not aware that the new Director of Medical Services for the Ministry of Pensions has hitherto given any special attention to orthopaedics or the re-education of crippled men.

This, however, is not the point of greatest consequence. The important point is that the Ministry of Pensions has not yet got into working order adequate arrangements for helping the men to become useful citizens. There is little evidence that it has any proper organization in contemplation. It has asked the help of the big general hospitals. They will no doubt readily consent to do what they can, but their resources are already very heavily engaged in attending to the needs of the civil population, and there is, we believe, scarcely one which has not set aside a proportion of its beds for wounded soldiers admitted direct from the Expeditionary Forces. We are not always of the opinion of Sterne, that they manage these things better in France, and we know that conditions are different in that country, where every man is by law a soldier and where it has long been recognised that the responsibilities of the individual and the state are reciprocal, but the principles are the same and M. Astier appears to have grasped them. The establishment of a medical department of the Ministry of Pensions is a sign of grace. We hope that early steps will be taken to develop the curative and educational sides of the work and that the Minister will place in a position of responsibility a surgeon with orthopaedic experience, who thoroughly understands the needs of the crippled men discharged from the army and the means by which they may be helped again to the highest possible state of efficiency.

MEDICAL PROBLEMS OF THE AIR SERVICE.

In recent issues we have pointed out the supreme importance of setting up at once a properly organized and independent medical department of the new Air Force; we propose now to deal with particular aspects of the subject which illustrate and enforce our previous contentions.

In the first place, we may advert to the physiological problems of aviation. The response of the organism to massive alterations of barometric pressure has been the object of close study by physiologists ever since the epoch-making researches of Paul Bert, and it is generally known that the work of Haldane and his pupils, Boycott, Douglas, Poulton and others,

together with that of Leonard Hill and his assistants, Macleod, Greenwood, Flack, and others, has provided a mass of information equal in value and superior in extent to that of the German investigators, who still seem popularly to be supposed in this country to have said the last word on all matters physiological. The result is that we possess in England a number of young physiologists who have acquired in the schools of Haldane and Hill a mastery of the special technique evolved by these distinguished investigators. Now the practical problems of high altitude aviation demand for their solution the application of the methods worked out by the physiologists, which cannot be so applied by persons not specially trained. Hence arises the necessity for a special physiological branch—not a mere side show, but an integral part of the service.

Another extremely important branch of physiological inquiry directly relevant to air work is concerned with the study of vision. All physiologists recognize those facts which gave rise to the numerous and conflicting theories of peripheral vision. The researches of Hering, Tschermak, v. Kries, Parinaud, MacDougall, and many others, have given us much information respecting the differing sensitivities to various stimuli of the foveal and extra-foveal retina. The Purkinje phenomenon is a familiar example, as is its development into the complex phases of so-called recurrent vision. The special responsiveness of the extra-foveal retina to stimuli of feeble intensity and its relation to the perception of moving stimuli render the activity of this part of the visual field extraordinarily important for estimating movement and for vision under feeble intensities of light. The rare but well-defined condition of night blindness exhibits the disadvantages of pure foveal vision to an extreme degree. It thus becomes of great practical importance that the vision of the flying man should be investigated by methods which, although precisely defined, are of so technical a character that they are not the possession of the average medical man, and are not even familiar to many whose knowledge of sight testing is above the average. Here again is a branch of pure physiology upon the utilization of which many lives and the fate of momentous military operations may depend. Its right utilization will not be possible without a proper physiological department in the air service. Very similar considerations apply also to the study of the borderland problems which lie between the spheres of the physiologist and the psychologist, but upon these we have not now space to enlarge.

Enough has been said to demonstrate that it is not sufficient to meet the needs indicated with vague phrases about encouraging science. Scientific men must be employed, not only as members of advisory committees—for experience, we regret to say, proves that their advice is frequently ignored—but as executive officers with proper status and powers of action. Finally, we call attention to the necessity of paying heed to another branch of applied science, that of medical statistics. The air service is still young enough to be manageable and old enough to have furnished valuable data, if only those data are intelligently treated. Men of different ages, physique, and avocations, have been recruited, and from their subsequent careers in the service, given an appropriate method of tabulation and analysis, the formulation of sound rules of future selection ought to be possible. It is to be remarked also that the interpretation of experimental results, and the decision whether such results can properly be made a basis for action, always involve some kind of statistical analysis

which can rarely be performed properly save by a statistician familiar both with the subject matter and with analytical methods. At present much useful material may be running to waste, and much useless material may be laboriously collected for want of a scientific man in control of the statistical organization. The notion that a medical statistician is a mere collector of returns and computer of percentages is as prevalent as the idea that a physiologist is a harmless crank devoted to the making of lines upon a smoked drum. Both these beliefs are false and dangerous; especially so in the air service; the method of dealing with the one delusion is equally applicable to the other. It is no longer thought strange that railway managers, coal owners, and multiple shopkeepers should blossom into generals, admirals, and super civil servants. But the conception that a man of science, as such, should be entrusted with executive responsibility is still a suspicious novelty. Thus our contemporary *Aeronautics*, in an otherwise excellent article, meets our plea that a seat on the Air Council ought to be filled by the head of the Air Medical Service, with the remark that it is not likely to find favour, "for several good and obvious reasons which it is unnecessary to enumerate." The "obvious" reason we have just stated; its merit is not obvious.

Of one thing we are sure: if the Air Ministry gives real power to men of science, not the lip service which has so long been their portion, this nation will surely establish a mastery in the air. If science is slighted and despised as heretofore, the new scheme will fail. In the eighteenth century, according to Commander Robinson's history of the fleet, we maintained our predominance by capturing the enemy's better models and then copying them. In these days we cannot hope to live upon the recognition of science by our enemies; we must use our own brains. The air service has an opportunity of beginning well; we hope the occasion will be seized.

DEFECTS IN THE LUNACY LAWS.

IN our correspondence columns this week will be found a letter from the chairman and secretary of a select committee of the Medico-Psychological Association, appointed to resume the consideration of the points in which the existing lunacy laws require amendment. The letter asks medical men to furnish information of their experiences in the defects in the present system of lunacy law and administration, and to suggest legislative alterations they deem advisable. The need for amendment has been accentuated by the many cases of shell shock and other forms of mental derangement in its earlier stages arising out of the war, but reform has long been required in the interests of the civil population. The subject is one to which the British Medical Association has given attention for many years. It has taken an active part in promoting amending bills in the past, and will no doubt continue to show its readiness to work in co-operation with the Medico-Psychological Association. As has very frequently been pointed out in our columns at length, there has been for many years increasing dissatisfaction with the operation of the lunacy laws in England and Wales. Conceptions of mental disease have been changed, and if this country is to keep abreast of the times improvements in the legislation enacted nearly thirty years ago are necessary. The case for reform was very clearly and succinctly stated by Dr. Bedford Pierce in an address on the absence of proper facilities for the treatment of mental disorders in their early stages, delivered before the Yorkshire Branch of the British Medical Association when he was its President in 1915. The address was published

in full in the *BRITISH MEDICAL JOURNAL* of January 8th, 1916, p. 41. Dr. Pierce recognized that the legal profession viewed with grave concern any interference with the liberty of the subject, but pointed out that the problem of the proper treatment of incipient insanity will not be solved until it is clearly recognized that there is no defined line between sanity and insanity. There is a rather vague intermediate zone, and those who enter this region urgently need the best treatment at the earliest possible date; the existence of this intermediate borderland state should, therefore, receive legal recognition. The need for establishing separate clinics in close alliance with the clinics for other departments of medicine is now generally recognized, and as part of them there should be accommodation available for cases that need in-patient treatment. There is no provision for borderland mental cases among the poorer classes, and a move in the right direction would be to permit the admission of voluntary boarders to county and borough asylums, a provision at present confined to licensed houses and hospitals. In Scotland certain cases of temporary or unconfirmed insanity can be dealt with by notification without certification, a procedure which has not yet been adopted in this country.

MARGARINE.

MARGARINE is a generic term for any butter substitute. The original product was made from animal fats, chiefly beef fat, but also mutton fat, lard oil, and horse fat. Nowadays the greater part of the cheaper margarines are made from vegetable oil, chiefly the cheap cocoanut oil expressed from copra, the fleshy portion of the seed of the cocoanut palm. *Arachis* (peanut) oil, is also used, as well as cotton-seed oil; in fact there is hardly an edible animal or vegetable fat procurable in large quantities at a cheap price which has not been used in the manufacture of margarine. The mode of manufacture is in all cases more or less similar. When beef fat is used it is taken fresh and placed in tanks at 80° F., then chilled and cut into small pieces, and raised again to 150° F. The clear oil is drawn off and allowed to set in vats. This is called "oleo-oil," and margarines made from it are sometimes called "oleo-oil margarines." Oleo-oil consists largely of olein. When the margarine is to be prepared, a quantity of skimmed milk is first pasteurized, then cooled, and run into souring tanks, where it is inoculated with lactic acid bacilli and the fermentation allowed to proceed until a degree of acidity is reached which causes rapid precipitation of curd; it is then poured into churns, the oleo-oil or the mixture of oleo-oil and vegetable oils, melted and strained, added, and an emulsion obtained by stirring. This emulsion is drawn off along a slanting board under a spray of ice-cold water, which causes immediate solidification, the mass being broken up into yellow granules. The granular mass, after draining, is matured at a constant temperature while the bacteria introduced by the milk develop; the product is then kneaded into a butter-like mass. To some extent the process of catalytic reduction, or so-called hydrogenation of oils is now carried out commercially; by this method many liquid oils can be rendered solid or semi-solid. These hydrogenated oils do not seem to be much used in this country for making margarine, but are apparently an important constituent of cheap lard substitutes. Early experiments with margarine, made chiefly with the oleo-oil or animal fats, seemed to indicate that a good margarine was of the same relative nutritive value as butter, but there is now reason to conclude that the vegetable margarines may be deficient in the accessory growth substances or vitamins. The presence of growth-promoting accessory substance in association with certain naturally occurring fats was first described by McCollum and Davis, and Osborne and Mendel, and investigation has shown its existence in butter, egg yolk, cod-liver oil, the lower melting point fractions of beef fat and kidney fat. It is

apparently absent from the majority of oils of vegetable origin. The only animal fat as yet found entirely deficient in it is lard. Halliburton and Drummond¹ have recently concluded a very careful research on the nutritive value of margarines and butter substitutes with reference to their content of the fat-soluble accessory growth substance. Confirming and extending previous experiments by McCollum, Hopkins, and others, they found that rats fed upon dietaries in which animal fat margarine was the sole fat and the sole source of the fat-soluble accessory substance, completed their life-circle normally, whereas rats receiving instead vegetable-oil margarines showed a more or less subnormal rate of growth for a short period, and then, sooner or later, the characteristic decline associated with a deficiency of the fat-soluble accessory substance. When the animal margarine was restored to the diet, growth at the normal rate was resumed. The conclusion of Halliburton and Drummond is that the oleo-oil margarines are in this respect nutritively the equivalent of butter, but that coconut oil, cotton-seed oil, arachis (peanut) oil, and hydrogenated vegetable oils contain little or none of the accessory substance, so that margarine prepared with a basis of these fats has not a nutritive value equal to that of butter. Lard substitutes prepared from vegetable oils are equal to lard in their nutritive value, both alike being destitute of the fat soluble accessory substance. The best natural sources of the fat-soluble accessory substances are milk, butter, and eggs, but these have risen in cost, and butter has become very difficult to obtain. There is, therefore, a danger that unless steps are taken to ensure a better milk supply for children they may run some risk of being fed, so far as fat is concerned, entirely upon vegetable-oil margarines, destitute of the growth-promoting accessory substance. The chemical nature of this substance has not been ascertained; it is apparently easily extracted by alcohol, but not invariably by ether. It has been suggested that it is a lipoid and that in plant cells it is held in some form of chemical union, which is broken down during the assimilation of the plant foodstuff by the animal. Some recent attempts to isolate from the small bean, katjang hidjoe (*Phascolus radiatus*), the substance which gives it its power of curing beri-beri and polyneuritis gallinarum, have been reported by Dr. Hulshoff Pol.² They were conducted in Java and at Utrecht. The bean has a great reputation in the treatment of beri-beri and Dr. Pol has used it with success for the cure of that disease. He first made a decoction of the beans and after purifying it administered the fluid to four out of a number of beri-beri patients. These four patients recovered; the others who did not receive the decoction got worse and it became necessary to give them the bean in the ordinary way. The decoction contains an acid principle which yields crystals on evaporation. The chemical constitution of this acid body has not been determined, but there seems little room to doubt its efficacy as a cure for polyneuritis gallinarum.

THE FOOD MINIMUM.

TEN public lectures on some biological problems of to-day are being delivered at University College, London, on successive Monday afternoons. The first, by Professor W. M. Bayliss, F.R.S., on January 21st, dealt in a general way with the food question. He took the daily requirement of a man engaged in moderate muscular work as an amount of food which would yield 3,300 calories; of the sedentary worker 2,500 calories; 1,700 calories was the minimum, and to go below this involved actual loss of body substance. The value of the articles rationed by the Food Controller at present was little more than the bare amount necessary for subsistence, and accordingly, if a person was to do even a moderate amount of work, he must supplement his diet to the extent of some 1,400

calories from unrationed articles. This was a large proportion of the whole, although the unrationed articles included potatoes, fish, and peas and beans. No one would object to living on the smallest practicable diet if necessary, but official statements as to the degree of real shortage were contradictory. If the next three or four months were likely, from the military point of view, to be the most critical in the war, Professor Bayliss suggested that it might be worth while, in order to help every individual to work at maximum pitch, to arrange for a sufficient diet to cover that period, and risk a moderate shortage afterwards. In any case, he agreed with Dr. Leonard Hill that there was a great deal to be said for allowing bread to be completely unrationed and letting other things take care of themselves. From inquiries based on the experience of a number of middle-class families, he had reason to think that the pre-war figure of 4,400 calories given by Hopkins and Wood included an undue proportion of waste in the kitchen, with the consequence that although much smaller quantities of food were now purchased, the people themselves were not sensible of a corresponding shortage in actual consumption owing to greater economy in preparation. It was a part of food economy to keep warm. It had been suggested that in the case of a person who was not obliged to take muscular exercise such exercise should be avoided as it was a waste of energy, and resulted in increased food consumption: but muscular exercise produced heat, and therefore, within limits, it served the purpose of keeping up the body temperature. He had been unable to find any definite evidence for the view that a given weight of protein was more effective for the production of energy than a similar calorie value in fat or carbohydrate. So far as the healthy individual was concerned, protein as a source of energy had no value over any other form of food. Cocoa butter (consisting of the fat removed from the cocoa bean in the preparation of chocolate) might, he thought, be a substitute for dairy butter, at least for cooking; for table use its chocolate taste might be objectionable, but it was an excellent fat.

DISSEMINATED SCLEROSIS.

It is said that after locomotor ataxy disseminated sclerosis is the next commonest nervous disease. Very little is known about its etiology, and it has been looked upon as a primary degeneration. Clinically, however, it presents many signs of a specific infection. The first attack is sometimes a very acute illness, and the recurrences suggest the revival of a latent infection. The anatomical lesions in cases which have run an acute course, consisting of inflammatory and exudative changes in the walls of small blood vessels throughout the central nervous system, are very suggestive of infection. These inflammatory changes are, moreover, present in areas where glia is poorly developed, which is against the idea that a primary degenerative change in the glia is the foundation of the pathological anatomy of the disease. Various workers, including Jürgens, Siemerling and Raecke, and Bullock, have attempted to transmit the disease from man to animals without result. Steiner, just before the outbreak of the war, was able to produce in a rabbit by inoculation of cerebro-spinal fluid from an acute human case, a disease with marked nervous symptoms, which ended fatally about six weeks after inoculation. Since then further experiments have been carried out, the blood and cerebro-spinal fluid from acutely developing human cases being used for inoculation.¹ Guinea-pigs, rabbits, mice, and one monkey have been the subjects of the tests, and the inoculations were made intraperitoneally, intracardially, and intracocularly. The authors describe interesting results in guinea-pigs after intraperitoneal injections of cerebro-spinal fluid, and in rabbits after intraocular inoculations. Control experiments with the blood and cerebro-spinal fluid of patients suffering from other diseases, and of

¹ *Journal of Physiology*, vol. li, p. 235.

² P. Kuhn and G. Steiner, *Med. Klin.*, September 23rd, 1917, p. 1097.

healthy persons, were completely negative. In the guinea-pig the disease may develop and end fatally at periods varying from three days to twelve weeks. The symptoms all point to involvement of the central nervous system. The animal sits humped up, moves about with difficulty, and finally becomes paralysed in the limbs. Death ensues as a rule within about nine hours after the onset of paralysis. In rabbits the symptoms are at first not referable to the nervous system. The animal becomes thin, and its fur dry; later a severe illness sets in suddenly, and ends in paralysis and death. No macroscopic changes have been observed in the experimental animals *post mortem*, and the histological changes have not yet been worked out. Cultures from the blood and from the organs of the animal were one and all sterile. In films of blood both from the guinea-pigs and rabbits, which died with paralytic symptoms, the authors were able to recognize spirochaetes. The methods used were dark-ground illumination, Giemsa's stain, and Loeffler's stain. In only one case were spirochaetes found in the animals by Levaditi's silver method, and then only in the liver. The spirochaetes are described as morphologically very similar to those of spirochaetal jaundice. Under dark-ground illumination they are very actively motile. Further work on the subject is stated to be in progress.

RADIUM IN CANCER.

THE larger number of reports on radium treatment and its results which have been published have been mainly statistical. Dealing with the cases seen during the course of a single year, and with the general methods of radium application, they finish with a short record of the diseases treated and with the results obtained. From the point of view of affording assistance to other workers in the consideration of the actual treatment to be carried out in individual cases, these reports have been, generally speaking, insufficient as accurate guides. In the first report of *Radium Therapy in Cancer*¹ at the Memorial Hospital, New York, by Janeway, Barringer, and Failla, the authors have been at pains to put on record their work in such a manner that it could be used for reference by others, and so that a reader can duplicate the method, or obtain the necessary information to guide him in his own work. The first part deals with the physical considerations relative to the application of radium, and in the course of fifty pages discusses, amongst other things, the various physical and chemical actions, the applicators used, and the value of the radiations from typical applicators. Whilst containing nothing new, it gives in concise and practical form all the information a medical man requires in order that he may approach the actual treatment of cases in a scientific manner. Janeway is responsible for the main portion of the report, which deals with the principles and methods of the application of radium to cancer. It is based on the observation of 424 cases of malignant tumours treated during a period of two years. There are no photographic reproductions of the cases, but a short and concise description is given, together with the exact nature and dates of the radium treatments, and the results, immediate and remote, are described. Similar cases are grouped together, and the observations and results with each group are summarized. The whole constitutes a valuable record of careful and systematic work, and the arrangement is such that the reader is able to obtain information and facts very easily. A short section upon the radium treatment of bladder and prostatic carcinoma by Barringer is based on 25 bladder and 30 prostate cases. A few of these are recorded in the same way as the others, and the opinion is expressed that radium can do as much as surgery for bladder carcinoma without subjecting the patient to the danger and discomfort of a major operation.

¹ *Radium Therapy in Cancer at the Memorial Hospital, New York*. (First Report, 1915-16.) By Henry H. Janeway, M.D., Benjamin S. Barringer, M.D., and G. Failla. New York: Paul B. Hoeber, 1917. (Med. 8vo, pp. 242; 18 figures.)

THE SANATORIUM TREATMENT OF TUBERCULOSIS.

THE city of Birmingham, like other large towns, has to bear a heavy burden of tuberculosis. The measures which the municipality have adopted to deal with it and the progress made during the past year are set forth in a long report by the tuberculosis officer, Dr. G. B. Dixon, with supplementary reports from the superintendents of the hospitals and sanatoriums included in the scheme. It is satisfactory to note that an attempt has been made to separate the advanced from the more curable cases, but complete success has not yet been attained in this respect. In Birmingham, as elsewhere, the demand for sanatorium treatment considerably exceeds the supply of accommodation, and many beds, primarily intended for first-stage cases, have to be given up to patients for whom there is no real hope of recovery, many of them being Poor Law cases. Dr. Dixon points out very clearly the difficulty which attends the classification of early cases, some of which, without any marked physical signs of disease, may go rapidly downhill, while others with well-established evidence of destruction of lung may make a good recovery. Doubtless this is true of a small proportion of cases, but in the vast majority of instances the cases which can be restored to permanent working capacity are those in which the actual pulmonary lesion is still only slight. Restoration to working capacity for a few months or years is of little value to the community, and experience proves that it can be attained in the chest hospitals as well as in the sanatoriums. Hence it would be more gratifying if the Birmingham method could be carried out in its entirety and the sanatoriums strictly reserved for the treatment of cases which exhibit substantial evidence of curability. Almost every aspect of the subject is dealt with in the report, except the durability of working capacity; it is only compared as before and after treatment. The dangers of family infection are shown diagrammatically, which serves to confirm the fact observed in other large centres that the presence of near relatives affected with tuberculosis is the main danger; the figures point unmistakably to the overcrowded bedroom as the probable scene of infection. A very large number of tuberculous children have to be dealt with in the Birmingham area, and the arrangements made for combining treatment with preliminary education are excellent. Working from an antituberculosis centre in the town, the investigation of notified cases and contacts is carried on very thoroughly and there are five institutions set apart for the reception of selected cases. Every effort is made to re-examine cases after a period of treatment in these hospitals and sanatoriums and to keep in touch with them later on, but the inevitable shortage of skilled observers greatly hampers this part of the work. The high percentage of disappearances of bacilli, even in third-stage cases, is remarkable and contrasts strongly with observations made upon this point in some other sanatoriums, especially in face of the fact that many examinations of sputum were made several months after the patients had returned to their normal round of life. Very close supervision is maintained over the milk supply, and all cows reacting to tests are eliminated, although apparently in perfect health. The high case-incidence among children would seem to show that in spite of all these precautions the insidious encroachments of the bacillus have not been checked. The ever-present danger to young children is emphasized also in a report from Belfast to which we lately referred.¹ In that city there has been a remarkable tendency to glandular tubercle, and the same thing has been noted in other large towns as occurring during 1916. Examination of contacts proved the presence of a great deal of latent disease for which no medical aid was sought, and indicated very clearly the need for more complete domiciliary investigation and treatment. Too often, for lack of early recognition, the disease gets the upper hand and advances to the incurable stage before the need for medical help is thought of.

¹ BRITISH MEDICAL JOURNAL, November 10th, 1917.

THE WISE USE OF MEDICAL MAN POWER.

IN an article upon this subject last week we stated that it was hoped that it might prove possible to avoid further calls upon the civil profession to supply more medical officers for the army, but that the calls from the Royal Navy might become more insistent. It appears that this statement without qualifications has been misunderstood. Its truth was contingent upon the army obtaining all the newly qualified medical men on a principle of equitable adjustment with the Royal Navy. This, it was thought, would be understood, because the claim of the medical services of the armed forces on newly qualified men is so generally recognized that it did not seem necessary to reiterate this point. It seemed probable that from this source the actual wastage of the medical services by invaliding, owing to wounds or sickness, would be met. But the statement was made subject to another contingency which ought to have been specified—namely, that the number of temporary officers R.A.M.C. relinquishing their commissions at the end of the period for which their contracts run and the number of demobilizations did not increase. Should any such increase occur on a large scale the balance will of course be disturbed, and what steps should be taken in that event will become a serious matter for consideration between the professional committees, the Ministry of National Service, and the medical services of the Royal Navy and of the army. The question of medical man power was mentioned during the discussion of the quarterly report of the Central Medical War Committee at the meeting of the Council of the British Medical Association on January 23rd. It was decided that a communication should be sent to the Minister of National Service urging the need for publication of the findings of the Committee of Inquiry which visited France last September to inquire into various matters connected with the personnel and administration of the Army Medical Service in that country, and the importance also of ensuring that any recommendations made by that Committee with a view to economy of medical man power shall be carried into effect.

Medical Notes in Parliament.

Abolition of Boards of Guardians Recommended.

(From Our Parliamentary Correspondent.)

MUCH interest attaches to a report which has just been presented to Dr. Addison, as Minister of Reconstruction, by a committee that has been considering questions of Poor Law reform. Far-reaching changes, involving the abolition of boards of guardians and the transfer of their functions to county and borough councils, are recommended. The Committee was appointed by the President of the Local Government Board, and not by the Reconstruction Minister as might be inferred from what has been said in the lay press. It is only because Dr. Addison gathers up from all the departments matters which concern reorganization after the war that he has the report under review. Sir Donald Maclean was made chairman of the Committee, whose membership included Lord George Hamilton and Mrs. Sidney Webb, the authors respectively of the majority and the minority reports of the Poor Law Commission appointed by the late Lord Salisbury when he was Prime Minister.

The Committee recommends the abolition of boards of guardians and the merging of all the functions of the Poor Law authorities in those of the county council and the county borough council, subject to certain modifications set out in schemes for London and the other administrative counties. After enumerating the many public authorities dispensing assistance out of the rates and taxes, the Committee states that its recommendations have been made for the further unification of services. The Committee has adopted for its guidance the principle of concentrating as far as possible on one local authority in each area the administration of all expenditure from public funds.

As regards matters more directly referred to it—by the

Local Government Board—the Committee recommends that the care of the sick and infirm, including maternity and infancy, and the aged (who need institutional care) should pass to the county or borough councils according to area; and that the provision for children able to attend school and for mentally deficient persons should similarly pass. In other words, it proposes *inter alia* that workhouses, Poor Law homes for children, and the care of mentally defectives should be transferred to the councils. The recommendation is to the effect that the workhouses, under another name, with the care of the mother and the young child, the sick and the old, should be put under the administration of the existing public health committees of the councils, which should be called Health Committees. It is recommended that the children of an age to attend school should come under the charge of the existing education committees of the councils; and that mentally defective persons and those of unsound mind uncertified should come under the charge of existing committees of the councils formed under certain Acts of Parliament.

For two other classes at present dealt with by boards of guardians it is proposed that two new committees should be set up by the councils. The first of these classes consists of the unemployed able-bodied, and it is recommended that the county or borough council should set up an unemployment and training committee, on the lines of the education committees, on which employers and trade unions should be represented. For dealing with the other class, including those who receive Poor Law out-relief, it is recommended that each of the councils should set up a home assistance committee. This committee would, besides taking up the administration of "outdoor" relief, as it is termed, deal with old age pensions, and it might possibly take up the provision of meals for school children, now made under an education Act; it might also deal with cases of discharged soldiers and their dependants requiring attention.

It is recommended that compensation should be given to officers (including medical officers and nurses) displaced or injuriously affected by the absorption of staffs. The proposal is that option as to transfer should be given both to the councils and to officers concerned, and that tenure of office and all rights of superannuation should be fully taken into the reckoning.

As regards the County of London, it is proposed that the functions of the boards of guardians, the Metropolitan Asylums Board, the managers of any sick asylum districts, and Poor Law school districts, should be divided between the county council and the borough councils, according to a scheme to be framed by the county council after consultation with the borough councils. The City of London is to be reckoned for this purpose as if it were a borough. The work of the assessment committees throughout the country would be taken over by the councils. The report is signed by all the members of the Committee subject to qualifying memoranda by certain individual members.

The fact that the report is being considered by Dr. Addison has led to the inference that it is intended (if it should be adopted by the Government) for application after the war. The Committee, however, does not, it is understood, make any recommendations as to when its proposals should be taken up. Some of its members are said to favour the view that it would be better to proceed promptly, in order that our system might have been reorganized when demobilization takes place, bringing, perhaps, greater calls for what is at present Poor Law relief. Other members of the Committee very possibly regard this as one of the questions that can hardly be settled in the midst of the war.

The report has already come under the attention of the Association of Poor Law Unions of England and Wales, of which Mr. John Spear, M.P., is president. It should be said that this body has been watching the matter for months past. When the Local Government Committee was first appointed the association sought to have representatives placed upon it, but were informed that the Committee was not set up on a basis of representation of public and other bodies, and therefore the request could not be granted. Questions have been addressed to ministers in the House of Commons from time to time, with the object of getting the decision reconsidered, but they were met with a negative.

A copy of the report was, however, through some medium made available for consideration by the association

at its meeting in London last week, and was discussed at length. The Association has for some time been preparing a scheme for the reorganization of boards of guardians. Amongst other proposals which it contains in draft is one for the abolition of the term "workhouse" and of other words which jar on present day feeling. It is thought that the phrase public assistance, or some such words, should be substituted for "Poor Law relief," and that thus the stigma of pauperism could be removed from the help given to those who are broken by misfortune. This scheme will shortly be ready for submission to Dr. Addison, and it is understood that he is prepared to weigh it carefully. Some such assurance is understood to have been received.

The Poor-Law Association holds very distinctly that there are strong arguments against boards of guardians being "scrapped," to use the expression of one of its members. It is urged that the committees existing and to be appointed by the councils would not have the same direct responsibility to the people because the election of councillors is on so many issues, and also because of the nomination of non-elected members. It is submitted that the election of boards of guardians by the people affords the best security for administration in the interests of the poor with due regard to those of the ratepayers. Persons who have not the time (and in some instances the means) to enable them to become county councillors serve in their own localities as guardians, and they are in close touch with the people. The view is also taken that the transfer of the work of the assessment committees to county councils, which is consequently recommended to effect complete transfer, is undesirable, this important work being in experienced hands, and generally reckoned to be well performed.

The Man Power Debate.

In the course of the debate on the Man Power Bill last week Sir Donald Maclean (Chairman of the London Appeal Tribunal), warned the Government against expectation of getting more than a few men through the tribunals. He said that in two years the London Appeal Tribunal had given 50,000 decisions in respect of 40,000 cases, and out of these 40,000 only 3,000, including the conscientious objectors and men with special certificates, were running under exemption. In London they had got down almost to the bone. He asked that some general instruction should be given to the tribunals as to Grade 3 men (Army Auxiliaries), otherwise they would, though mainly unfit, be sent into the army. There were many cases in which a man was, *prima facie*, fit for the army, and yet if he were sent his death warrant was signed. Referring especially to cases of men over 35 years of age, he mentioned that the sickness casualties of men between 35 and 40 years of age were 250 per cent. more than those of men between 28 and 35 years of age. Sixteen per cent. of the pensions given were for sickness and disease. He complained of the system under which men were dealt with when they got into the army, and said that "colossal stupidity" was revealed.

Mr. E. Smallwood, the new member for East Islington, in a maiden speech in the same debate, urged that the War Office needed combing out. He spoke with some feeling, as he had lost both his sons in the war. He alleged as regards the younger son that there was discourtesy when he tendered a certificate signed by Sir Thomas Barlow for extended leave. As regards the other son, Mr. Smallwood told a painful story. It appeared that this young officer was in a military hospital in France, and Mr. Smallwood was not permitted to stay at his bedside the night he died, but had under regulations to leave the hospital. He was told by the matron that the rule must be kept. Mr. Smallwood quoted these experiences to insist that the War Office was soulless, and that changes were needed.

Orthopaedic Treatment of Discharged Soldiers.—Major David Davies asked the Pensions Minister whether he was aware that, with the exception of the Wrexham garden village training centre, there was at present no technical training centre or orthopaedic institution for special treatment available in North Wales, and whether he would consider the advisability of amalgamating the two Joint Statutory Committees of North and South Wales, so that the requirements of discharged soldiers in Wales might be dealt with by one committee, which would have regard to the provision of training and treatment for the whole of Wales. Mr. Hodge, in reply, said that he had no power to amalgamate the two Joint Committees, which were voluntary associations of local committees, and he doubted whether such amalgamation would be desired by either body. Their separate existence, however, was not a bar to the common use of institutions and training centres in Wales. The hospital at Llandrindod Spa, which he was arranging, would take 150 cases, and would be available to the whole country, as was Wrexham already, for orthopaedic treatment. The general arrangements for training included the transfer of a man from one area to another when necessary.

Hospital Treatment of Discharged Disabled Men.—In reply to Sir Henry Harris, who asked the Pensions Minister whether he had come to any agreement with the London civilian hospitals as to the terms and conditions on which discharged disabled men would be treated, Mr. Hodge said that arrangements had been made with both London and provincial hospitals, and the terms would be communicated to all Local War Pensions Committees forthwith. In reply to another question by Sir Henry Harris, Mr. Hodge said he was fully aware of the difficulty experienced in London in obtaining in-patient treatment for discharged disabled men. It had been arranged that the War Office, recognizing the prior claim of the Pensions Ministry to the accommodation in civil hospitals, would refrain from requisitioning further beds in these hospitals, and would release the accommodation now occupied by it as rapidly as possible. Sir Henry Harris further asked whether Mr. Hodge would take steps to supplement the inadequate accommodation, having regard to the claims of ordinary civilians, and quite apart from military needs. Mr. Hodge said that a Medical Department had just been instituted at the Pensions Office, and was presided over by a very eminent surgeon. This department had the matter of hospital accommodation in hand. He was hopeful that under expert advice the difficulties referred to would be rapidly swept away. Sir William Collins asked if Mr. Hodge was aware that more than 1,600 beds had, since the beginning of the war, been added to the accommodation of the voluntary hospitals in London in order to meet the case of the admission of military patients.

National Service Medical Boards.—In reply to Mr. Snowden, Mr. Beck said that all members of the National Service Medical Boards were civilian medical practitioners. Certain of the presidents of the recruiting medical boards continued to act as chairmen of the National Service Medical Boards during the period of transference from the control of the Army Council to that of the Ministry of National Service, but these had now been relieved with the exception of two, who would be relieved within a few days. The President of the Recruiting Medical Board at Derby relinquished his position on December 1st, 1917, and had been succeeded by a well known highly qualified civilian medical practitioner. Inquiries were being made regarding the alleged conduct of the late President of this Board.

Discharged Soldiers and National Work.—Replying to Mr. Hogge, Mr. Beck stated on January 21st that it was proposed that men at present in civil life who had served in the forces and been discharged on account of disablement or ill health, and who were liable to re-examination and recall for service, should have an opportunity of engaging in work of national importance instead of re-entering the army. The work of national importance would be in an industry contained in a list to be settled. Each man must take steps to apply for employment, but every facility would be given him. Hitherto the concession had applied only to men who had served overseas, but in future it would apply to all who have served and been discharged or disabled. It would not apply to men who, without having served in the forces, have been exempted by the tribunals.

The Army Council and the Army Medical Service.—Major David Davies asked Mr. Macpherson whether, in view of the resignation of Sir Alfred Keogh and the appointment of his successor, the War Secretary was willing to consider the question of direct representation on the Army Council of the Royal Army Medical Corps, thus raising the status of the Army Medical Service. Mr. Macpherson replied that it was not intended to place the Director-General of Army Medical Services on the Army Council, but whenever matters affecting medical organization or administration were before the Council, the Director-General would be called in to give the Council the benefit of his advice. Major Davies asked whether it was true that Sir Alfred Keogh was offered a seat on the Army Council. Mr. Macpherson said he was not aware whether this was so.

UNDER the heading "Be careful with lithotripsy in the wounded," *Prætorius (Muench. med. Woch., August 14th, 1917)* records the case of a soldier wounded in the back by a mine explosion. Several projectiles were removed from his back and the wounds healed quickly, but cystitis, which developed soon after he was wounded, became steadily worse in spite of irrigations and drugs given by the month. About six months after he was wounded the urine was alkaline and contained a considerable amount of pus. The cystoscope showed diffuse chronic cystitis, but no scar or ulcer of the bladder. A somewhat elongated white stone, a little larger than a pigeon's egg, was seen, and a lithotrite was accordingly inserted. The crushing of the stone required only a few minutes, but as the last fragments were being demolished the lithotrite jammed, its blades remaining 2 to 3 mm. apart. Attempts to withdraw the lithotrite were so painful that a general anaesthetic had to be given, and even then the end of the lithotrite could not be pulled back further than to the middle of the anterior urethra. The urethra was incised at this point, and with the greatest difficulty a jagged piece of sheet iron was removed; the lithotrite was then easily withdrawn.

THE WAR.

THE WESTERN FRONT.

APRIL-NOVEMBER, 1917.

THE report of Field Marshal Sir Douglas Haig, describing the operations from the opening of the British offensive on the Western Front in April to the conclusion of the Flanders offensive in November, begins by describing the general allied plan as originally formed in November, 1916, and the modifications subsequently introduced. He describes the battle of Arras which opened on April 9th and was the main feature of the spring campaign, the battle of Messines which opened on June 7th, the third battle of Ypres which began on July 31st, the numerous counter attacks which followed each of these actions, and the various subsidiary operations. The Arras operations yielded 19,500 prisoners, among whom were over 400 officers, and 257 guns, including 98 heavy guns. The captures in Flanders amounted to 24,065 prisoners and 74 guns, besides machine guns and trench mortars. The total number of prisoners taken in the period under review was 57,696 including 1,290 officers. The dispatch concludes with a number of paragraphs dealing with the various branches among which is the following referring to the work of the medical services:

Medical Services.

The work of the Medical Service in all its branches has continued to afford me most valuable assistance. The high standard of efficiency displayed by all ranks of the medical service has resulted in an almost entire freedom from epidemic disease, and has been the cause of much saving of life and limb amongst the wounded.

The devotion and gallantry of the Royal Army Medical Corps and of the Medical Corps of the Overseas Dominions during the recent operations have earned universal admiration and praise. Their work of collecting the wounded from the front has been of an exceptionally arduous nature, owing to the condition of the ground and weather. I regret that so many gallant officers and men have lost their lives in carrying out their duties.

The Medical Service of the United States of America has shared in the work of the British Medical Service, and has given very valuable help.

I am much indebted to the devotion and work of the consulting surgeons and physicians and to the Auxiliary Services of the British Red Cross Society and Order of St. John of Jerusalem.

The Nursing Services, several of whose members have unfortunately lost their lives from hostile air raids, have, as always, devoted themselves with untiring care and zeal to their work of mercy.

The excellent organization and administrative work of the Medical Services as a whole have given me entire satisfaction.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Drowned.

SURGEON PROBATIONER L. P. ST. J. STORY, R.N.V.R.

Surgeon Probationer L. P. St. J. Story, R.N.V.R., was reported as drowned, in the casualty list published on January 21st.

ARMY.

Killed in Action.

CAPTAIN A. K. SINHA, I.M.S.

Captain Atul Krishna Sinha, I.M.S., was reported as killed in action in the casualty list published on January 18th. He had been previously reported as missing so long ago as August 23rd last, shortly before which date his death must have taken place. He was born on August 4th, 1888, and educated at the Calcutta Medical College, graduating M.B. Calcutta in 1912, and at University College Hospital, taking the diplomas of M.R.C.S. and L.R.C.P. Lond., and also the Cambridge diploma in tropical medicine and hygiene in 1913, and the M.R.C.P. Lond. in 1914. He entered the I.M.S. as lieutenant on July 26th, 1913, and was promoted to captain on July 26th, 1916.

Died on Service.

BRIGADIER GENERAL A. A. HOWELL, C.M.G.

Brigadier General Arthur Anthony Howell, C.M.G., died suddenly at Blackdown Camp on January 15th, aged 56.

He was born in 1862, the third son of the late Very Reverend David Howell, Dean of St. David's, and was educated at Shrewsbury School and at the London Hospital, taking the diplomas of M.R.C.S. in 1886, and the L.R.C.P. Edin. in 1891. He was in partnership practice at Worplesdon Hill, Brookwood, Surrey, where he was medical officer to the post office. He had held a commission in the auxiliary forces for many years, and attained the rank of lieutenant-colonel commanding the 3rd Territorial (City of London) battalion of the London Regiment, the Royal Fusiliers, on March 8th, 1910. He was given a brigade in 1916. He was also a member of the City of London Territorial Force Association, and held the Territorial Decoration. He served in the South African War in the City of London Imperial Volunteers, and gained the Queen's medal with four clasps, also being granted the honorary rank of captain in the army from December 1st, 1900. In the present war he was twice mentioned in dispatches, and had received the C.M.G. and the Russian Order of St. Anne.

Lieut.-Colonel R. R. SLEMAN, R.A.M.C.(T.F.), writes: It was a shock to many to hear of the death of Anthony Howell. He had as recently as January 10th attended a meeting of the City of London Territorial Association at the Mansion House and made an excellent speech. On January 15th he died suddenly at Aldershot. Howell commenced his military career as a volunteer medical officer, but soon took up a combatant commission, and at a time when the Territorial Force was not fashionable he raised a battalion of the London Regiment up to full strength; the men were of exceptionally good physique. Soon after the mobilization of the Territorial Force in 1914 Howell took his battalion East, and eventually it went to France and did splendidly, made its famous charge at Loos, and was commended in Lord French's dispatches. Howell was made a C.M.G., and later a substantive Colonel in the Territorial Force and a temporary Brigadier General. It is believed that this is a unique position for a medical man to hold. He was successful as a medical man in practice, and as a soldier he was a good disciplinarian, and always had the courage of his opinions. In South Africa he accompanied the march of the C.I.V. of a thousand miles, and did most of the journey on foot.

COLONEL J. B. MANN, R.A.M.C.

Colonel John Bently Mann, R.A.M.C.(T.F.), died at Manchester on January 15th, aged 56. He was the youngest son of the late Mr. Robert Manners Mann, surgeon, of Manchester, and was educated at Owens College, taking the diplomas of L.R.C.P.I. in 1884 and the M.R.C.S. in 1885. He was surgeon to the Manchester and Salford Lock Hospital, medical officer of No. 1 District and public vaccinator of No. 3 District of Manchester Union, and medical officer to the post office and telegraph department in Manchester. He joined the Manchester Volunteers as medical officer in 1886, and rose to be A.D.M.S. of the East Lancashire Division (T.F.). He went with the 42nd Division to Egypt in 1914 and served with them in Gallipoli, whence he was invalided with dysentery, which finally caused his retirement from the service. He was also a member of the Lancashire Territorial Force Association, and held the Territorial Decoration.

Prisoner of War.

Captain F. M. Walker, M.C., R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Forman, Ian Charles, Captain Canadian Light Infantry, eldest son of Dr. C. W. Forman, of the American Presbyterian Mission, Umballa, Punjab, killed in November. He had been at the front for over two years.

Greany, John Wingate, D.S.O., Captain Duke of Edinburgh's Wiltshire Regiment, eldest son of Surgeon-General John Philip Greany, I.M.S.(ret.), of Ealing, was reported wounded and missing on April 9th, 1916, and is now presumed killed from that date. He was at Oxford when the war began, and at once joined the Wiltshire Regiment, attaining the rank of captain on March 5th, 1915. He had served with his battalion in Gallipoli, where he gained the D.S.O., and went with it to Mesopotamia, where he lost his life in the unsuccessful attempt to relieve Kut in April, 1916.

Greenhill, R. F., Captain Lancashire Fusiliers, only son of the late Dr. E. F. Greenhill, died of wounds on January 1st. He got his first commission on April 28th, 1915.

Robinson, Richard Bertram, Lieutenant R.N.V.R., youngest son of Dr. R. Holt Robinson, died recently after an operation, aged 44. He was the secretary of the Burnham Yacht Club and of the British Motor-boat Club.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, issued on January 18th, contains a further list of rewards for gallantry and distinguished service in the field. The individual acts of gallantry for which the decorations have been awarded will be announced in the *London Gazette* as early as practicable. The list includes the following medical officers who belong to the R.A.M.C. unless otherwise indicated:

Bar to the Distinguished Service Order.

Temporary Surgeon William James McCracken, D.S.O., M.C., R.N. (D.S.O. gazetted July 18th, 1917).

Distinguished Service Order.

Captain (acting Lieut.-Colonel) Robert Thin C. Robertson.
Captain George V. Davies, A.A.M.C.
Temporary Captains: Archibald S. K. Anderson, M.C., James T. Bowman, Howard B. Graham, Harvey Gordon Young, C.A.M.C.

Second Bar to the Military Cross.

Temporary Captain George D'Rastrik Carr, M.C. (M.C. gazetted February 2nd, 1916, first bar gazetted November 25th, 1916).

Bar to the Military Cross.

Temporary Surgeon James N. McBean Ross, M.C., R.N., attached R.M. (M.C. gazetted July 18th, 1917).

Captains: David MacDonald Steele, M.C., A.A.M.C. (M.C. gazetted November 14th, 1916); Robert Bell Stewart, M.C. (M.C. gazetted January 14th, 1916).

Temporary Captain Francis Ruthven Thornton (M.C. gazetted January 1st, 1917).

Military Cross.

Captains: William F. Abbott, Angus Cameron, Archibald John Collins, A.A.M.C., Joseph Wilfrid Craven, Henry Clarke Davis, C.A.M.C., Eric Macallan Gordon-Glassford, A.A.M.C., Hugh Edward Kirkland, A.A.M.C., Gny Ardlaw Lawrance, A.A.M.C., Alfred J. A. McCabe-Dallas, John Shaw Mackay, A.A.M.C., Philip McRitchie, Melrose Holton Mailer, A.A.M.C., James F. Stewart Marshall, C.A.M.C., Thomas Williamsou Moore, C.A.M.C., Edgar Percival, D.S.O., Henry Frederick Preston, C.A.M.C., William Dempsey Quilty, A.A.M.C., Clive Frederic Robinson, A.A.M.C., Christopher Rogers, John Gray Ronaldson, Walter Hepburn Scott, Ernest C. Whitehouse, C.A.M.C.

Temporary Captains: John Frederick Broughton, Charles Launder Chalk, Henzell Howard Dummere, John Tryweryn Lloyd, James MacGregor, James Murdoch MacKay, David Matthew, Maurice Aloysius Power, Reginald Thompson Raine, Reginald Hernan Tribe.

Temporary Lieutenant (Temporary Captain) William Kealty Campbell, D.S.O.

Temporary Lieutenant Kekhasru Sobraji Master, I.M.S.

The name of Major (temporary Lieut.-Colonel) P. S. Clarke, S.A.M.C., should have been included in the list of officers awarded the D.S.O. in the *London Gazette* of January 1st, 1918, and the necessary correction has now been made in the official records.

The following is a continuation from p. 97 of our last issue of the particulars of acts of conspicuous gallantry and devotion to duty for which the decorations announced in the *BRITISH MEDICAL JOURNAL* of October 6th, 1917, were awarded:

Military Cross.

Captain William Howard Edwin Stewart, R.A.M.C.

For conspicuous gallantry and devotion to duty when in charge of a loading post for ambulance cars. His work entailed his being on a road whenever shelling took place there, in order to accelerate the removal of the wounded from that point, and to arrange all possible protection for such wounded as could not be cleared. He personally went to the assistance of four men who had been wounded by a shell and dressed them in the open under heavy fire, setting an admirable example of coolness and devotion to duty under difficult and trying circumstances.

Temporary Captain George Min Adam, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station. He carried on with his steady work of dressing and evacuating the wounded in the open under heavy shell fire until his dressing station had to be abandoned owing to its destruction. He then got his cases away safely under most trying conditions and resumed his work at another point, continuing until he was utterly exhausted. He set a splendid example of steadfast courage and devotion to duty.

Temporary Captain Stanley James Annear Beale, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty when working in an advanced dressing post. This post was destroyed by a shell which killed the other medical officer and an orderly. Although badly shaken, Captain Beale promptly formed another post and continued to dress the wounded until relieved twenty-four hours later. It was owing to his untiring energy and splendid devotion to duty that many lives were saved.

Temporary Captain Geoffrey Andrew Bird, M.B., R.A.M.C.

A lorry containing ammunition was set on fire about 200 yards from his aid post. Although the road outside was heavily shelled he set a splendid example in personally carrying the wounded from the vicinity of the lorry to his aid post, making the journey under heavy shell fire, and in imminent danger of a sudden explosion of the ammunition, which eventually took place.

Temporary Captain Clarence Albert Brisco, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty when in charge of bearer parties. After twenty-four hours' continuous work in attending to the wounded without sleep or rest he conducted stretcher parties over ground which was swept by shell and machine-gun fire and almost impassable on account of the mud. He showed a total disregard of his personal danger, both during the attack and for several days afterwards, and by his splendid devotion and gallantry encouraged his men under the worst imaginable conditions.

Temporary Captain William Thomson Brown, M.B., R.A.M.C.

Having gone out with the advanced party of his battalion at 6 a.m., he remained with them until the last party returned at midnight, rendering continuous assistance to the men of his own unit and also to many others wounded on the road. His personal gallantry and utter disregard of danger not only upheld the traditions of his own corps but set a fine example to all ranks of the unit to which he is attached.

Temporary Captain Wilfrid Thomas Chaning-Pearce, R.A.M.C.

For conspicuous gallantry and devotion to duty in attending to wounded men belonging to nine different battalions under heavy and continuous shell fire. His aid post was the only one in the vicinity in such a forward position, and he worked continuously and without rest until all the wounded had been attended to, displaying splendid devotion to duty.

Temporary Captain Francis Bernard Chavasse, R.A.M.C.

During four days of heavy fighting he attended the wounded with untiring energy and exceptional gallantry at very great personal risk. On one occasion, while dressing the wounded in a shell crater under very heavy shell fire, he was hit by bits of shrapnel about the legs and face, but continued to dress each man in his turn and to encourage others who were waiting. On the following day, while dressing the wounded under very heavy shell fire, he was blown over by a shell, but picked himself up and continued his work with the greatest pluck and devotion. He refused medical assistance in both cases, and his indomitable courage was the cause of saving many casualties.

Temporary Captain Victor Lindley Connolly, R.A.M.C.

He led his bearers again and again through barrages of shell fire to attend to the wounded, and it was owing to his splendid courage and personal example that his bearers were kept at work clearing the wounded from a heavily shelled area.

Temporary Captain George Theodore Cregan, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in attending to the wounded under heavy shell fire. A few days later, after he had completed his usual round, he volunteered to remain at an advanced dressing station which was short-handed, and worked continually for nineteen hours, treating and evacuating over 700 cases. This gallant and devoted act was performed under continuous and heavy shell fire, during which the dressing station itself was hit. His personal example and disregard of danger has at all times been most marked.

Temporary Captain Douglas St. Clair Creighton, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty in going forward to most exposed positions to dress and attend wounded, showing a total disregard for his personal safety. After he had cleared a very large area in this manner, he established a first aid post in a forward position, and from there gave great assistance to the wounded of two or three other regiments as well as his own. His gallant conduct and fearless devotion saved the lives of many wounded.

Temporary Captain Eric Payton Dark, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in leading his bearers. He displayed great gallantry and disregard of danger in moving about in the open under the heaviest shell fire, collecting and evacuating the wounded. He worked continuously without a rest for thirty-six hours, by his energy and determination contributing largely to the rapid clearing of the battlefield.

Temporary Captain James Walker Darling, M.B., R.A.M.C.

Throughout a long and tiring day he showed the utmost contempt of danger, his organization of aid posts and stretcher-bearers was beyond all praise, and his tireless energy and devotion in looking after the wounded were the admiration of every officer and non-commissioned officer of the battalion, many of whom specially mentioned him to the commanding officer on account of his gallantry.

Temporary Captain Harold Benjamin Day, R.A.M.C.

He worked night and day for four days with magnificent fearlessness, tending the wounded, not only of his own battalion, but also of all others in the vicinity. At one moment he led a party of stretcher-bearers across the open and brought back fourteen wounded in daylight, in full view of the enemy. This, however, is only one instance of the many heroic acts which this gallant officer performed under heavy shell and machine-gun fire.

Temporary Captain Robert Stuart Gibson, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during an intense hostile bombardment. He crossed the ground where very heavy shells were continuously bursting, and remained in a battery position attending the wounded under heavy fire and at great risk to himself. He displayed magnificent fearlessness and devotion to duty.

Temporary Captain John Charles Bollean Grant, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during an attack. Finding that all his stretcher-bearers were occupied he went forward and dressed the cases himself on the spot, sending them back as opportunity arose and stretchers turned up. By this gallant act of devotion he undoubtedly expedited the evacuation of the wounded from the shelled area.

Temporary Captain Norman Grellier, R.A.M.C.

For conspicuous gallantry and devotion to duty during an attack. A shell came through the door of his aid post, killing his sergeant and several other men; he himself was knocked over and severely shaken by the concussion. In spite of this, however, he carried on his work unaided, and remained at his post under continual hostile shell fire, setting a magnificent example of devotion and fearlessness.

Temporary Captain Frederick Harris, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in working for three hours in the open under intense hostile bombardment, during which time he succeeded in getting many of the wounded under cover, and undoubtedly saved many lives. His coolness and fearless devotion were beyond all praise.

Temporary Captain Howard Havelock Hepburn, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty in accompanying his brigade into a forward position, where he attended to the wounded under very heavy shell fire, and remained with the guns until they withdrew. By his coolness and courage he greatly inspired all the detachments, and carried out his work with utter disregard of personal safety throughout the day. But for his great gallantry, under most difficult conditions, many more lives would have been lost.

Temporary Captain James Hill, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty in working unceasingly for forty hours evacuating wounded and continually going over ground which was under heavy shell fire. He showed great zeal and splendid fearlessness in his work, by his personal example earning the admiration of all ranks.

Temporary Captain Archibald Forbes Laird, M.D., R.A.M.C.

He established his aid post in a farm and attended the wounded for three days, although under constant shell fire, which at times became intense. He was slightly wounded in three places, but his gallantry and devotion to duty were the cause of saving many casualties.

Temporary Captain George Edwin Lindsay, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. In addition to dressing over 600 cases at his aid post, he made repeated journeys to the front line under heavy fire, seeking for and collecting wounded. He carried one wounded man off the field on his back through rifle, machine-gun, and shell fire, and when he had finally got all our own wounded back he made another journey into the front line to try to rescue some of the wounded enemy in front of our lines. By his coolness, daring, and unselfish disregard of personal danger he saved many lives.

Temporary Captain Jerome Ivo O'Sullivan, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty when in charge of bearers. In conjunction with another officer he personally supervised the collection of many wounded in front of our lines and got them into dug-outs in our front line. He then conducted his bearers himself round these dug-outs, continuing to do so until all the cases had been cleared. During the subsequent operations he repeatedly led his bearers through heavy barrages, inspiring them with such enthusiasm by his own personal courage that the evacuation of all the wounded was successfully carried out.

Temporary Captain Clement Rickard MacLeod, R.A.M.C.

For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station. In the face of extreme hostile shelling he led stretcher-bearers, collecting the wounded and gassed cases, and throughout a period of twenty-four hours displaying a coolness and gallantry which directly influenced the saving of many lives.

Temporary Captain Daniel McVicker, R.A.M.C.

For conspicuous gallantry and devotion to duty in attending to the wounded. He was three times wounded on the same day, but although in great pain he continued to carry on until completely exhausted and unable to go any further, when he was ordered back to the dressing station. His pluck and devotion to duty were beyond all praise.

Temporary Captain William Hilton Parry, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty when in command of a bearer division. He led his bearer squads through shell fire with great fearlessness and devotion, in order to collect the wounded, and worked without a rest for thirty-six hours, dressing and evacuating wounded from the front line under the most trying conditions.

Temporary Captain James Alexander Paterson, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty when the rear of his battalion was heavily shelled on the line of march. Under an intense hostile bombardment he hastened to the spot, dressed the wounded, and cleared them from the road, personally seeing to their removal to the aid post. He then returned and cleared the dead from the road, setting a fine example of coolness and disregard of danger.

Temporary Captain Frederick Tavinor Rees, R.A.M.C.

For conspicuous gallantry and devotion to duty when in command of bearer divisions. He displayed tireless energy in making preparations for the attack, and during the operations carried out his duties with splendid devotion, frequently working under difficult and dangerous conditions. Early in the action he went forward under fire and made a thorough personal reconnaissance over difficult ground, thereby facilitating the clearance of the wounded.

Temporary Captain Douglas Swan Robertson, M.B., R.A.M.C.

Although slightly gassed on the evening before an attack, he carried on throughout the whole of the following day and night, attending to the wounded in the open under heavy shell fire with a splendid disregard of personal danger, although nearly all his stretcher-bearers were killed or wounded around him. Two days later he helped to dig out a man who had been buried by a shell, working the whole time under heavy shell fire. He was slightly wounded, but remained with his battalion.

Temporary Captain Alexander Hugh Dickson Smith, R.A.M.C.

During a heavy hostile bombardment of a battery position a gunner was severely wounded and buried by a shell. Captain Smith came over from the next battery position, and, with the assistance of a gunner, helped to extricate the wounded man and dress him where he lay. The enemy's fire continued throughout, one shell falling a few yards away and wounding the gunner. In spite of this, however, the dressing was completed and the wounded man safely removed.

Temporary Captain James Anstruther Smith, M.B., R.A.M.C.

During an advance he worked with unflinching energy, collecting and dressing the wounded under heavy fire in the open. By his great personal courage and devotion to duty he cheered all ranks and undoubtedly saved many lives.

Temporary Captain Thomas James Logan Thompson, M.B., R.A.M.C., attached K.O.S.B.

He established an aid post, where he worked continually at the evacuation of the wounded, although under heavy shell fire and in the open for most of the day. He was very cool and wonderfully cheerful during the whole time, especially under particularly heavy shell fire during the night, by his splendid example inspiring the wounded with the greatest confidence.

Temporary Captain Edward Archibald Walker, M.D., R.A.M.C.

For conspicuous gallantry and devotion to duty in continually leading his stretcher-bearers through heavy barrage and successfully bringing back wounded under heavy shell fire.

Temporary Captain Hubert Francis Wilson, M.B., R.A.M.C.

He repeatedly led stretcher-bearers under heavy fire, and succeeded in evacuating all the wounded on his front; and when most of the stretcher-bearers had become casualties he organized a party of riflemen, with whom he worked for eight hours in the open under shell fire, and continued to clear many wounded. He then returned and led up another large party, with which he succeeded in clearing the front, having displayed splendid courage and devotion to duty throughout the day.

Temporary Lieutenant Gerald Woodforde Harrison, R.A.M.C.

For conspicuous gallantry and devotion to duty during an attack. His aid post being blown up, he worked in the open, dressing the wounded, moving freely about under heavy shell fire, and by his great personal exertions and complete disregard of danger, under very trying circumstances, he was instrumental in saving the lives of many men.

Temporary Lieutenant Reginald Gordon Hill, M.B., R.A.M.C.

During an attack he continually attended to wounded under a heavy barrage, and, on the objective being gained, he quickly formed a dressing station, where he was indefatigable in his attention to the wounded of his own and another battalion, although under continuous fire for two days. By his cheerfulness and splendid devotion to duty he set a fine example to all ranks.

Temporary Lieutenant William Johnstone Isbister, M.B., R.A.M.C.

During the attack and capture of a position he displayed complete disregard of danger in attending to the wounded and evacuating them under heavy shell fire. During this work, all of which was done under great difficulty and practically in the open, he was once partly buried, but completed his dressing of the wounded, setting a splendid example of devotion to all.

Temporary Lieutenant Ronald Sinclair Kennedy, R.A.M.C.

For conspicuous gallantry and devotion to duty in dressing and attending to wounded men under extremely heavy shell fire. At great risk of his life he made several journeys to the front line, and personally brought in wounded men who otherwise must have been killed by the intense hostile barrage.

Temporary Lieutenant Peter Ryan, R.A.M.C.

When heavy casualties were occurring in the batteries he showed complete disregard of danger in going out into the open for the wounded, rescuing those who were buried, and dressing the wounded. During the whole time heavy shells were falling close by, and on two occasions he was knocked down by these and by exploding ammunition dumps.

Temporary Lieutenant Thomas Charles Dalrymple Watt, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty under exceptionally difficult and trying circumstances. Owing to continual rain and heavy shelling, no trenches were available, and the men had to be distributed amongst shell holes, the regimental aid post being in the open. He attended to the wounded unceasingly all day under continuous shell fire, repeatedly going through heavy fire to administer first aid. Owing to the mud, many of the men would undoubtedly have been drowned but for his prompt assistance, and it was due to his splendid organization and devotion to duty that all the wounded were evacuated by the evening.

MENTIONED IN DISPATCHES.

A Supplement to the *London Gazette*, issued on January 16th, contains a list of names brought to the notice of the Secretary of State for War by General Sir Edmund Allenby, Commanding-in-Chief Egyptian Expeditionary Force, for distinguished services in connexion with military operations under his command. The following medical officers are included in the list:

Staff.

Colonel (temporary Surgeon-General) J. Maher, C.B., A.M.S.
Lieut.-Colonels (temporary Colonels): E. B. Dowsett, R.A.M.C., A. H. Tubby, C.M.G., M.B., F.R.C.S., A.M.S.
Major (temporary Lieut.-Colonel) H. Richardson, M.D., R.A.M.C.
Majors: C. E. Hercus, M.B., N.Z.M.C., P. S. Lelean, C.B., F.R.C.S., R.A.M.C.

Royal Army Medical Corps.

Lieut.-Colonels: A. C. Goodwin, M.B., F.R.C.S., H. W. Thomson, M.D.
Majors (temporary Lieut.-Colonels): J. W. Bird, D.S.O., J. M. G. Bremner, M.B.
Majors (acting Lieut.-Colonels): A. Leggat, M.B., J. W. Leitch, M.B.
Major F. Gracie, M.B.
Captain (acting Lieut.-Colonel) T. B. Layton, M.D.
Captains: F. Alcock, M.D., E. C. Crichton, M.B., E. P. Minett, A. R. Muir, M.B., R. P. Starkie (S.R.), I. D. Stubbs.
Temporary Captains: M. Bates, M.B., F.R.C.S., C. I. Hannigan, M.B., W. Leggett, M.D., R. M. Wright, M.B.
Temporary Quartermaster and honorary Lieutenant F. L. Harsant.

Australian Army Medical Corps.
Captains J. F. G. Fitzhardinge, H. Sutton.

Indian Subordinate Medical Department.
First Class Subassistant Surgeon Abdul Majid.

The list also contains the names of twenty-four warrant and non-commissioned officers and privates of the R.A.M.C. and four of the A.A.M.C.

England and Wales.

PHYSICAL TRAINING IN SECONDARY SCHOOLS IN WALES.

THE Welsh Department of the Board of Education has issued a hortatory memorandum to educational authorities in Wales on the neglect of physical training in secondary schools in the principality. There is one paragraph indeed which is distinctly minatory, for it informs all the authorities that no school can henceforth be regarded as efficient unless it makes proper arrangements for the physical training in every school of all pupils fit to receive it, or is at least doing all in its power in this direction. The Welsh Department of the Board of Education is a little whimsical in its requirements, inasmuch as it will not accept military drill and insists upon the schools building gymnasiums. A scheme of physical training in a secondary school should include (a) a suitable plan for physical exercises, comprising (1) formal gymnastics on the line of the Swedish system; (2) dancing "suitable for use in schools"; and (3) playground and field games, swimming, etc.; (b) fully qualified teachers of gymnastics; (c) a room or gymnasium containing at least a minimum of Swedish apparatus; (d) arrangements for not less than three lessons a week in formal gymnastics (including team games, dancing, etc.) of thirty to forty-five minutes in duration, according to the age of the pupils. It does not hope at once to attain this ideal, but requires every school to comply with two conditions—namely, that physical training should always be in the hands of a teacher who has had some special training on modern lines, and a minimum of two lessons a week of half an hour's duration, given at a period of the day favourable to the teaching and performing of physical exercises. The supply of expert teachers being limited, the Board is prepared to accept as physical trainer the ordinary class teacher who has received some special training. It urges that greater facilities should be afforded to teachers to improve their qualifications by taking the summer or vacation course of instruction in physical exercises officially recognized by the Board of Education, which for the last two or three years has granted allowances to selected teachers to enable them to attend such courses. The allowances have been travelling expenses and £1 a week for maintenance! The Board's grants, however, are limited, not only in amount but in number, and it urges local education authorities to "be liberal in offering similar inducements to teachers to undertake this training." It also advises that it would be advantageous to allow the organizer of physical training, where appointed, to exercise general supervision over the secondary and technical schools as well as over the public elementary schools. It is pointed out that an urban authority may adopt the Museums and Gymnasiums Act, 1891, under which it can provide a gymnasium and establish classes and grant the exclusive use to any person or body of persons for two hours a day for gymnastic exercises on conditions as to payment, and so on, as may be arranged. The Board is prepared to consider applications for grants under Article 44 of the new Regulations for Secondary Schools in Wales, to enable visits to be paid by teachers of physical training to a school chosen as specially suitable, and expresses the expectation that school governors will avail themselves of the opportunity created by the payment of increased grants to secondary schools to place the teaching of physical exercises on a far higher plane than it occupies at present in Wales, and in particular to appoint well-qualified and adequately remunerated teachers of the subject. The document does not seem to disclose much foresight or insight. The insistence on gymnasiums appears to be an example of the Germanization prevalent before the German war among Government officials. Might not the Secretary have found better employment for his own time and the depleted stock of printing paper?

THE LIVERPOOL MEDICAL INSTITUTION.

At the annual meeting of the Liverpool Medical Institution on January 17th it was stated that the total membership is now 392 as against 386 at the beginning of 1917. The financial statement, in spite of the fact that no subscriptions have been demanded from members on active service, showed a credit balance, due to various economies by which expenditure has been diminished. As a result of the biennial election Mr. William Thelwall Thomas, M.Ch. Liverpool, F.R.C.S., Honorary Surgeon to the Liverpool Royal Infirmary, was unanimously elected President; Mr. D. Douglas-Crawford, Mr. G. S. Stansfield, Mr. K. W. Monsarrat, and Dr. Llewellyn Morgan were elected Vice-Presidents; Mr. C. Thurstan Holland, Treasurer; Dr. Hubert Armstrong, General Secretary; Dr. Walter Oram, Secretary of Ordinary Meetings, Mr. T. C. Litler-Jones, Secretary-elect; Dr. J. Martin Beattie, Secretary of Pathological Meetings, Dr. H. Leith Murray, Secretary-elect; and Dr. R. W. Mackenna, Librarian and editor of the *Liverpool Medico-Chirurgical Journal*. The customary vote of thanks was passed to the retiring officers.

CENTRAL MIDWIVES BOARD.

The Board held penal sessions on January 9th and 10th, Sir Francis Champneys presiding. Eleven cases were decided, and of the women cited to appear five were struck off the roll. The most frequent charge was that of not obtaining medical aid for ophthalmia neonatorum. Inability to take the pulse and temperature and technical breaches of the rules also figured largely.

At the ordinary monthly meeting on January 10th the Standing Committee reported a letter from the Child Welfare Inquiry Office, asking the Board to appoint a representative to attend a national conference to be held on February 14th to consider a scheme adopted by the Child Welfare Council recommending changes in the law with regard to unmarried mothers and illegitimate children. The Board decided to appoint Mrs. Salter as its representative. With reference to a letter from the Deputy Medical Secretary of the British Medical Association calling the attention of the Board to an advertisement by a midwife offering to attend patients at their own homes for "twilight sleep" treatment, it was decided that the midwife should be cited to appear before the Board. Eight women were removed from the roll on their own application.

A MINISTRY OF HEALTH.

On January 17th the executive of the Urban District Councils Association, at the Central Hall, Westminster, recorded its opinion that the Local Government Board should be recognized as the Ministry of Public Health, that the creation of a new Ministry would be undesirable on economic grounds and disastrous to the efficient working of the public health services, and that it was essential that the local administration of public health matters should remain in the hands of local authorities. Three representatives were appointed to discuss the matter with Dr. Addison (Minister of Reconstruction).

Scotland.

MOTHER WELL.

THE Carnegie United Kingdom Trust has determined, as a result of its inquiry into the physical conditions of mothers and children in the United Kingdom, to assist in the establishment of model welfare schemes in certain urban centres. It has selected Motherwell, in Lanarkshire, as the town in which to make the first experiment in Scotland. Motherwell has a population of 40,000, and is the centre of a district which includes Bothwell, about three miles nearer Glasgow, engaged in coal-mining and in iron and engineering works. The Town Council of Motherwell has accepted the offer of the trustees to meet the cost of erection and equipment of a building, provided the council supplies a suitable site; that the plans and estimates to be drawn up by the council shall be approved by the trustees; that the council will maintain the welfare centre by means of Government grants and local rates and contributions; that the scheme is made part of a local comprehensive system of physical welfare approved by the Local Government Board for the purpose of imperial grants; and that the council shall make reports on the work of the centre to

the trustees, to be embodied in their annual reports. The town council, after accepting the offer, instructed the Public Health Committee to frame a scheme. A punning correspondent suggests that the scheme should serve to keep the mothers well in Motherwell and the mothers and infants both well in Bothwell.

DISABLED SOLDIERS.

At a meeting on January 12th of the Joint Institutional Committee for Scotland, consisting of representatives of the Scottish Joint Disablement Committees, the Red Cross Society, and the War Office, when Sir A. Griffith-Boscawen, Parliamentary Secretary to the Ministry of Pensions, was in the chair, it was reported that the neurasthenic home of recovery at Craigend, Liberton, Edinburgh, would probably be ready at the end of February, and that the epileptic colony at Murieston, Mid-Calder, would be opened in the course of a few days. It was also reported that the Red Cross Society would place a number of small auxiliary hospitals no longer required by the military authorities at the disposal of the Committee for use as convalescent homes. The erection of a sanatorium for consumption at Stornoway was approved and plans were considered for extending the Springfield colony at Polton. A combined hospital and hostel is to be established at Aberdeen to which men can be transferred for the three weeks immediately preceding their discharge from the army. It was stated that the difficulties of the Committee would be considerably increased by a recent order of the War Office forbidding the readmission of discharged men to military hospitals for in-patient treatment. The Scottish section of the Committee, appointed by the Ministry of Pensions to consider the adequacy of hospital accommodation and facilities for treatment both for discharged men and the civil population throughout Great Britain, has held a meeting in Edinburgh, when it was decided to assist the Scottish Insurance Commission in completing the information already in its possession with regard to hospital accommodation, facilities for nursing, and other matters in connexion with treatment before proceeding to any independent inquiry. The Scottish section of the Committee consists of Sir A. Griffith-Boscawen (chairman), Sir Donald MacAlister, Dr. J. C. McVail (Scottish Insurance Commission), Dr. Leslie Mackenzie (Local Government Board), and Sir John Macaulay.

Ireland.

NATIONAL HEALTH INSURANCE IN IRELAND.

The report on the administration of National Insurance during the years 1914-1917 contains, as was stated last week, a section on Ireland. As the result of a circular deprecating during the continuance of the war transfers from one society to another, save in exceptional circumstances, a great and continuous decrease in the numbers has occurred. During the half year before this circular was sent out there were 2,464 such applications for transfer, but in the following six months only 379. A small proportion of the Irish societies, mostly those of small membership, have experienced deficiencies in their administrative accounts. For the period ended January 11th, 1914, there were twenty-six deficiencies, for the period ended December 31st, 1914, there were sixteen, and for the following year thirteen. In twelve cases the deficiencies were small and were carried forward, as permitted by the regulations. The great majority of the remaining deficiencies have been, or are being, made good by other means than levy. The number of approved societies operating in Ireland on December 31st, 1916 was 223; of these 213 were centralized societies, and 10 societies with branches. Immediately preceding the outbreak of war there were in Ireland 716,318 insured persons, 480,028 men and 236,290 women. The total contribution of Irish approved societies towards the financing of the war by investment in war securities of moneys arising through the National Insurance Acts may be taken at approximately £400,000, apart from the National Insurance moneys invested in those securities by the National Debt Commissioners.

Of the thirty-nine Insurance Committee areas in Ireland, the County Councils of thirty have appointed a tuberculosis

officer, and either a partial or a complete scheme for the prevention, detection, and treatment of tuberculosis is in operation. Comprehensive agreements have been entered into between the insurance committee and the council in twenty-two of these areas, and it is hoped that, as a result of negotiations now proceeding, agreements will shortly be completed in five other areas. In eight areas the councils have not yet formulated any schemes for the treatment of tuberculosis. In one area a scheme which was in operation has been abandoned, but on the whole the agreements have so far proved very successful. The number of beds available for the treatment of tuberculous cases in sanatoriums has increased considerably, but further accommodation is necessary if sanatorium treatment is to be provided promptly in each case. The accommodation in institutes for the treatment of advanced cases is still very inadequate, and the position in this respect has been rendered worse in consequence of the war. No change has been made since the last report in the condition governing the provision of domiciliary treatment, but the difficulties existing in certain areas, as regards the fees payable to the medical profession, have, it is stated, to a large extent been removed. As a result of their experience since the commencement of the Insurance Act, the Commissioners are of the opinion that no really satisfactory progress in dealing with the problem of tuberculosis is possible until all forms have been made compulsorily notifiable. There is no doubt that through absence of compulsory notification, application for treatment is, as a rule, made only at a stage of the disease when either a prolonged and costly course of treatment is necessary with uncertain results, or the disease is so advanced that expenditure on treatment cannot be productive of any lasting results.

At present there are 1,412 medical certifiers in Ireland. The new scheme of certification, it is said, has proved a considerable improvement upon the conditions which obtained previous to its coming into operation.

As medical benefit is not available in Ireland, the scheme of benefits for exempt persons differs from that in operation in Great Britain; the qualifications for sanatorium benefit are slightly different, and in lieu of medical benefit a sickness benefit of 6s. a week, commencing from the seventh day of illness, is provided.

IRISH COUNTIES WAR HOSPITAL.

At a meeting of the executive committee of the Irish Counties War Hospital, Lieut.-Colonel Pringle, F.R.C.S.I., submitted statistics for the first six months, showing that 817 men had been admitted, of whom 631 had been discharged and 186 remained under treatment. Of the 631 men discharged, no fewer than 146, or about 25 per cent., have been returned to their regiments for service, and 131 sent to command depôts or a military convalescent hospital, all of whom would probably be able to rejoin their units in less than three months; it thus appeared that 43 per cent. of the patients discharged were able to rejoin the colours either immediately or in the near future. Of the remainder, two died, ten were discharged from the service, and the balance either transferred to other primary hospitals (generally for the purpose of being nearer their homes), to auxiliary convalescent hospitals, or to special hospitals (mental, infectious cases, etc.). A meeting of the general committee will be called at an early date, when a half-yearly report prepared by the finance committee will be presented.

IRISH TUBERCULOSIS MEDICAL ASSOCIATION.

A meeting of the members of the Irish Tuberculosis Medical Association was held in Dublin last week. Dr. A. H. Hanley was elected president, Dr. Gillespie and Dr. Cuffe vice-presidents, Dr. Quinlan honorary secretary, and Dr. Timoney honorary treasurer. In the discussion which took place stress was laid on the importance of bringing cases to the notice of the tuberculosis medical officer in an early stage, as at that stage cases invariably yielded good results. It was recommended that opportunities should be given to medical students for seeing cases of disease in an early stage with the tuberculosis medical officer, and that lectures on the early diagnosis of tuberculosis should form part of the curriculum. It was also advised that the time spent by nurse probationers in sanatoriums should count as part of their general training.

A deputation was appointed to wait on the Local Government Board, to discuss, among other matters, the necessity of standardizing the records for all countries.

NORTH DUBLIN UNION.

The guardians of the North Dublin Union are discussing the diet in the nursing ward in connexion with the occurrence of six cases of typhoid fever. Dublin itself is said to be peculiarly free from epidemics, and it is thought that the cases in the nursing ward may be connected with the alleged habit of some of the women of keeping unused food in the washhouse or lavatory. The women appear to have objected to the soup given to them, and Dr. Flood, the Local Government Board inspector, has expressed the opinion that the diet is insufficient for nursing mothers who are working in the laundry. The board of guardians has called for a further report, and meanwhile has resolved to accept Dr. Flood's recommendation that the nurseries should be moved.

Canada.

THE MILITARY HOSPITALS COMMISSION.

THE Military Hospitals Commission, which is charged with full powers in connexion with returned soldiers, had about 11,000 men in its institutions last November, and it was expected that the number would be increased to 15,000 before the end of the year. It has been difficult to arrange for adequate medical and surgical treatment, owing to the fact that so large a proportion of the medical men of Canada have placed their services freely at the disposal of the military authorities, that so many are now serving at and near the front, and that great progress has been made in the treatment of men wounded or invalided in the war. An arrangement has now been reached with the Department of Militia and Defence by which the medical services in the institutions of the Commission shall be performed by the Army Medical Corps of the Department of Militia and Defence. Lieut.-Colonel Alfred Thompson, M.P., medical superintendent of the Commission, has received a staff appointment as Assistant-Director of Medical Services (Invalids). He will, under the Director-General of Medical Services (Surgeon-General Fotheringham, C.M.G.), carry on this work with a staff selected from the Army Medical Corps. The Militia Department will make arrangements by which the present medical staff can be retained. The office of Lieut.-Colonel Thompson as A.D.M.S., Invalids, will continue to be at the head quarters of the Military Hospitals Commission. There will thus be linked together, in caring for those invalids, the Military Hospitals Commission and the Army Medical Service Corps.

PUBLIC HEALTH IN CANADA.

The number of rejections among recruits on account of physical unfitness since the beginning of the war has awakened the general public to the importance of hygiene and preventive measures against disease. There is a general feeling that the remedy lies in the co-ordination of efforts directed towards the conservation of health, and there is a movement towards the establishment of a Federal Bureau, or, failing that, Provincial Departments of Public Health. The establishment of a Federal Bureau of Health has long been advocated by the medical profession, and, of late, resolutions have been passed by various bodies in Alberta and other provinces in favour of the creation of a provincial department. In the province of New Brunswick Mr. John Hall, a graduate of the Massachusetts Institute of Technology, has been appointed to make a survey of health and sanitary conditions in the province as a preliminary step towards the establishment of a health department as a branch of the provincial government.

THE trustees of the Rockefeller Foundation in announcing their budget for 1918 state that possibly more than £2,000,000 will be spent in public welfare work, half of which will be used for war relief. If necessary, the Foundation can draw on an available fund for a further million for this purpose. A sum of £215,400 will be applied to the combating of hookworm, yellow fever, and other scourges. Appropriations to the amount of £83,000 are made for the Tuberculosis Commission in France.

Correspondence.

DEFECTS IN THE LUNACY LAWS.

SIR,—The treatment of shell shock and other mental cases arising from the war has accentuated the necessity for amendment of the existing lunacy laws.

A Select Committee of the Medico-Psychological Association is now sitting to consider the best method for securing the legal changes which have been long overdue in this direction. The Committee invites information from medical men and others intimating their experience of the defects in the present system of lunacy laws and administration, and indicating what legislative alterations are in their opinion desirable.

Communications should be sent to the Secretary of the Committee at 10, Chandos Street, Cavendish Square, W. 1. —We are, etc.,

H. WOLSELEY-LEWIS, M.D., F.R.C.S.,

Chairman.

R. H. COLE, M.D., F.R.C.P.,

Secretary.

January 19th.

THE PULSE PRESSURE TEST BEFORE OPERATIONS.

SIR,—Your reviewer of Cashman's work on the above subject has taken very meekly Sir James Mackenzie's rebuff, and humbly bows down under the weight of such an authority. Sir James Mackenzie's facts, when he has got any to state, are of value; but, apart from facts, his opinion should carry no more weight than that of any one else; in fact, I am inclined to think that a few such letters, based neither on facts nor on a knowledge of the subject, will diminish his prestige as a heart specialist. "Beyond supplying the force that causes the blood pressure the heart takes little part in the variations that occur." Apart from such a force no arterial pressure could be maintained, and when the force-pump ceased to act the arterial pressure would fall to zero in a second or two required to expend the energy stored up in the arterial walls. "The factors concerned in regulating the changes in blood pressure are so obscure that observations drawn from them are little better than guesswork." If this be really the matured opinion of Sir James Mackenzie then the sooner he tries to clarify the obscurity the better. An American recently stated facetiously that in the present day there are many observations, wise and otherwise, mostly otherwise. I am afraid Sir James Mackenzie's observation belongs to the latter class. If he would devote a little time, if he have any to spare, to a study of the actions of the secretions of the ductless glands, a good deal of the haziness which at present seems to obscure his mental vision might vanish. If he had paid some attention to my observations on the effects of hyperthyroidism on the soldier's heart he might not have fallen over head and ears into that pitfall laid for him with the "heart pills."

The great value in Cashman's work is not in the mere statement of the pulse pressure but in the variations which occur in that pressure under exercise and change of posture. Personally I do not care for a mere statement of pulse pressure as a separate entity apart from the diastolic and systolic pressures. A pulse pressure of 50 between a diastolic pressure of 100 and a systolic pressure of 150 mm. of mercury shows a much better pulse than one of a pressure of 100 between 150 and 250. In aortic regurgitation there is often an enormous pulse pressure, but this is not the kind of heart which one would deliberately select as specially suited for an anaesthetic. A glass of whisky and hot water will at least temporarily raise the pulse pressure in most individuals, but this is not the kind of drug which one would select to improve the staying power of the heart.

In conclusion, I wish to subscribe to the value of Cashman's observations, and will reserve any further remarks on the subject for a future occasion.—I am, etc.,

Liverpool, Jan. 20th.

JAMES BARR.

PRIMARY EXCISION OF GUNSHOT WOUNDS OF THE ELBOW-JOINT.

SIR,—Mr. Fagge (January 5th, p. 36) very correctly criticizes the term "primary" which I used in speaking of an early operation in distinction to a late or secondary

operation when healing has occurred and ankylosis has resulted from the sepsis in the joint. I agree with him that the word "primary" should be reserved for those cases which are operated upon in the casualty clearing stations in the first few hours after the infliction of the wound. My recent experience in the casualty clearing stations in France has impressed me with the great efficiency of the surgery carried out there, more especially in the early treatment of wounds, and has still the more impressed me with the fact that if, in suitable cases, excision of the elbow-joint were performed after thorough removal of the wound and infected tissue and the incisions closed, the results obtained would be much better than if operation be performed when sepsis has become established.

The choice of a case suitable for excision depends chiefly upon the local conditions. Doubtless the removal of a small attached piece of articular surface is enough in slight injuries, but where the whole articular surfaces are much comminuted and the fracture lines do not spread too far into the shaft of the humerus. I consider that an immediate excision of the joint would give the best result, for, as Mr. Fagge points out, there is a greater probability of restriction of movement by callus formation about the joint than that a free removal will result in a flail joint. Hence a careful selection on the part of the surgeon is necessary before excision is undertaken.

Mr. Hey Groves would limit early operative treatment to the removal of detached fragments of bone, and suggests that in septic cases drainage of the elbow-joint can be obtained by division of the base of the olecranon, with subsequent reattachment to the ulna. I tried this method quite early in three cases, but abandoned it because I was unable to control the sepsis by it. At the same time the results obtained by excision in the presence of sepsis in the joint have been such that I would not hesitate to repeat it when similar suitable cases are encountered.

Mr. Hey Groves remarks that the olecranon should always be preserved if possible so as to retain the action of the triceps. This can equally well be obtained by reflecting the triceps with the periosteum of the olecranon on each side by a median posterior incision.—I am, etc.,

London, Jan. 21st.

R. H. JOCELYN SWAN.

VACCINES IN SKIN DISEASES.

SIR,—With reference to Dr. Adamson's very interesting paper in your issue of January 5th concerning the treatment of sycosis, impetigo and furunculosis, may I comment upon one or two of his statements from a bacteriological point of view?

At the outset Dr. Adamson states that "considerable numbers of able-bodied men become invalided [presumably he speaks in a military sense] on account of the chronic staphylococcal infections of the skin" aforementioned. That the incidence of such complaints is considerable no military doctor will deny, but I must confess that these complaints, judging from such cases as I have seen in the last 2½ years, have seldom, if ever, led to invaliding from the army—for this reason, that where I have worked we have managed to cure such cases. At this hospital I have had sent to me within the last six months only nine cases of intractable sycosis, but the incidence may be greater elsewhere. One case was treated with medicaments for six weeks and his sycosis became worse and involved beard, ears, and right wrist (impetigo-sycosis). He then came to me and had an autogenous vaccine and no other kind of treatment whatever. He began with a dose of 200 million and ended, completely cured, without any reaction to speak of, at the end of three months, with a dose of 2,000 million (*Staphylococcus aureus*). There was no relapse. The man is an orderly still working here. The other eight cases were cured more swiftly. Amenable cases are cured by the physicians and many do not reach me. As regards chronic furunculosis, I have on record a recent series of 77 consecutive completed cases. All are cured save one who was at first treated with stock vaccines, and these having failed to cure within a reasonable time he now receives an autogenous vaccine and is rapidly improving, that is, he has a smaller and only an occasional boil. Shortly he will be clear.

Dr. Adamson says in relation to furunculosis—and I

think somewhat unjustly—that "the once much-vaunted treatment by vaccines has not proved the panacea it was proclaimed." Given autogenous vaccines in every case, I beg to differ. I am treating 30 to 40 skin cases per week therapeutically with vaccines in a hospital of 1,000 beds. The majority of these are skin cases. Surely there must be something in all this? With reference to chronic impetigo of the trunk, not many cases have come my way. I do not think we get many, but I have treated six cases of a pure streptococcal pyoderma with vaccines, and have obtained a full percentage of cures. I am not aware that this condition is ever converted into anything else bacteriologically.

I am sure that the reason why vaccines often fail is because the fact of germ specificity is not sufficiently recognized. The immunizing powers of a stock vaccine may be sufficient for prophylaxis, as in typhoid (and sometimes not completely so even then), but it is rare that they possess sufficient immunizing powers to be therapeutic. Commercial vaccines may be stale. Most therapeutic vaccines are stale after three months, especially those of the coli-typhoid group, as Emery and Allen have pointed out. Hence, if one fails to get cures with small doses such as Dr. Adamson uses in furunculosis and of stock vaccines, personally I for one am not surprised that he is disappointed. But why blame vaccine therapy?

I beg to thank Colonel Sir W. R. Crooke-Lawless, M.D., C.B.E., C.I.E., for permission to publish these results.—I am, etc.,

A. GEOFFREY SHEPA, B.A., M.D., B.C. Cantab.,
Hon. Captain R.A.M.C.

Pathological Laboratory,
British Red Cross Hospital, Netley,
January 15th.

THE CAUSATION OF SEX IN MAN.

SIR,—The review in the JOURNAL of January 5th (p. 18) of Dr. Rumley Dawson's book reminds me of a case in which some years ago I operated on a lady married for seven years without children, who now had a tubal pregnancy on the left side. I was compelled to remove the ovary on that side with the tube. Afterwards she wrote to me that she had a healthy daughter, followed in due course by another, and then by a healthy son. I think this makes it plain that the theory of each ovary being responsible for the one sex cannot be true.—I am, etc.,

Lurgan, Ireland, Jan. 16th.

J. SINGLETON DARLING, M.D.

SIR.—The review of Dr. Dawson's book states that he claims that ova from the right ovary produce males, and ova from the left ovary females. The following facts in my own experience are against Dr. Dawson's theory: On July 5th, 1908, I assisted in the removal of the right ovary of Mrs. — at the Warrington Infirmary for a cystic tumour with twisted pedicle. Since then she has had three children, two boys and one girl. The ova concerned, I presume, came from the left ovary, for the possibility of ovarian tissue being included in the stump of the pedicle in this case may be wholly discounted.—I am, etc.,

Warrington, Jan. 21st.

J. S. MANSON.

SHOULD NON-WORKERS HIBERNATE?

SIR,—Should non-workers hibernate? Yes, in a modified sense! The food we consume is chiefly spent in producing and maintaining animal heat, physical and mental energies. Roughly, five-sixths of food values go to the former and one-sixth to the two latter. Of every 100 calories of heat produced within the body 80.1 per cent. is lost by radiation and conduction; 14.7 per cent. by evaporation; 2.6 per cent. in heating food and drink consumed, and 2.6 per cent. in heating inspired air.

Rest in bed till late in the day, a modified hibernation in fact, will clearly reduce our heat loss and output of energy, with consequent reduced food requirements. I therefore most strongly urge that non-workers—the idle poor, and rich, the huge population of infirm and insane persons, be encouraged, nay, be compelled, to remain in bed, warm and at rest, till noon daily.—I am, etc.,

Bournemouth, Jan. 21st.

W. JOHNSON SMYTH, M.D.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SUBSCRIPTIONS.

The following subscriptions to the Fund have been received during the week ending Wednesday, January 23rd:

	£	s.	d.		£	s.	d.
Dr. R. J. Wilson ...	2	2	0	Sir Thomas Barlow ...	5	0	0
Dr. T. Berry ...	2	2	0	Dr. F. de Havilland Hall ...	2	2	0
Dr. John Dunlop ...	1	1	0	Mr. C. S. Ashton ...	1	1	0
Dr. G. H. Dawes ...	5	0	0	Dr. A. Court ...	1	1	0
Dr. A. Howe ...	1	1	0	Dr. Vincent Tighe ...	2	2	0
Lieut.-Col. E. LeCronier ...	2	2	0	Mr. A. Jefferis Turner ...	2	2	0
Lancaster, R.A.M.C. ...	2	2	0	Mr. E. Edwards ...	2	0	0
Dr. Edwin Jackson ...	2	2	0	Dr. R. L. Legate ...	2	0	0
Dr. W. Adams Clark ...	1	1	0	Prof. Robert Saniadby ...			
Dr. I. D. Bonnett ...	2	0	0	Lt. D. ...	1	1	0
Dr. John Thomson ...	2	2	0	Mr. T. R. Cook (Ed. Cook and Co., Ltd.) ...	1	1	0
Dr. J. A. Snaill ...	1	1	0	Dr. H. A. Latimer ...	1	1	0
Dr. W. Collier ...	5	5	0	Dr. Henry Burdett, K.C.B., K.C.V.O. ...	5	5	0
Dr. Chas. F. D. Hammond ...	0	10	6	Mr. G. M. Greenworth ...	3	0	0
Lochiel Sheep Farming Co., Ltd. (per Meredith Townsend, Esq.) ...	50	0	0	Dr. T. R. Greenwood ...	0	6	0
Dr. Meredith Townsend ...	1	1	0	"Anon." ...	2	2	0
Dr. J. Hepworth Shaw ...	2	2	0	Dr. F. M. Blumer ...	1	1	0
Dr. C. O. Hawthorne ...	5	5	0	Mr. J. P. Ellerington ...	10	0	0
Per Sir R. J. Godlee ...	7	7	0	Mr. W. J. Shepperd ...	0	10	6

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Universities and Colleges.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FINAL EXAMINATION.—*Surgery*: H. Miller, *Midwifery*: H. Miller, E. Spence. *Medical Jurisprudence*: J. J. van Niekerk, J. M. Speirs, L. L. Steele, W. B. Watson, B. Chieftiz, V. A. Rankin, A. Galustian, J. C. Meek, J. K. Steel, S. A. Faulkner.

The following candidates having passed the Final Examination have received the diplomas of L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:

W. O'G. Donohue, C. R. C. Moon, Arukatti Patabendigo Frederick Abeyuriya.

Obituary.

HAROLD FREDERIC MOLE, F.R.C.S.,

SURGEON TO THE BRISTOL ROYAL INFIRMARY.

MR. HAROLD F. MOLE, F.R.C.S., died at his residence, 24, College Road, Clifton, on December 21st, 1917, from heart failure following asthma, to which he had been subject since childhood. For many years his brilliant professional career had been seriously handicapped by ill health, but he never allowed this to interfere with the excellence of any work he undertook.

After studying at the Bristol Medical School and Royal Infirmary, where he was awarded the Tibbits Memorial Prize for practical surgery, he took the diplomas of L.R.C.P., M.R.C.S. in 1890, and that of F.R.C.S. in 1892. In 1891, after holding junior appointments at the Royal Infirmary, he became curator of the museum, the post being created by the staff in order to retain him as a colleague. From 1895 to 1902 he was in turn house-physician, house-surgeon, and senior resident officer, in which capacities he proved himself an astute clinician and a tactful administrator, and became very popular with the students as a clinical teacher. In 1902 he was elected assistant surgeon, with charge of the aural clinic. His knowledge of otology soon became very thorough, and he did extremely good work in the production of a series of models of the labyrinth with fusible metal. He joined the Otological Society in 1903, and remained a member of the section after the amalgamation with the Royal Society of Medicine, and later he was made member of the council.

Considering his state of health, the amount of energy he displayed was wonderful, and he found time to act as secretary to the Bristol Medico-Chirurgical Society from 1903 to 1907, to the journal of which society he made several contributions. In 1909 he became full surgeon to the infirmary and clinical teacher in surgery to the university, and continued as such until 1916, when ill health compelled him to relinquish these posts.

None who came in contact with him could fail to be attracted by his personality. Punctual in habit and precise in action, he combined a cultured mind and a keen sense of humour with a rare appreciation of his responsibilities, which rendered him a charming companion and an exceptionally valuable member of the profession.

It was a bitter disappointment to him that in 1914, owing to illness, he had to resign his commission in the R.A.M.C.(T.F.), after serving for two months. He married in 1913, and leaves a widow and two sons.

A. L. F.

DR. GEORGE KILPATRICK GIVEN died at his residence at Muswell Rise on January 6th, aged 71. He received his medical education at the Ledwich School, Dublin, and Queen's College, Belfast, and took the diplomas of L.R.C.P. and S.Edin. in 1869 and the L.M.Dub. He practised for many years at Gortin, co. Tyrone, where he was physician to the Infirmary and Fever Hospital, M.O.H. to the Gortin Dispensary District, and consulting M.O.H. to the Gortin Union. He was also a magistrate for county Tyrone. He had been in failing health since the loss in March, 1915, of his youngest son, who was on board the ss. *Falabar* when she was torpedoed. He leaves a widow, one son, who holds an appointment as staff surgeon in the Royal Navy, and one daughter.

DR. HERBERT WHITLEY SKEY WILLIAMS, of P. Is-yndre, Holywell, died in London on December 15th last, to the deep regret of a large circle of friends and patients. Born on June 29th, 1869, the elder son of the late Dr. James Williams of Holywell, he was educated privately. He studied medicine at University College Hospital, London, and took the diplomas of M.R.C.S. and L.R.C.P. in 1892. He was at different times ambulance surgeon at the Northern Hospital and house-surgeon at the Royal Infirmary, Liverpool, and later joined his father at Holywell, gradually succeeding to the entire practice. In September last, owing to the breakdown in his health, he was compelled to leave home. He was medical officer of health for the Holywell Urban District, district medical officer under the Holywell Rural District Council, public vaccinator, one of the medical officers of the Flintshire Dispensary and Cottage Hospital, certifying factory surgeon for Holywell District, and held other public professional appointments. He was Justice of the Peace for Flintshire and was also a member of the military tribunal for the Holywell area. More than one of the above appointments had been held by his father and grandfather before him, the records of the family practice being traceable back for one hundred years. Dr. Herbert Williams was also in former days an enthusiastic member of the local volunteer company attached to the Royal Welsh Fusiliers, while during the war he was largely instrumental, as captain, in forming and maintaining the present local company of volunteers. He was greatly liked and esteemed throughout the district and by many friends elsewhere. He married in 1910 the daughter of General Inglis of Ryde, who, with two little children, survives him.

DR. JAMES COLLINGS HOYLE died on January 8th at Upham, Hants, aged 50. After studying medicine at St. Bartholomew's Hospital he took the diplomas of M.R.C.S., L.R.C.P. in 1889, and graduated M.B., B.S. of the University of Durham in 1894 and M.D. in 1913. He obtained the D.P.H. in 1892 and held for some years the post of M.O.H. for Gray's Inn. In 1896 he was appointed health medical officer for Rangoon and secretary to the Plague Council for Burma, but after four years was compelled by ill health to resign these posts, to the great regret of all who knew him. During the next year or two he made voyages in search of health, and then settled in practice at Upham in 1892. He was appointed assistant county medical officer of health to the Hampshire County Council in 1911, and later was given charge of two tuberculosis dispensaries. Unfortunately his health again broke down in 1915. For a year or so he acted as medical officer to the Royal National Sanatorium, Bournemouth, but last year he had to give up work entirely. Dr. Hoyle was a man of much zeal and ability, with a very marked capacity for inspiring affection and confidence in all with whom he came in touch.

Medical News.

THE appointment of Frank Cole Madden, M.D., Melb., F.R.C.S. Eng., Professor of Surgery, Egyptian Government School of Medicine, and Senior Surgeon to Kasr-el-Ainy Hospital, Cairo, as Honorary Medical Adviser to His Excellency Sir Reginald Wingate, G.C.B., High Commissioner for Egypt, has been approved by His Majesty's Principal Secretary of State for Foreign Affairs.

THE Research Defence Society and the Association for the Advancement of Medicine by Research have been united into one society, which will retain the name and official address of the Research Defence Society. All such communications as used to be made to the Association for the Advancement of Medicine by Research should now be made to the Research Defence Society, at 21, Ladbroke Square, W. 11.

THE first of a course of nine public lectures, on animal life and human progress, at King's College, London, will be given by Professor Dendy on Wednesday next, at 5.30 p.m. The lectures will be continued weekly on Wednesdays at the same hour. The lecture on March 6th, when Sir Patrick Manson will be in the chair, will be given by Dr. R. T. Leiper, Reader in Helminthology at the University of London, on "Some inhabitants of man and their migrations."

MR. EDMUND GOSSE, chairman of the London Library, informs us that that institution has arranged to act as a collecting centre for books, to assist the Red Cross and Order of St. John. Those members of the public who do not use the Post Office scheme are invited to send literature to the Librarian, London Library, St. James's Square, London, S.W., where it will be sorted. Any valuable books will be sold to buy larger numbers, and the whole given to the Red Cross War Library for distribution to the sick and wounded men of the navy and army.

AT the January meeting of the Illuminating Engineering Society Mr. L. Gaster read a paper, in which he discussed the future prospects of illuminating engineering. One of the immediate tasks of the society should be, he said, to obtain statistics showing the prejudicial effects of inadequate and unscientific lighting on the health and eyesight of factory workers. The Health of Munition Workers Committee had produced some evidence that inadequate lighting was prejudicial to health, and might cause headaches and other effects of eyestrain, apart from the fact that it also led to industrial accidents. The society intends to make a detailed survey, in order to place the matter beyond all question.

A CORRESPONDENT who has recently been called up for a fourth medical examination writes to the *Cambridge Daily News* in praise of the new arrangements made by the Ministry of National Service. On the day that he attended the Cambridge office not more than twenty others were called up for examination. The rooms were well warmed and everything possible was done for the comfort of the men. The examination by the four doctors forming the medical board was thorough and individual, and the men were treated with every consideration. After passing through the hands of each member of the board the men were informed by the chairman of the grade in which they placed, and within a very few minutes their cards were handed to them, together with an order for a day's pay to be paid next door. The writer concludes that if everything is done elsewhere as it is done at Cambridge there will be little cause for complaint.

AT a meeting of the Medical Society of Magdeburg, Dr. A. Weinert reported several striking cases of sudden death among soldiers who only a few minutes or hours earlier had been on duty. In several cases of diphtheria in which the diphtherial membrane was spread over the pharynx, larynx, and the whole respiratory tract the patient had remained on duty till about two hours before death. One patient suffering from abscess of the larynx had been off duty only half an hour when he died. One rare cause of sudden death was due to haemorrhage into the suprarenals after a fall. In three cases there were fatal haemorrhages from gastric ulcers, while the patients were also suffering from pneumonia. In a recent paper by Beitzke eleven cases of sudden death among soldiers are recorded in which, at the necropsy, nothing serious enough to be fatal could be found apart from early nephritis; but this was slight.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

ARTISTS desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are:

1. EDITOR of the *BRITISH MEDICAL JOURNAL*, *Athology*, Westrand, London; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Mediscra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the *BRITISH MEDICAL JOURNAL* are devoted will be found under their respective headings.

QUERIES.

PAINLESS CHILDBIRTH.

DR. G. BLACKER 45, Wimpole Street, W.) writes: In view of the interest which the subject of "twilight sleep" is exciting at the present time I am anxious to obtain authentic details of any cases in which this method of narcosis has produced dangerous symptoms or a fatal result in either the mother or the child. If any of your readers can furnish me with the particulars of any such cases I shall be greatly obliged.

PAY OF ANAESTHETISTS IN MILITARY HOSPITALS.

ANAESTHETIST in military hospital wishes to know if any other medical officer holding a similar appointment has applied for the special pay of 2s. 6d. a day, and if so whether his application has been successful.

INCOME TAX.

"X" who before the war was in partnership, is now serving abroad and has let his house; he holds certain War Loan stock. The point is whether he is resident in this country.

The residential test would seem to be the same with regard to the exemption from tax on war loan as in the ordinary case of relief from earned income. The special provision contained in Sec. 71 (1) of the Finance (1909-10) Act 1910 provides that a person employed in the service of the Crown abroad shall be entitled to relief "as if he were resident in the United Kingdom," though in computing the total income for the purpose of determining the rate of relief the non-chargeable income would have to be included. We suggest, therefore, that on the facts stated "X" would have reasonable grounds for claiming (1) that his war loan interest is at present exempt from duty and (2) that he is entitled to relief in respect of the rate of tax chargeable on his partnership profits on the special ground that he is employed in the service of the Crown abroad.

ANSWERS.

FINGER CRACKS.

DR. C. J. B. JOHNSON (King's Heath) sends the following suggestion: Heat a piece of shoemaker's wax and fill the crack with it. One application is generally sufficient. The objection to it is the dirty appearance. As a preventive the hands should be thoroughly rubbed with vaseline or oil before washing.

"X" writes: I have had the best results from a solution of celluloid (old photographic film, well cleaned). Dissolve in ether and thin down with amyl acetate. The crack must be perfectly dry, and be kept on the stretch (gaping) till repeated coats of the solution have dried in and filled it up. The essential point to remember is that the object is not to bridge over the crack, and still less to draw its sides together, but to fill it up solidly from the bottom. If well done, it should last, in spite of free use of the finger, washing, etc., till the skin outgrows the crack. Only in extreme cases need a few fibres of cotton-wool be added. This solution adheres better than collodion.

ICHTHYOSIS writes: In my personal experience of this disability, which is considerable, the only treatment I have found really useful is that recommended to me a number of years ago by the late Dr. Allan Jamieson of Edinburgh. A thin wisp of cotton-wool is fixed over the crack (with a good grip of the adjacent nail) by means of "epicollod," a collodion preparation made by Messrs. Duncan and

Flockhart of Edinburgh, and more adhesive and durable than any of the other similar preparations I have tried. It is neater and cleaner than plaster, can be washed and scrubbed repeatedly, and will often remain in place for two days or even longer. The cracks heal up rapidly beneath it and commencing ones can usually be aborted by its use.

LETTERS, NOTES, ETC.

MIRROR WRITING AND WRITING WITH THE LEFT HAND.

DR. WILLIAM ELDER (Leith) writes: In amplification of the letter and notes in the BRITISH MEDICAL JOURNAL of January 19th I wish to point out to those interested that they will find the subject of mirror writing discussed in my work on *Aphasia and the Cerebral Speech Mechanism* in 1897 and the article on mirror writing in *The Encyclopaedia Medica*, vol. viii, 1901. In these articles I offered what I believe to be the explanation of what Dr. Heywood Smith and you state as a curious fact that mirror writing can be at once identified as the person's handwriting as it reproduces the characteristics of the particular individual's right handwriting. It would require too much space to summarize the explanation here, but I believe that the movements that produce mirror writing are guided from the left cortex just as the movements of the right hand are guided in ordinary writing. Mirror writing results from bilateral representation of the movements of the hands, etc.

Every one, however, is not a true mirror writer, even although he may be able to write backwards with the left hand, as the statistics of experiments I published in those articles showed. Probably a greater number can be found amongst quick expert writers and individuals of special aptitude. It has also to be noted that the calling into action of the eyesight rather interferes with the production of mirror writing.

The suggestion of Sir James Barr is an excellent one, namely, to write with the left hand on paper backed with carbon paper so that the mirror writing can be read on the reverse side. For those poor fellows who have lost their right hand this is a means by which at once many of them could write letters with their left hand without going through the rather painful and patient process of learning to form the letters in the ordinary way, but it is to be remembered that probably practice of mirror writing with the left hand will rather retard the progress of the pupil who is learning to write in the usual way with the left hand.

COLD-CATCHING DANGERS.

DR. T. REUELL ATKINSON (Chadwell Heath) writes: A few days ago an article with the above heading, by a "Medical Correspondent," appeared in a daily newspaper. He stated that "bronchitis and pneumonia were among the most fatal of cold-catching diseases"—a slightly involved statement, but is it true? Do either of those diseases owe their origin to cold? One often reads that So-and-so caught a chill and pneumonia followed. But was not the chill the evidence of the onset of the pneumonia? For many years I have held the view that the simple bronchitis and bronchial catarrh so prevalent in our climate in winter were due to the usual shutting up of doors and windows and sitting in a stuffy and often smoke-laden room, theatre, cinema, church, or chapel—"gassed," in fact, in a mild form. Is not the cough of so-called bronchitis and bronchial catarrh more often laryngeal or pharyngeal? Acute bronchitis as a disease *per se* I seldom or never see. Does any one? In the JOURNAL for February 15th, 1913, I described the good results I had obtained in these winter cough cases by the use of an inhaler, made by Squire, on which a few drops of a solution of iodine, creosote, carbolic acid, and chloroform were placed, worn and kept on all night. One night's inhalation often cures. After repeated trials, I have as strong a faith now as then in its efficacy. The laity have a horror of cold and chills and draughts, which is kept alive by "medical opinions" so often given in newspapers. Hence stuffiness is rampant in people's homes, and, worst of all, in the little cottage rooms of the poor.

SKIN GRAFTING.

TEMPORARY CAPTAIN R.A.M.C. writes: None of the points of interest mentioned by Dr. H. C. Crew (January 19th, p. 84) are novel. In my student days at Guy's in the nineties I remember skin grafts of foreskins being used. They were washed in warm boracic lotion, and kept in the lotion until required for use. As far as I can recollect it was often considerably longer than two hours from the time of the circumcision to the "planting" of the grafts. Success was not invariably with the grafts, but the majority "took."

MEDICAL STUDENTS IN AND OUT OF THE RANKS.

J. K. P., in the course of a letter continuing the discussion on this subject, expresses a strong opinion that the present ruling of the Army Council as to medical students who are at present in the army is grossly unfair to those students who do not come within the purview of the order. The present situation cannot, however, he thinks, be laid at the door of the War Office authorities, who only look at the military aspect, and care nothing about what the loss of study may entail to the student or his parents. The question first came up at the annual meeting of the British Medical Association in July, when a resolution was brought forward that all bona fide medical students should be released from military service

and allowed to resume their studies. This resolution got short shrift. A member immediately proposed that the meeting should pass to the next business, and this was carried without a word of protest. Since then, although the subject has come up in various forms, neither the General Medical Council nor the British Medical Association, through the Central Medical War Committee, has shown much interest.

So long as the colleges and universities can retain sufficient students to "carry on," the future welfare of the medical student who is in the army does not seem to be any concern of theirs. The function of the Central Medical War Committee is to keep the army supplied with medical officers. So long as that duty is carried out to the satisfaction of the military authorities during the present emergency the future of the medical student or the profession after the war will not worry them very much.

Why should the medical student be put in a different category to the apprentice fitter? The former is necessary to keep up the supply of medical officers for the army, the latter the supply of skilled artisans for munition works; one class gets total exemption, the other, to put it at its best, a "make believe." The reason is, of course, that the trade union of the artisan sees that he is not interfered with, whilst the medical student has only the General Medical Council and the British Medical Association to protect his interests. The patriotism of the boys who left their studies before being compelled to do so has received treatment of which neither the profession nor those who are supposed to look after its interests can feel proud. The equitable and just solution is quite simple. Why should not all medical students be required to serve for one year, at the termination of which they should be compelled to resume their studies? Those joining up would balance those coming out, and a year's loss of study could be easily overtaken.

J. A. A., in the course of a letter on this subject, writes: It may be of interest to relate the story of three medical students, A., B., and C., who commenced their medical studies together in 1913. They passed their first professional examination in June, 1914, before the war broke out, and commenced their second year together in September, 1914.

Then came the great appeal to the patriotic instincts of young men. A. left his studies and enlisted at once. Within six months he was fighting in Gallipoli, later in Mesopotamia, and is still, after three years, risking his life daily in the service of his country.

B., held back maybe by the appeals of those whose wishes he was bound to respect, resisted the daily taunts of his professors until he had passed his second professional. Then, when conscription was looming large, he joined, but within a few months was able to take advantage of the A.C.I. of December, 1916, and return to his studies. He is now well on his way to becoming qualified.

C., neither heeded his country's call nor his professors' sneers, and risked the coming of conscription. His super-patriotism was rewarded by total exemption, and whilst A. was bleeding for his country on the plains of Mesopotamia, C. was gathering in the spoils of a unique experience as unqualified (salaried) house-surgeon in a large hospital attached to his university. He was enabled by special concessions to enter for his final examination six months earlier than usual, but remembering, at the last moment, that should he qualify he would be required to show his patriotism where shells were bursting, he decided to postpone his final as long as possible, until, I suppose, the end of the war approaches. It appears that a man need only become a fourth year student and he is safe for the duration of the war, provided he is wise enough not to qualify. He simply acts as unqualified house-surgeon, obtains all his experience (and salary), and runs no risk. But if a man comes home under A.C.I. 1751, he must, no matter how long he has been away from his books, pass his examination within six months or be recalled ignominiously to the ranks.

You, Sir, on page 90 of last week's issue, appear to make some sort of apology for this state of things. I am a loyal member of the British Medical Association, but I venture to think that if the officials of the British Medical Association had sons suffering under this outrageous injustice, such cold comments on such a burning question would not appear in the JOURNAL. Surely it is not beyond the wit of man to combine fair treatment to the patriots of 1914 with national expediency. Let those responsible (including the British Medical Association) see to it.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *postie restante* letters addressed either in initials or numbers.

Remarks

ON

THE ETIOLOGY OF DIABETES MELLITUS

AND THE DIET AND CONDITIONS OF LIFE
DURING THE WAR.By R. T. WILLIAMSON, M.D.LOND., F.R.C.P.,
CONSULTING PHYSICIAN, ROYAL INFIRMARY, MANCHESTER.

WHATEVER may be the exact pathology of diabetes mellitus, certain etiological relations are of much interest and of some importance with respect to the prevention of the disease in England during this period of overstrain through the war.

Diabetes mellitus has been steadily becoming more frequent for many years. The death-rate from the disease has increased in England and Wales from 59 per million living in 1886, to 97 in 1906, and to 130 in 1915. The larger portion of the increased mortality rate may be clearly attributed to the increased frequency of the disease.

In 1908 I collected all the information I could obtain respecting the frequency of diabetes in various countries, and obtained information from all quarters of the world. Some was reliable, some unsatisfactory.¹ My conclusions were:

The mortality from diabetes is much greater than in England and London, in the following towns and countries: In Malta, in many of the large towns of the United States (Worcester, Syracuse, Rochester, New York, Boston, Washington), in Bordeaux (France), in Berlin, Paris, Frankfurt (am Main). Also experience indicates that diabetes is especially common in Bengal, Ceylon, Siam, and Tunis. Certain races are especially liable to suffer: Jews, Hindus, and Maltese. In 1907, the year when my statistics were collected, the mortality for diabetes per 100,000 living in Malta and Gozo was four times that in England and Wales. In New York, Washington, and Boston (United States), and in Paris it was twice that in London. In Worcester (United States) and Syracuse (United States) and in Bordeaux (France) it was three times that in London.

Is more sugar and sweet food taken in these countries and by these races than in England? In many of the towns of the United States, and in Malta and Tunis, I understand that this is the case. May this be a predisposing cause and account for a portion of the greater frequency of the disease in these countries and races?

If we take the history of a large series of cases of diabetes we find the disease has very frequently followed certain conditions. We cannot say that these conditions were the cause of the disease, but the history of such conditions before the disease has been detected has been so frequent that they cannot be regarded as coincidents. Whatever other cause or causes there may be, they may very fairly be considered as at least extremely probable predisposing causes. If the patients had not been exposed to these conditions they would not have suffered from the disease until a much later period, or possibly not at all. In other words, the onset of the disease has been at least accelerated by these conditions of life or habits.

The etiology of diabetes is discussed in detail in textbooks and monographs, and in this article I desire to draw attention to three predisposing causes only. In 1898² I published an analysis of the etiology in one hundred consecutive cases. Since that time I have taken notes on the etiology in most cases I have seen, and my results respecting the frequency of certain predisposing causes have been much the same. More recently I have inquired very carefully in another series, of 300 cases, respecting the frequency of (1) great and prolonged excess of sweet food and drinks, chocolate, etc.; (2) very great and prolonged mental anxiety, worry, and overstrain, or sudden shock; (3) family history of the disease. Other points in the etiology were also noted. I have asked questions on ten points, and collected the answers on separate slips of paper. (Most of these cases were seen before the war.) Though the answers varied much, the most striking points in the history in these cases were (1) the frequency of great excess of sweet food or drink for a long period before the onset of the disease; (2) the frequency of prolonged mental anxiety, worry, or sudden shock just before the onset of the disease; (3) the frequency of a family history

of diabetes. This is shown by the following results respecting the etiology in 300 cases:

History of prolonged great excess of sugar, sweet food, or sweet drinks (alone or combined with other predisposing causes) in 93 (= 31 per cent.).

History of prolonged and intense mental anxiety, worry, overstrain, or sudden mental shock (alone or combined with other predisposing causes), in 120 (= 40 per cent.).

Family history of diabetes (alone or combined) in 76 (= 25 per cent.).

No definite predisposing cause in 59 (= 19 per cent.).

The following are the results in detail, especially with respect to these three questions.

I. *Very Great Excess of Sugar, Sweet Food, and Sweet Drinks.*

A previous history of prolonged great excess of sugar, sweet food, chocolate or sweet drinks, alone or combined with other predisposing causes, was obtained in 93 out of 300 cases (31 per cent.). If we consider these cases in detail we have the following groups:

(a) Great excess of sugar, sweet food, chocolate, or sweet drinks ...	40 cases.
(b) Ditto, plus great mental worry, anxiety, strain, or sudden mental shock ...	19 "
(c) Ditto, plus great overstrain in work ...	4 "
(d) Ditto, plus mental overstrain, anxiety, etc., and great overstrain in work ...	6 "
(e) Ditto, plus family history of diabetes ...	13 "
(f) Ditto, plus family history, plus mental or physical overstrain or shock ...	9 "
(g) Ditto, plus severe injury ...	2 "
93 cases.	

The history showed that these patients had taken very large quantities of sugar in tea and foods, or very large quantities of jam, or sweets, or chocolate, or very sweet fruits and other very sweet foods. In many cases the patient had taken tea in very large quantities, containing much sugar, three times a day.

Chocolate had been taken in very large quantities by 21 of the 93 patients, either alone or with other sweet food or drinks. In some of these cases a history was also obtained of mental overstrain or shock, physical overstrain or a family history of diabetes.

Apart from the excess of very sweet tea already mentioned, in 17 of the 93 cases great excess of other sweet drinks had been taken for a long period before the onset of diabetes—herb beer containing much sugar or treacle, ginger beer, whisky with much sugar, sweet wines, gin and ginger beer, cider, sugar and milk. In some of these cases often other sweet food had been taken freely, or a history of mental overstrain, shock, or physical overstrain, or a family history of diabetes was obtained. Great excess of jam (jam at nearly every meal), great excess of chocolate, great excess of tea containing much sugar (in one case thirty-six lumps of sugar in the tea daily), and great excess of herb beer containing much sugar or treacle (in one case 8 pints daily), were striking points in the histories of certain cases.

The following are a few examples of the continued excess of sugar and sweet foods or drinks taken for long periods before the onset of diabetic symptoms:

1. Female; stated that she had "lived on sweet food": great excess taken; jam taken freely "at nearly every meal." Excess of sweet drinks, including herb beer containing sugar.

2. Female; stated that she had "lived on sweet food": had taken sweet food at every meal; sweet fruit, jam, sweet cake, and chocolate, all taken in excess. Sweet lemonade taken freely.

3. Male; great excess of sweet food; half a pound of jam daily (½ lb. for breakfast and ½ lb. for tea); tea three times a day, with 18 teaspoonfuls of sugar (about 4½ oz. of sugar daily); beer four or five glasses daily; whisky twice a day; wine occasionally. Overwork; great mental strain and worry.

4. Male; excess of sweet food; half a pound of jam daily (½ lb. for breakfast, ½ lb. for tea); sweet food at dinner; 4 to 6 oz. of cream chocolate daily; sweet tea three times a day (containing nearly 2 oz. of sugar); herb beer and sweet lemonade freely.

5. Male; great excess of sweet food and sugar; 3 lb. of chocolate weekly; 20 lumps of sugar (nearly 4 oz.) in tea daily. Great mental strain and overwork.

6. Female; excess of sweet food; about 25 lumps or more of sugar (about 4 to 5½ oz. of sugar) in tea daily; herb beer 1 pint daily; bitter beer also taken daily.

7. Female; 36 lumps of sugar in tea alone daily (about 6½ oz. of sugar). Great mental worry.

8. Male; great excess of sweet food and sugar (about 4 oz. of sugar in a pint of tea); about 6 oz. of sugar daily; 4 oz. of "sweets" daily; half a pound of sweet cake daily; beer taken freely.

9. Male; excess of sweet food; 4 oz. of chocolate daily; tea three or four times a day, well sweetened ($\frac{3}{4}$ to 4 oz. of sugar in tea alone daily). Great mental overstrain.

10. Male; 19 teaspoonfuls of sugar (about 4 oz.) daily in addition to other sweet food.

11. Male; medical man with heavy practice in Scotland. Breakfast early, dinner very late in evening; "lived on chocolate" between these hours; no midday meals very frequently except chocolate. Great excess of chocolate daily.

12. Male; sweet food in excess; half a pound of sugar daily: great mental strain and worry.

13. Male; great excess of sweet food; tea very sweet; herb beer containing much sugar (8 pints) daily in summer (4 in winter). Great mental strain and hard work.

14. Male; great excess of a mixture of gin and ginger beer daily.

15. Male; three pints of herb beer daily; port wine rather freely. Great mental strain in work.

16. Male; five bottles of herb beer (containing much sugar) daily. History of a fall followed by neurasthenic symptoms.

17. Male; ten glasses of whisky daily well sweetened with sugar.

18. Female; great excess of whisky very well sweetened with sugar.

In a number of cases in young children a history was obtained of great excess of sweet food, with a large quantity of chocolate daily or a large quantity of sweets.

19. Baby 14 months old; had been fed on milk to which the mother added large quantities of sugar. Severe diabetes; death in two weeks.

II. Prolonged and Intense Mental Anxiety, Worry, Overstrain, and Sudden Shock.

Willis (the English physician who first discovered that the urine in diabetes had a sweet taste) 240 years ago attributed the disease to sadness and long sorrow, and from that date numerous writers have pointed out that the disease sometimes follows prolonged and intense mental anxiety, overstrain, worry, or severe mental shock. Such a history I have obtained in a large percentage of the cases of which I have notes during the last thirty years.

The following are the statistics in the series of 300 cases on which this article is based.

The disease followed directly after a period of intense and prolonged mental overstrain, anxiety, or worry, or after a sudden very severe shock in 120 out of 300 cases (= 40 per cent.).

In these 120 cases we had a history of mental overstrain, anxiety, or shock alone in 61; along with a family history of diabetes in 25; along with a history of great excess of sugar or sweet food or drinks in 25; along with a history of excess of sugar and a family history of the disease in 9.

Often associated with the mental overstrain, anxiety, or shock we have a history of physical overwork and overstrain and long hours of work, or occasionally a history of acute illness or alcoholic excess or other predisposing causes.

A history of sudden mental shock immediately before the onset of the disease is occasionally obtained (13 out of the 120 cases). Often the disease directly followed the mental overstrain and anxiety caused by the death of a relative, or by the prolonged illness of a relative, or by nursing a relative through a long or critical or fatal illness (12 out of the 120 cases). Very often we had in these cases a history of great loss of sleep and of physical overstrain.

Often we had a history of great anxiety and mental overstrain through losses in business, frequently associated with overwork, and frequently with loss of sleep, and occasionally with excess of alcohol. Occasionally a history was obtained of excessive mental work in preparing for examinations and prolonged hours of close study just before the onset of the disease (5 of the 120 cases).

The loss of sleep, so often associated with sorrow and anxiety caused by the death or illness of a relative, by sudden mental shock, or business losses, in the cases just mentioned, is probably a very important point.

The two following cases are of interest with respect to sudden mental shock:

20. A lady who had just been confined developed diabetes directly after a sudden mental shock. The nurse was warning the baby before the fire. The nurse dozed, or fell asleep, for a short time, and held the baby too close to the fire, and the

baby's legs were severely scorched. This caused the greatest shock to the mother; she was never well afterwards. In a few days symptoms of diabetes were noted. Previous to the shock the lady had been quite well, and the urine had been tested towards the end of pregnancy and found free from sugar.

21. In a man aged 57 symptoms of diabetes followed rapidly after a sudden mental shock. Four months previous to the shock he had passed a medical examination for life assurance, at which his urine had been tested. Whilst playing cards, the friend with whom he was playing died quite suddenly at the table. This caused the patient the greatest shock; he was never well afterwards. Within one week of the shock thirst and symptoms of diabetes were first noted.

III. Family History.

A family history of diabetes was obtained in 76 of the 300 cases = 25 per cent. Many striking instances were noted.

A history of great excess of alcohol was obtained in only a small proportion of the cases, much less frequently than a history of excess of sugar, or of mental anxiety or shock, or a family history of diabetes. In the statistics published in 1898 (chiefly hospital patients) I found a history of great alcoholic excess in 17 per cent. Amongst the private diabetic patients such a history was much less frequently obtained.

It is interesting to note that glycosuria occurs in some cases of Graves's disease. Occasionally the symptoms of Graves's disease diminish markedly, or cease, and symptoms of severe diabetes develop.

In many cases of acromegaly glycosuria or well-marked diabetes develops.

Diabetes sometimes follows directly after an acute illness, and the history often shows many other interesting etiological relations, but it is only to the three predisposing causes just considered that I desire to draw attention in this article.

In some cases no predisposing or exciting cause can be found (in 59 of my last series of 300 cases).

In statistics of a previous series of cases (1908) I obtained a history of great mental anxiety, shock, and overstrain in 35 per cent.; history of very great excess of sugar, sweet food or sweet drinks in 37 per cent.

This consideration of the etiology of diabetes shows the frequency, and I think the importance, of three predisposing causes: (1) Prolonged mental worry, anxiety, great mental strain, or sudden great mental shock, sometimes associated with overwork; (2) excess of sugar in the diet—sweet food or drinks, and excess of chocolate; (3) family history of the disease. Often we find a history in the same case of a combination of two or all three of these.

From my own experience in Manchester I think we shall find that diabetes has increased in frequency amongst the civil population of England since the war commenced. Amongst those who are doing military service I think we shall find that diabetes has not been much more frequent than amongst men of the same age in civil life before the war, but this is an impression, and not based on definite statistics. If correct, possibly the increased exercise and better regulated diet, in which great excess of sugar and sweet food is not allowed, may account for diabetes not being more frequent amongst those engaged in military work. Possibly also they have less time for brooding and worrying than people in civil life. We may find, however, that many who are now suffering from shell shock, neurasthenia, and functional nervous diseases will develop diabetes later.

Prevention of the Disease.

We cannot alter our family history, but we can all avoid excess of sweet food, sweet drinks, sugar, chocolate, and sweet jam during the war; and though we cannot avoid mental worry, anxiety, and shocks, we can often do something to diminish their effects.

It is important for all to avoid excess of sweet food, jam, chocolate, sugar, and drinks containing much sugar; but more so for those who have great mental strain, anxiety, and overwork, and especially for those who, in addition, have a family history of diabetes. The sugar restrictions will do much to check the excess of sugar in tea and coffee and in cooking, but we have as yet no restriction directly as to jam, chocolate, and many articles of sweet food. Those who have great mental anxiety and overstrain, and especially if they have also a family history of diabetes, would do well to discontinue the addition of sugar in tea, coffee, and in food entirely, and to limit to the minimum the use of

jam, sweet foods, chocolate, and drinks containing much sugar, such as herb beer, sweet wines, and combinations of sugar and alcohol. They would thereby be helping the Food Controller, as well as doing something to diminish their own risk of diabetes.

Alcohol, and especially combinations of alcohol and sugar, if they can still be obtained, should be very limited in the case of those who have much mental strain, anxiety, or worry. The regulations now in force will check any excess for most people.

Through the war, we are now all suffering, more or less, from mental overstrain, worry, anxiety, or sudden mental shocks, which will tend to increase the risk of diabetes. We cannot avoid them, but we can do something (and this is especially desirable in those who are suffering severely) to diminish their effects by directing our attention, whenever possible, to subjects not directly associated with the particular anxiety or worry, and especially by close occupation. Most people have now to work very hard, and occupation and close attention to work are useful in diminishing the effect of mental shock and anxiety; but when the overwork is excessive something may be done to diminish the injurious effects by putting aside any work not absolutely necessary, if this is possible.

Sleep is very important. When insomnia is associated with the great mental strains already named prompt treatment is desirable, and, if it cannot be checked, drugs such as chloralamide, trional, adalin, etc., taken under the direction of a physician for a short time, may be of much service.

Summary.

It is desirable for all to cut down sweet foods and drinks, chocolate, jam, sugar, and alcohol to a minimum during the war, and especially for those who have a family history of diabetes, and are suffering from great mental strain or shock; they will thereby help the Food Controller and also diminish the risk of diabetes. Occupation and close attention to work are useful in diminishing the effects of mental worry and shock, and thereby the risk of diabetes, but in certain cases of excessive overwork it is desirable to cut off work not absolutely necessary, if this is possible; sleep is very important.

The recent food restrictions, as already mentioned, will check for most people any excess of sugar and alcohol, and will thus tend to diminish the risk of diabetes. Those who have been obliged through these restrictions to discontinue excess of alcohol or sugar should, however, not replace these by excess of non-alcoholic drinks containing much sugar, and excess of jam, chocolate, and other sweet foods which may be still obtainable.

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² *Diabetes Mellitus and its Treatment*, London, 1898.

THE EFFECT OF INTERMITTENT STRETCHING ON MUSCLES AND NERVES AFTER NERVE SEVERANCE.

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ONE of the problems of the treatment of cases of nerve severance is the time during which movement of the paralysed muscles can be allowed and the extent to which it can be carried on with safety. In the period before suture the practice is to allow some degree of movement, and Sir Berkeley Moynihan,¹ in a recent paper, says that in order to keep the joints supple the paralysed parts must be freely moved every day, and many times a day. On the other hand, for a certain time after suture, no movement at all is allowed. The necessity of this has been specially insisted on by Sir Robert Jones,² who has had a wide experience of nerve suture cases.

The statement that movement is not permissible for some time after nerve suture is usually given in the form that the muscle during this time must be kept completely relaxed, or that the muscle must not be stretched. Thus Sir Robert Jones² says that "the slightest stretching of a muscle on the point of recovery disables it again," and Sir Berkeley Moynihan¹ that "not for a moment at any time must paralysed muscle be stretched." These are no doubt merely practical directions to avoid delay in recovery,

but the natural inference from them is that any degree of stretching is injurious to the muscle, and that it is this injury which delays the recovery. The inference is strengthened when it is at the same time pointed out that prolonged stretching of a muscle causes permanent elongation. So far as this inference is made it must tend to restrict movement before nerve suture, for if stretching is injurious to a muscle after suture it will be injurious to it for more or less time before suture. In any case it is necessary for satisfactory treatment to know what degree of stretching not only paralysed muscle but also degenerating and regenerating nerves will stand. I venture, then, to offer some remarks on these points, although my experiments are incomplete. Unless otherwise mentioned, I only consider the stretching produced by intermittent ordinary joint movement, and not the protracted stretching caused by the unrestricted action of antagonistic muscles. We may consider separately the effect on muscles and the effect on nerves.

I. STRETCHING OF MUSCLES.

The effect of intermittent stretching on muscles might *a priori* be either advantageous or the reverse, according to the weight which is laid on particular events. On the one hand, it forces lymph from the muscles, and so presumably metabolic products, and this we should expect to be advantageous. Further, it seems not unlikely that it is of advantage in relation to connective tissue formation. In denervated muscles the connective tissue increases—it is said to be visibly increased in microscopic preparations three weeks after nerve section—and part of the late contracture is attributed to the shrinking of the newly formed tissue. The connective tissue when first formed is soft and extensible. Intermittent extension will elongate the developing fibres, so that when they shrink there may be less tendency to contracture. On the other hand, muscles after denervation rapidly lose weight—in cats and rabbits the gastrocnemius loses about 50 per cent. of its weight in about four weeks—and it is practically certain that in this state it cannot stand as great a strain as normal. Whilst a great reduction in its power of withstanding strain might take place without making it liable to be injured by the degree of strain put on it by free joint movement, we cannot offhand say that free movement does not injure it. Observations on man can hardly settle the point, since the effect has to be judged by the rapidity of regeneration, and this is greatly influenced by the events after nerve suture. In animals a more definite result can be obtained by noting the effect of intermittent tension on the appearance of the muscles and on the degree of atrophy.

A short time ago I published an experiment³ on these points. The popliteal nerves in a rabbit were cut on both sides, and the leg and foot on one side rhythmically extended and flexed for an hour morning and evening.

At the end of three weeks the animal was killed and the muscles of each leg weighed. The muscles had no obvious difference to the eye, and no sign of ruptured fibres. On the side on which the paralysed muscles had been rhythmically extended, four of the muscles were rather heavier than on the other side, one was of the same weight, two were somewhat lighter. The differences were not decidedly outside the normal difference of weight on the two sides in normal animals.

The experiment showed that stretching the paralysed muscle a great number of times to about the full normal extent did not in its total effect appreciably affect the atrophy. It must be noticed that, on account of the experimental error, a slight effect would not be appreciable unless a number of experiments of the kind given were made, and that irritability might be altered without an alteration in the loss of weight. Further, the total effect may have been the algebraical sum of + and – effects, but, from the practical point of view, this is unimportant. I have made incidental observations on muscles in later stages of atrophy up to about three months, and have seen no sign that they are injured by moderate intermittent tension, or by the degree of strain exercised by antagonistic muscles provided this is not prolonged.

II. STRETCHING OF NERVES.

Movements of joints and stretching of muscles exerts more or less pull on the nerves. The conditions affecting these are essentially different before and after nerve suture.

Stretching Nerves by Movement before Nerve Suture.

Nerve fibres pass through the two well-known stages of forming, first, a granular protoplasmic band, and then a hyaline band—the “band fibre.” The former lasts two or more weeks—its duration varying in different fibres—and its appearance suggests that it is very little extensible. Fibres in this stage sometimes show great inequalities in the granular band, which might be due either to tension or to inequalities in protoplasmic formation. It is unlikely that they are due to tension since the nerve in the early period after severance is free to move. In two to three weeks after nerve severance the cut peripheral end becomes more or less fixed to the surrounding connective tissue, and a given movement causes a somewhat greater pull on the nerve. I have tested the extent of this on the sciatic nerve and its branches in rabbits and cats. By complete extension or flexion of the limb the nerve may be straightened, but its tension so far as I have seen is too slight to cause injury, and I have not found that it causes any rupture of the degenerating fibres. It may, I think, be concluded that, in the pre-suture period, fairly free extension and flexion movements are not likely to injure either muscle or nerve. Naturally, forcible movements are always to be avoided.

In the pre-suture period there are some definite advantages in a flexible splint, allowing a certain amount of movement. Passive movement can be carried on at frequent intervals by the patient, and, when flexors or extensors are not paralysed, limited voluntary movements can be made, sufficient to prevent the wasting in the non-paralysed muscles which accompanies disuse.

Stretching Nerve by Movement after Nerve Suture.

We may consider first the simplest case—namely, that in which the nerve is not shortened. In this case movement will tend to strain the sutures and rupture the nerves growing from the central into the peripheral end. But connective tissue soon joins the ends, and binds them—at first loosely—to the surrounding tissue. Restricted movements can be made without injury, since these put extremely little tension on an unshortened nerve. When the connective tissue has become firm, tension on the nerves will not injure the nerves at the suture as readily as it injures the newly formed fibres and the “band fibres” in the peripheral part of the nerves, consequently whether full movement can be made or not depends on whether the tension caused by it is sufficient to injure the peripheral part of the nerve.

The following experiments, a further account of which has been given elsewhere,¹ bear on this question. In cats the peroneal nerve (Experiments 1, 2, 3) or the tibial nerve (Experiment 4) was compressed on one side sufficiently to break through the axis cylinders without breaking through the nerve sheath; the limb was left without a splint, so that the muscles would be extended by their antagonists for a greater or less time, according to the posture of the animal. The animals with cut peroneal nerve were allowed to walk about as they pleased; that with the cut tibial nerve was kept in a cage for a week and then allowed gradually increasing exercise. The recovery of nervous control was rapid. In Experiments 1 to 3 reflex abduction of the fifth toe was obtained after nineteen days; stimulation of the peroneal nerve caused fairly good contraction of all the extensor muscles of the leg in twenty-one days (Experiment 1), and strong contraction after thirty-six and thirty-eight days (Experiments 2 and 3). In Experiment 4, in which the tibial nerve was cut, the animal, after forty-eight days, could keep the heel well off the ground in walking; stimulation of the tibial nerve caused contraction of the flexors of the leg, and stimulation of the posterior tibial nerve—though with currents considerably stronger than normal—caused contraction of the muscles of the foot. On microscopic examination, all the nerve fibres were found to have undergone Wallerian degeneration.

These experiments show that in animals a considerable degree of movement does not prevent rapid regeneration in an unshortened nerve. The definitely ascertained facts with regard to the effects of nerve severance are so similar in man and animals that the results given above are, I think, applicable to man. I conclude that in cases of suture in man, when the nerve is not shortened, slight movements can be begun in a few weeks and rather rapidly increased in extent. Early movement probably has the advantage of elongating the connective tissue binding the nerve to the surrounding structures. The connective tissue in its later stages tends to fix the nerve and thus to cause the peripheral part of the nerve to be subjected to a greater strain during movement. In consequence, in cases

of nerve compression in which there has been considerable connective tissue formation, it is necessary in the later stages to be more cautious about movement than in cases of immediate nerve suture.

In the great majority of cases in man the nerve has to be shortened, and until the ends become firmly joined a very slight movement may be sufficient to rupture the fibres at the junction, and thus to cause a more or less serious delay in regeneration. Obviously the greater the shortening of the nerve the greater the risk. But even when the junction is firm there is still the risk of injuring the new fibres and “band fibres” in the peripheral part of the nerve, especially in the smaller branches, by even slight movement. There are unfortunately no comparative observations on the degree of strain degenerating and regenerating and normal nerve fibres will stand. If new fibres and “band fibres” throughout the peripheral end of the nerve can stand as much strain as the normal nerve, there seems no reason why movement should not be begun as soon as the union of the nerves is firm. If, on the other hand, new fibres and “band fibres” stand much less strain than normal nerves, it may be necessary to wait until the nerve fibres have become fully developed up to their terminations, and this in some cases would take many months. In any case, it is important to shorten the nerve as little as possible. It would, indeed, probably be better to insert a piece of fresh nerve, not more than half an inch, when much nerve has to be excised, but this can only be settled by experiment.

There is one other point I would mention. It is generally recognized that if a nerve has been severed the sooner it is sutured the better. The main reasons for this are that the longer a muscle is left to atrophy the longer time it takes in recovering its normal weight. At best it is a slow process. It is probable also that nerve regeneration is quicker if it is sutured before the central end has formed a large neuroma and before the “band fibres” have decreased in diameter. The practical difficulty is in distinguishing between complete nerve compression which will recover without operation and nerve severance which requires operation. Tinel² considers that this often takes two to three months. In simple compression new fibres are formed in the part of the nerve just below the point of injury long before there is any sign of recovery on stimulating muscles and motor points. If, then, this region could be stimulated without the stimulation spreading to the normal nerve it would give rise to sensation, and compression diagnosed. In certain cases it would, I think, be possible to do this by passing a needle covered, except at its point, with shellac through the tissues on to the nerve and stimulating with faradic shocks of gradually increasing intensity. If there were no sensory reaction a month after the injury a diagnosis of nerve severance would be much strengthened.

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NOTE UPON A HELPFUL DIAGNOSTIC SIGN
IN RUPTURED DIGESTIVE ULCERS.

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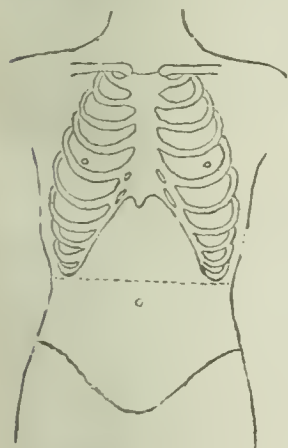
SEVERAL years ago I saw a patient, a hawker, upon his admission to the Royal Victoria Infirmary, Newcastle-on-Tyne, under Professor Rutherford Morrison. He was suffering from acute general abdominal pain of a few hours' duration, and so acute was it that he maintained a constant screaming such as incommoded the other patients in the ward. His doctor, a very careful practitioner, stated that the patient had many times consulted him for alleged sudden attacks of acute abdominal pain, which had just as suddenly passed off. Despite repeated careful examinations nothing abnormal had been discovered, and he came to be regarded as a probable malingerer.

Upon admission his overwhelming pain and a board-like rigidity of the anterior abdominal wall were evidence that

Some intra-abdominal viscera had ruptured. At operation a ruptured duodenal ulcer was found and dealt with. The feature about the case most deeply impressed upon my mind was the presence of a transverse ring of constriction across the abdomen at the level of the lower margins of the ribs, and extending into the flanks on either side.

I had not noticed this sign before, but since then it has often stood me in good stead in the diagnosis of ruptured digestive ulcers, particularly in an atypical case; my reason for recording it now is that it has just dawned upon me that as a helpful diagnostic sign this ring of constriction in perforated digestive ulcers is not generally known. Without claiming to have made an original observation, for at present I have no opportunity of investigating the literature of the subject, I have never previously either seen or heard this sign described. Some surgeons with experience of general hospital emergency work must be familiar with it. I cannot say definitely if it is limited to ruptured digestive ulcers, or if it is also seen in some other acute intra-abdominal lesions. My impression is that I have also seen it in one other instance, namely, a traumatic rupture of the jejunum high up, but I am not positive about this without reference to notes which are not at present accessible.

The constriction is usually present, and does not always disappear with general anaesthesia, although it does disappear when the condition has advanced to the stage of general abdominal distension. There is no marked hyperaesthesia, and the patient is quite unconscious of any feeling of tightness at the site of the constriction. It is not confined to spare or emaciated persons, and is a different thing altogether from the scaphoid abdomen seen in emaciation, etc. The appearance is as if an invisible rope was constricting the abdomen, dividing it into an upper portion which has a convex aspect centrally, and a normal lower part. Viewed laterally, the region of the "rope"



forms the apex of a vertically situated obtuse angle. It may be that it is an attempt of nature to limit the effects of the perforation to the upper portion of the general peritoneal cavity. The sign was present in my last two cases of ruptured ulcer, described later, and I was able to point out the phenomenon to the surgeon who administered the anaesthetic in each instance. The site of constriction is shown in the illustration as a dotted line. It represents the level of the lowermost limits of the costal arch, and may be termed the "infracostal line." In passing, it may

be mentioned that this line is below the level of the transpyloric plane, while it is above the level of the umbilicus. The ring of constriction corresponds to that portion of the anterior abdominal wall supplied by the ninth intercostal nerve, and is certainly due to muscular contraction.

The muscles involved are the two recti abdominis in front, with the external obliques, the internal obliques, and the transversales laterally. The contraction takes place at a situation where the abdominal wall is unsupported by bone on its anterior and lateral aspects, but it should be emphasized that the constriction does not apply to the whole of the ilio-costal space but to its upper part only. All of the muscles just mentioned share in the general protective reflex rigidity, but the extra contraction—forming the ring of constriction—requires some explanation. It cannot be solely due to the accentuation of one of the upper lineae transversae of the recti muscles, because the constriction extends beyond their limits into either flank. Of the three lateral muscles the transversalis is the most capable of producing a constriction because it is able to exert a direct transverse pull, whereas the oblique muscles in contraction by themselves would tend to straighten out any such tendency to a constriction.

The ninth intercostal nerve, supplying its segment of the muscles of the upper part of the anterior abdominal wall

travels in an almost transverse direction after leaving the shelter of its intercostal space.

In addition to the vagi nerves, the stomach and duodenum gain a sympathetic nerve supply from branches originating from the fifth to the eleventh thoracic spinal nerves, through the greater and lesser splanchnics to the coeliac plexus; and Cunningham's *Textbook of Anatomy* (third edition, p. 704) states that sympathetic nerve fibres "transmit to the cerebro-spinal system afferent fibres from the viscera."

In view of these factors—muscular and nervous—it is reasonable to assume that the powerful stimulating impulses of origin, the results of the perforation, are conveyed by the sympathetic fibres to the coeliac plexus and from these to the spinal cord when the whole nervous system is probably involved. Afferent impulses cause the wide pupil dilatation seen in shock. They reach the vasomotor centre with a resulting splanchnic dilatation, and they stimulate the motor nerve cells in the cord so that there is general rigidity of the anterior abdominal wall muscles.

ILLUSTRATIVE CASES.

Case 1.

P. J. L., aged 35, was admitted to the Royal Naval Hospital Ship *Plassy* for acute abdominal pain. Eighteen hours previously he had sudden overwhelming pain in the upper abdomen which doubled him up. He sweated, vomited blood, and thought he was going to die. For many years he had had epigastric pain coming on a quarter of an hour after food; there were no interscapular radiations of the pain, and more food did not give ease. He had never had melaena, a cough, or increased pain on inspiration; flatus had been passed recently, and micturition was normal. Upon admission his facial expression was anxious, he was collapsed and cyanosed. The pulse-rate was 112 and weak, the respirations 20 per minute, temperature 100° F., and the tongue furred and moist. There was a ring of constriction across the abdomen at the level of the lower margins of the ribs. He had board-like rigidity of the whole belly wall, there was dullness in both flanks, and the liver dullness was normal. The heart and breath sounds, pupils, knee-jerks, testes, and hernial sites were normal. Rectal examination showed no abnormality. A diagnosis of ruptured pyloric ulcer was made. This was confirmed at operation, and the patient made a good recovery from it.

Case 2.

P. C., aged 25, was admitted to the R.N.H.S. *Plassy* suffering from acute general pain in the abdomen of four and a half hours' duration. The pain at onset was sudden and appalling, he shouted out, sweated, and vomited. For a considerable time previously he had suffered from epigastric pain after food, with pain between his shoulder blades; there was no history of haematemesis or melaena. He attributed his ailments to obstinate constipation. During my investigation of the case he was constantly screaming out with pain and disturbed the other patients. His pulse-rate was 60 per minute, temperature 98° F., respirations 30 per minute, and a normal tongue. Abdominal respiratory movements were absent, but a transverse ring of constriction could be seen at the level of the lower margins of the costal arch. There was general rigidity of the belly wall muscles, also general tenderness of the abdomen. The remainder of the routine examination was negative. Operation confirmed the diagnosis of a ruptured gastric ulcer, and he made a good recovery.

PRIMARY AND SECONDARY IMPETIGO IN SOLDIERS.

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DURING April, 1917, out of a total of 1,786 patients admitted with skin complaints into — General Hospital it was found that 1,411 suffered either from primary impetigo, or from impetigo grafted upon some other condition. This secondary form may be so severe as to mask the underlying causal condition, leading to errors both of diagnosis and treatment, whereby disease is spread and cure delayed. In this paper four types or classes will be described. Special attention is directed to the mode of distribution, since this alone is usually sufficient to guide the observer to a correct conclusion.

I. TRUE IMPETIGO CONTAGIOSA.

Contrary to what might be expected, this condition, so tediously common in civil practice, rarely occurs among the troops in France. As is well known the causal agent, a streptococcus, gains entrance through some slight

abrasion or cut; in consequence the disease affects mainly those regions accessible to inoculation—the face, hands, and arms. The earliest lesion, a delicate vesicle, is soon ruptured and replaced by a superficial crust, aptly described as “stuck on.” The strikingly superficial position of these crusts and their irregular pattern upon the face enable impetigo contagiosa to be distinguished from impetiginized seborrhoea, to which it bears a close resemblance.

Treatment.—Removal of crusts is an essential first step in the treatment of all “impetigos,” otherwise the remedial agents cannot come into contact with the diseased tissues. This may be done with forceps, or more efficiently by boric fomentations or boric starch poultices. If, before fomenting, the lesions are smeared with liquid paraffin better results will be obtained. The naked sores should then be anointed with zinc ointment containing 1 per cent. ammoniated mercury; should this prove irritating, Lassar's paste may be employed instead, after washing with 1 in 1,000 perchloride lotion.

At times a rare form of impetigo contagiosa is met with in which the bullous phase persists throughout. The whole body becomes covered with blisters, small and large, and there may be constitutional symptoms. This condition is not pemphigus. If the blisters are opened, washed with 1 in 1,000 perchloride, and dusted with a powder of equal parts of starch and zinc oxide, to which is added 10 per cent. of boric acid, a cure is soon effected. Sheets and bed-clothing must of course be changed frequently to prevent the formation of new lesions by inoculation.

II. ECTHYMA.

Ecthyma is a deep or dermic form of impetigo contagiosa, and is most often seen on the legs and thighs. The fully developed lesion consists of a crust covering an ulcer full of matter. It is surrounded by an erythematous halo, the brightness of which indicates the active extension of the process; usually the marginal skin is undermined. This condition is induced by scratching to relieve itching caused by lice, or follows the friction and rubbing of garments soiled with mud or dirty water. Once started it spreads rapidly by autoinoculation. The sores can be distinguished from boils by the absence of a central hair follicle.

Treatment.—While the process is in a progression phase—as indicated by the brightness of the surrounding halo—obviously local antiseptic measures are useless, since neither liquid nor ointment can penetrate among the outlying cells where the streptococci are in active proliferation; their destruction is brought about by substances carried from within, and this is attained by frequent fomentations. To prevent infection the neighbouring skin should be washed over with 1 in 4,000 perchloride lotion before each fomentation. A preliminary removal of crusts and pus is, of course, essential. When the fading halo tells that active extension has ceased, antiseptics, such as half strength ensol, or 1 in 1,000 perchloride lotion, may be used. Sluggish sores can be painted with a solution of silver nitrate 2 per cent. in sweet spirits of nitre. In the last stages weak ammoniated mercury ointment or Lassar's paste should be employed.

III. IMPETIGO COMPLICATING SEBORRHOEIC ECZEMA.

The seborrhoeic diathesis appears to exist among the troops in France to an abnormal degree. Its influence is felt in the treatment of many skin diseases, especially scabies. In its most simple form seborrhoea is seen on the scalp as dandruff, and over the presternal and interscapular regions either as greasy red scaly patches resembling ringworm, or as a scattered follicular eruption. This mild form, relatively common, is not often brought to the notice of the medical officer. When the disease attacks the hairy regions of the face and scalp, it may take on a new and confusing aspect. The seborrhoea becomes eczemized—a process indistinguishable from eczema being grafted upon the pre-existing dermatosis. Nor does this usually end the matter. So susceptible have the affected tissues now become to streptococcal invasion that this germ almost invariably gains a footing, and then impetiginization is added to eczemization. In consequence, an appearance closely mimicking impetigo contagiosa is established. From this it can usually be easily

distinguished—first, because the scabs are distributed over the hairy regions, the beard, moustache, and eyebrows; secondly, by noting that the crusts are firmly attached, and are not of the “stuck on” type; and thirdly, by discovery of other seborrhoeic lesions on the back and chest. The ears rarely escape if the head and face are severely affected, and the process often extends along the auditory meatus, setting up a purulent discharge. This combination—a discharging ear with impetiginized seborrhoea of the auricle—tempts the observer to diagnose middle ear disease with impetigo contagiosa; the history of the two conditions is quite different, the running ear of seborrhoea following, not preceding, the skin eruption.

It is unwise as a rule to dogmatize in medicine, but he who treats every “impetigo” above the neck amongst soldiers in France as if it were an impetiginized seborrhoea will rarely be wrong, and will never do harm.

One other point should be referred to. Ecthyma and impetiginized seborrhoea may coexist, since the healthy skin can easily become inoculated with streptococci from the infected seborrhoeic lesions.

Treatment.—As the condition is an eczema rather than an impetigo, preparations such as calamine liniment should be employed. The formula is as follows:

Calamine ...	...	...	...	gr. xx
Zinc oxide...	...	...	...	gr. xv
Lime water	...	...	...	5 ij
Olive oil ...	...	...	...	5 j.

To bring it into intimate contact with the diseased skin scabs must first be removed, and, after shaving or close clipping, soaked lint applied to face and scalp; all crevices in and behind the ears are packed with soaked cotton-wool. Such treatment is either continued until cure, or towards the final stages Lassar's paste with 2 per cent. salicylic acid or ichthyol may be substituted. Should chronic fissures develop they may be painted with the silver nitrate solution already given. Running ears must be syringed frequently. Two complications often arise—boils and conjunctivitis. The former responds to fomentations and stock staphylococcal vaccines, the latter to frequent washing with boric lotion and eye drops of boric lotion containing 0.5 per cent. cocaine.

IV. IMPETIGO COMPLICATING SCABIES.

Uncomplicated scabies is seldom seen in France because the soldier rarely reports sick until his skin has become severely infected with pyogenic cocci; it is then easy to overlook the primary disease; for this reason men constantly arrive at base hospitals labelled I.C.T., eczema, boils, etc., who are the subjects of unrecognized itch. The distribution of the impetigo secondary to scabies is characteristic, the lesions being especially grouped over the lower buttocks, the elbows, and knees. Impetigo of the lower buttocks is invariably due to scabies, and in such cases a search will constantly reveal confirmatory lesions of the penis, wrists, or interdigital.

Treatment.—In infected scabies treatment is apt to be both long and tedious; medical officers should therefore aim at preventing this condition by constant inspection of the men under their care for the detection of the disease in its early stage. Even when secondary infection has taken place, it is essential in all but very exceptional cases to cure the itch by sulphur before attacking the secondary complications. Therefore treatment is started by a bath, three days' sulphur ointment, and a change of garments. Thereafter the ecthyma is dealt with as already described.

When secondary infection has been severe, a certain degree of dermatitis is an almost invariable accompaniment. It is troublesome because with it is associated sensations of itching of greater or lesser severity, which may be incorrectly thought to indicate that the acari have not been all killed. The following plan will be found useful: During the day Lassar's paste with ichthyol is rubbed over the affected skin, and at night calamine lotion is dabbed on it. It is perhaps unnecessary to insist that the ointment should never be applied to any lesion containing pus.

THE *Newspaper World* stated last week that 99 daily newspapers in this country and 615 weekly periodicals have now increased their prices.

Observations ON WAR SURGERY OF THE CHEST.

BY
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AND

CAPTAIN J. A. NIXON, R.A.M.C.(T.F.).

(Concluded from p. 109.)

PART II. OPERATION.

In no other branch of war surgery is the technique of the operation more exacting, although the manipulations themselves do not require any exceptional dexterity.

A separate theatre is reserved for chest and abdominal operations and a uniform temperature of 80° is maintained. We have found it possible under all conditions, and we believe it is always possible, to maintain as perfect asepsis in a casualty clearing station as in civil hospitals. Cap, mask, gloves, and gown are worn by operator, sister, and assistant, and changed between each case. No one is allowed in the theatre unless wearing a sterile gown, and patients are brought into the theatre in blankets and pyjamas which have been put through the Thresh disinfectant the night before. The patient has been given omnopon-scopolamine (one ampoule) an hour before operation, and, if not sleeping, is given one-half ampoule half an hour before being taken to the theatre.

For operation the patient should be maintained with the injured side dependent. In the majority of cases the half-sitting posture is the most comfortable. A simple apparatus has been devised which allows free access to the injured side and which can be applied to any table.

If the patient cannot be placed with the injured side of the chest dependent, the lung should be grasped with forceps of the Collin pattern immediately on opening the thorax, and sufficient traction exerted to correct displacement of the mediastinum (Murphy).

The skin is prepared with picric acid (3 per cent.) in spirit; paravertebral anaesthesia is administered for two or three spaces above and below the wound, depending on the extent of the wound and the incision contemplated. To avoid delay, a local infiltration around, but at some distance from, the wound is employed. Novocain 0.5 per cent., potassium sulphate 0.25 per cent., in normal saline, prepared fresh and repeatedly autoclaved, is injected with a Gray's syringe (10 minims of adrenalin per ounce are added just before use). Gas and oxygen should be available to be administered while the hand is inside the chest or if the patient is restless; in the latter event a light nitrous oxide analgesia only is maintained.

The most serious chest cases can be operated upon with this type of anaesthesia—cases which would never be fit for a general anaesthetic, such as ether or chloroform. A more extensive, deliberate, and protracted operation can be undertaken with the minimum of shock to the patient under local anaesthesia combined with gas and oxygen. Respirations are deeper and more regular than with ether or chloroform, and the movements of the lung, mediastinum and diaphragm can be voluntarily controlled by the patient to some extent. The two-stage operation, which will be described later, is possible only with this type of anaesthesia. Post-operative restlessness, vomiting, retching, and coughing never occur, and this plays no small part in the success of the operation, especially in a busy unit where an attendant cannot always be at the bedside.

Never should ether or chloroform be used in chest surgery. The manipulative technique of chest surgery is extremely simple, but the utmost speed is essential. There is no doubt that unless primary union is obtained the patient's condition is made grievously worse by operation. Primary union will not result without bold and thorough excision of the wound area. After the track of the missile through the chest wall has been excised, the gloves of the operator are changed, the instruments used are discarded, the skin is again thoroughly cleansed with picric acid, and fresh towels are used. Rubber dam, if available, or towels are draped about the incision, in such a way as to expose no skin and the minimum of muscle, and fixed with clips. The patient and table should be entirely covered with sterile towels or an operating sheet.

When the position of the wound will permit, resection of the fourth rib from the mid-clavicular to the posterior axillary line furnishes the easiest access to the thoracic cavity. Resection of the rib must be wide enough to allow careful inspection of the cavity. Doyen's periosteal elevator and costotome are the instruments we have found best for resection of the rib. Tuffier's retractor is most satisfactory for obtaining a sufficiently wide opening. It is important, however, not to exert too powerful retraction on the chest wall, as the tendency to shock is thereby increased and the mediastinum unduly disturbed.

Immediately after opening the chest, rapidly mop out the thoracic cavity with gauze wrung out of hot saline carried on a long curved forceps of the Ochsner pattern. Unless there is fresh haemorrhage within the chest—which, of course, must always be attended to first—lacerations of the diaphragm must be first dealt with. Where access to the abdominal cavity through the chest is necessary the diaphragm may be freely incised without hesitation.

No wound of the diaphragm should be left unrepaired whether on the right or left side. Particularly when the missile has tracked through the diaphragm and lodged in the liver, the track through the diaphragm must be excised and the diaphragm incised widely enough to expose completely the track in the liver, and the missile removed. The track in the liver should be thoroughly cleansed out with a Volkmann's spoon, followed by swabs wrung dry out of saline and ether.

If oozing occurs, deep catgut sutures should be inserted with a blunt needle. As we have pointed out in an earlier paper on "Abdomens," missiles should not be left in the liver. A complete and thorough toilet of the track is always necessary; haemorrhage is not to be feared. The very low resistance of the hepatic tissues to infection makes it important to remove all sources of infection. Having dealt with the liver, close the diaphragm with mattress sutures of catgut on a blunt needle, except where the diaphragm is stripped from its parietal attachment. We do not believe it is advisable, or ever necessary, to suture the diaphragm to the chest wall (as suggested by Depage).

If the missile has passed through the diaphragm into the abdomen and an injury of a hollow abdominal viscus is suspected, it is wiser to deal with the abdomen after having closed the chest. After repair of the diaphragm, the lung, held with the Collin forceps, should be brought up to the opening in the chest (pneumopexy prolongs the operation and is never necessary), remove the missile or fragment of rib (if lodged in the lung), excise, thoroughly clean and suture the track or lacerations with mattress sutures of catgut, which should not be so tightly tied as to tear out on expansion. For repair of lung tissue a blunt round-bodied needle is used.

Partial lobectomy may be necessary, depending on the degree of laceration of the lung. Total lobectomy and, in one case, excision of both middle and lower lobes of the right lung has been necessary for acute malignant gas gangrene, but has not saved the patient's life. We have been struck by the rarity of finding an open bronchus at operation. For such a condition crushing and ligaturing with catgut is sufficient. It is essential that the visceral surface of the lung should in all cases be approximated, thus mechanically retarding effusion from damaged lung, and lessening the tendency for infective conditions to light up in the lung substance itself. Haemorrhage from the lung need not be feared.

All blood clot, pieces of cloth, fragments of bone, etc., must be carefully hunted for and removed from the thoracic cavity. The toilet of the pleura can better be performed by sponging (as in the case of the peritoneum) than by washing out. The last step before closing off the pleural cavity is to sweep round the chest wall, lung, mediastinum, and diaphragm systematically with swabs wrung dry out of hot saline, and, finally, with a swab wrung dry out of warmed ether.

The chest should always be closed, unless there is extensive gas gangrene of the lung tissue itself adherent to the chest wall.

Time should not be wasted in attempting to repair the parietal pleura in extensive wounds, as it can rarely be done; such pleura as remains can be caught up with the muscle sutures.

The chest must be hermetically closed with the first

layer of muscles, otherwise pocketing will occur, pleural effusion accumulate, the incision break down, and the operation fail. From the time the pleura is opened until it is closed, when the hands of the operator are not actually in the chest, the hole in the pleura should be covered by thick lint wrung dry out of hot saline. This closure is important, even if only for a moment at a time.

Careful approximation of the skin edges is necessary to ensure early and absolute primary union.

At one time we concluded the operation by aspirating the air from the pleural cavity with a Record syringe. From what we have seen of early post-operative expansion of the lung this step is unnecessary.

In some few cases we have left sodium bicarbonate solution in the chest (Witzel's method) and withdrawn it after eighteen hours. We have seen no benefit from its use either in providing an alkaline field to inhibit bacterial growth or in aiding expansion of the lung. A wide gauze dressing with mastisol or "aeroplane dope" reduces the tension on the sutures and binds the layers of the chest wall so as to prevent oozing and pocketing. A binder made of 7 in. adhesive plaster (tying over the dressing) is valuable to retain the dressing, as well as to relax tension on the sutures and leave the sound side of the chest free for expansion; the latter is extremely important.

On completion of the operation the patient should at once be supported in a semi-recumbent position inclined to the injured side.

The "two-stage" operation is indicated in the type of case with the entrance and exit wounds far apart—front and back or lateral—where gross lesion of the bone, or extensive destruction of the tissues, necessitates an extensive operation of both wounds. In such a case, enter the chest through the wound which allows freest access to the pleural cavity and to the part probably damaged. After carrying out the operation as outlined above, leave the patient on the table in a comfortable position, surrounded by hot-water bottles. Give intravenous sodium bicarbonate or blood transfusion as required, administer sodium bicarbonate and glucose, 8 oz., per rectum. Half an ampoule of omnepon should be given if the patient is at all restless. After one or two hours, deal with the other wound. For the second stage, a further paravertebral anaesthesia is frequently not required—merely local infiltration about the site of the incision.

Lacerations of the diaphragm on both sides should be dealt with by this "two-stage" operation.

There is a percentage of cases in which the treatment between the two stages will recuperate the patient to such a degree that he is fitter for the second stage than he was for the first.

Injuries of the heart or pericardium can be best dealt with by a parasternal flap of the fourth and fifth, or the fifth and sixth, costal cartilages, depending on the probable site of the lesion (the divided cartilages unite rapidly), and this route, in addition, gives free access to the pleural cavity.

Where the missile has passed across the pleural cavity and lodged in the mediastinum, especially high up, it is wiser to enter the mediastinum through the sternum. The missile should be removed, its bed and track thoroughly cleaned, and the pleural opening closed to prevent any leakage from the mediastinum into the pleural cavity. This serves a double purpose—it obliterates a pocket in which pleural effusion might accumulate, and shuts off from the pleural cavity a source of reinfection. It is difficult to deal with the mediastinum through the usual costal incision.

Gross lesions of the parietes under the scapula are always difficult to reach. It is possible to deal with such wounds from either vertebral or axillary border—winging or fixation of the scapula never results if movements are started early enough. Trephining of the scapula is neither advisable nor necessary.

Extensive injuries to the spinal column when associated with wounds of the thorax, even if the cord is not damaged, are usually rapidly fatal.

In the gross wounds of the thorax which cause death on the battlefield, or in the advanced dressing stations, injuries to the phrenic nerve are probably frequent owing to its anatomical situation. We have frequently seen a "flapping" diaphragm under the screen where we pre-

sumed that the phrenic nerve was injured. In one case a diagnosis of hernia of the stomach through the diaphragm was made. At operation the diaphragm was found to be exceptionally high. Death occurred thirty-six hours from the time of receiving the wound; autopsy revealed a phrenic nerve almost completely severed.

A pin-head perforation of the descending aorta, still bleeding after twenty-four hours, was discovered at operation in one fatal case. In four cases leakage from the thoracic duct has been diagnosed. Rapid and extreme emaciation characterized all four cases. Death ensued within twelve to twenty-seven days. In all of these cases the wounds, apart from that of the duct, were so extensive that no surgical interference with the duct could be undertaken.

POST-OPERATIVE TREATMENT.

The post-operative treatment of chest wounds demands greater attention and more minute daily observation of the patient than wounds of any other region.

The patient is kept at rest in the position he finds most comfortable; this is usually semi-recumbent at first, later he is raised to a semi-sitting posture. The patient's position is changed frequently, but the injured side is always kept dependent. If cyanosed, oxygen passed through warm brandy is inhaled. Undue restlessness is not to be allowed; omnepon in small doses is freely administered, if required. Every means of counteracting acidosis is employed. Glucose and sodium bicarbonate (5 per cent. each) are administered per rectum by continuous drip for forty-eight hours (as a rule, about 5 pints can be absorbed in this way in twenty-four hours). Sodium bicarbonate (80 to 100 grains per diem) is given by mouth until the patient is absolutely convalescent. Barley sugar is allowed *ad lib.* The patient sips a 2 per cent. solution of glucose (8 oz. every two hours). Forced and frequent feeding is essential. The bowels are kept acting freely, as an overloaded colon is a source of great discomfort to the patient. Stimulants of all kinds, such as camphor, strychnine, caffeine, etc., are avoided; brandy is given if the patient is an habitual user of it.

Chest cases should be nursed in the open air if possible. Aspiration is carried out as a routine eighteen hours after operation and at the end of the third day. Exploration of the chest is performed at frequent intervals whenever an accumulation of even small quantities of fluid is suspected, and fluid, if found, is removed by aspiration. Fluid must not be allowed to collect after operation. Physical signs are misleading, and nothing but repeated use of the exploring syringe and aspirator, aided by x-ray examination, will keep a chest safely emptied of fluid.

CONCLUSIONS.

1. Chest cases are as urgent as abdominal cases and should be evacuated direct to the casualty clearing station as soon as they can stand the journey.
2. The better the evacuation from the battlefield, and from the advanced medical units, the severer is the type of case that reaches the casualty clearing station. Thus deaths occur in the casualty clearing station which would otherwise take place further forward. This was particularly noticeable in our "Z" group.
3. The percentage of severe chest wounds reaching the casualty clearing station is very much greater when the casualties are principally due to shelling and bombing, especially of the back areas, when the casualty clearing stations are the nearest medical units.
4. Cases of traumatepnoea should be closed (preferably by suture) at the advanced dressing station, or even, if possible, at the regimental aid post.
5. All chest cases should be given morphine early.
6. Active resuscitation must be carried out at the casualty clearing station immediately upon admission. The majority of severe chest wounds require blood transfusion.
7. The value of x-ray examination in chest surgery cannot be over-estimated.
8. The complete intrathoracic operation is a serious one and should not be lightly undertaken.
9. Local anaesthesia, combined with gas and oxygen (if required), should be employed in chest surgery.
10. Speed and absolute asepsis are essential to success.
11. The operation must begin with *excision in toto* of the wound and end with hermetical sealing of the thorax.

12. No fluid must be allowed to collect in the pleural cavity after operation.

13. Resection and drainage should be a late resort, and are rarely necessary, never unless severe constitutional symptoms of infection are present.

14. Non-operated cases should be treated precisely as post-operative cases.

15. Men who have been exposed to asphyxiating gases bear chest wounds badly.

16. At certain seasons bronchopneumonia is a complication greatly to be feared. (Vide autopsy reports.)

In no class of surgery is team work so essential to success. The surgeon, physician, radiographer, and anaesthetist should work hand in hand. The theatre sister should be particularly quick and methodical, knowing each step in the operation, and avoiding delay by having everything prepared in advance and at hand. A post-operative sister, who has had long experience in the nursing of these cases, is a most important member of the team.

ILLUSTRATIVE CASES.

Appended are brief accounts of six cases operated upon. These have been selected as representative examples of various types of injury and the operations performed.

CASE I.

Pte. D., aged 34. Case of traumatopnoea, missile lodged in right lung, comminuted fracture of fourth and fifth ribs. Operation. Gas infection of pleural cavity treated by repeated aspiration.

Admitted September 18th, 1917. On arrival the patient was in a condition of extreme collapse. Resuscitation for six hours.

Operation (ten hours after wound).—Omnopon-scopolamine; anaesthesia paravertebral and local. Wound, situated in right mid-axillary line, widely excised. Two inches of fifth and four inches of fourth rib removed; large haemothorax; track admitting two fingers entering outer and upper aspect of lower lobe extending to inner and posterior border. Contusion of lower half of injured lobe. Missile removed. Track thoroughly excised and closed with mattress sutures of catgut. Pleural cavity swabbed dry. Chest closed in layers.

Progress.—Aspirations were made at the following periods after operation:

18 hours: 7 oz. blood-stained serum.

19th day: 9 oz. thick pus. Cultures: aerobic sterile; anaerobic gas producers.

23rd day: 7 oz. thick greenish pus, distinct odour. Cultures: aerobic, streptococci; anaerobic, *B. perfringens*.

27th day: 1 oz. thick pus. Similar cultures.

33rd day: 4 oz. dark-red stinking gas gangrene pus. A rush of gas escaped through trocar on insertion.

Explored on the forty-fifth day: No fluid or gas found. On the sixty-second day the patient got out of bed. He remained quite well, was very active doing light duty in the ward. After operation the patient expectorated blood-stained sputum, followed by thick nummular pus. Expectoration stopped after twenty days. This is a case of a type which three months earlier we should have treated by immediate resection and drainage on the result of the thirty-third day's aspiration. He was evacuated on November 20th, 1917.

It is cases such as this that persuade us that the ability of the pleura to deal with infection is very great, and that resection and drainage is an operation rarely necessary.

CASE II.

Private B., aged 19. Case of missile traversing right chest (haemothorax), mediastinum, and lodging in apex of left ventricle of the heart.

Admitted August 7th, 1917. Entry wound in right posterior axillary line. Closed haemothorax (right). Missile located by x rays on left side, presumably behind pericardium. There was no cardiac irregularity, and no signs of air or fluid in the pericardium. Haemothorax was aspirated on the fifth day (35 oz., non-infected).

Operation (fourteen days after wound, on account of continued pyrexia and missile being retained).—Omnopon-scopolamine; paravertebral and local anaesthesia (no gas and oxygen). Chest opened by parasternal incision through fourth, fifth, and sixth cartilages on left side. The missile was searched for behind the pericardium, but not found. No haemothorax on left side. On palpating the pericardium and heart the missile was felt in the heart muscle. The pericardium was widely opened, and the missile (quarter of an inch square) found lying superficially in muscle on the posterior aspect of the apex. No fluid in pericardium; thin, non-adhesive, sero-fibrinous film covering visceral and parietal pericardium. Unfortunately, owing to difficulty of accurate localization by x rays of a missile in the heart (especially at the apex, where movements are at their maximum and the limits of the pericardium are so close), the pleural cavity had been unnecessarily searched. Even the gentlest attempts to grasp the heart laterally, or to raise its apex (on catgut sutures), caused it to stop beating. As fourteen days had elapsed since wounding, and there was no inflam-

matory process round the missile, it was judged wisest to leave it *in situ*. The pericardium and chest were closed. During handling of the heart and pericardium the patient complained of no pain or distress, either cardiac or respiratory, although local anaesthesia only was used.

Progress.—Uninterrupted recovery. No cardiac irregularity was observed after operation. The patient was out of bed three weeks before evacuation, doing light duty in the ward. He was evacuated on November 4th, 1917.

CASE III.

Pte. McC., aged 19. Case of traumatopnoea (eighth space, left, in posterior axillary line) with missile and fragments of rib embedded in diaphragm.

Admitted August 27th, 1917. Condition fair, but patient complained of acute pain in epigastrium. Respiration typical of diaphragmatic injury. X rays showed "stutter movement" of diaphragm and large shell fragment probably impacted in diaphragm.

Operation (immediately after admission; eight hours after wound).—Omnopon-scopolamine; paravertebral and local anaesthesia. Gas and oxygen while hand was inside thorax. Haemothorax cleared. Lower lobe of left lung lacerated. Missile, $2\frac{1}{2}$ in. by $\frac{1}{2}$ in. by $\frac{1}{2}$ in., found lodged in diaphragm. Two sharp spicules of bones and missile impacted in highest part of diaphragm, apparently causing the pain. Laceration ($\frac{1}{2}$ in.) of diaphragm close to costal border, and a second laceration where the missile was imbedded. Both lacerations of diaphragm and laceration of lung sutured. Chest closed. Immediately after operation the pain was relieved.

Progress.—Lung in total expansion within twenty-four hours. Four days after operation temperature rose to 104° ; pulse 106; respirations 26. In spite of the pyrexia drainage was not considered, but on the tenth day, as pyrexia continued, aspiration was performed—1 to 2 ounces of perfectly sweet, blood-stained serum found. The temperature rose to 102° on the twenty-fourth and again on the twenty-eighth day. Nevertheless he made an uninterrupted recovery. He was out of bed on the thirty-ninth day, and did light duty in the ward for one month after. He was evacuated on November 4th, 1917.

CASE IV.

Sgt. B., aged 39. Case of penetrating wound of chest with perforation of diaphragm; missile lodged in liver.

Admitted September 11th, 1917 (four hours after wound). Condition, grave shock, resuscitation for three hours.

Operation.—Omnopon-scopolamine; paravertebral and local anaesthesia. Gas and oxygen while hand was in thorax. Small open wound in tenth space (right) in anterior axillary line and chipping of ninth rib. Wound excised *en masse* into pleural cavity. Incision extended; four inches of ninth rib removed. Small haemothorax with some blood clot. Lung two-thirds collapsed. Perforation in diaphragm the size of a threepenny bit. Active bleeding through hole in diaphragm, believed at first to come from diaphragm. Wound of diaphragm excised and incised extending one inch back and front from wound. Very small perforation found in liver, bleeding freely and suggestive of arterial blood. Track cleaned out with Volkmann's spoon. Incision made in track wide enough to admit index finger. Missile (high explosive fragment $\frac{1}{2}$ in. by $\frac{1}{2}$ in.) found three inches deep and removed. Bed of missile thoroughly cleaned with Volkmann's spoon and swabs wrung out of hot saline, finally one swab wrung out of warm ether. Track closed with four deep catgut sutures. Some blood clot lying below the diaphragm. Subphrenic space and right peritoneal cavity swabbed dry. Diaphragm closed with catgut sutures. Pleural cavity swabbed dry. Chest wall closed.

Progress.—Uninterrupted recovery. Lung in complete expansion after twenty-four hours. On aspiration, 5 oz. sterile serum. Out of bed fifteen days after operation. Evacuated November 20th, 1917. Doing light duty in ward for three weeks before evacuation.

CASE V.

Gunner C., aged 31. Case of penetrating chest wound; haemothorax; laceration of diaphragm, liver and kidney, with hernia of colon.

Admitted September 27th, 1917. On arrival at casualty clearing station he was moribund. Active resuscitation; heater-bed, sleep (omnopon), intravenous sodium bicarbonate (2 per cent.) 20 ounces. Rallied very slowly. Blood transfusion 600 c.cm., with Kimpton-Browne tube. (As this patient belongs to No. 3 blood group there was delay in finding a donor to correspond.)

Operation (6 hours after admission).—Prepared and taken to theatre directly after blood transfusion, condition being much improved. Pulse-rate 130 to 140; blood pressure 85; respirations rapid; right chest not moving; entire abdomen rigid. Large entrance wound, admitting three fingers (not sucking), just to right of body of third lumbar vertebra. Dirty jagged exit wound admitting three fingers over the costal cartilage of the ninth rib (right) in anterior axillary line. Colon herniating through exit wound, gangrenous patch size of 1 franc piece with half-inch laceration. Anaesthesia, paravertebral and local. Incision from edge of third lumbar vertebra to cartilage of ninth rib. Excision *en masse* of entry and exit wounds with deep muscle of back. Gangrenous patch in bowel excised and opening closed with Czerny-Lembert sutures of linen thread. Colon replaced in peritoneal cavity. Chest entirely full of clotted blood. A widely open laceration of the diaphragm, 5 in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. from parietal attachment. Lung almost completely collapsed. Blood

clot removed. Pleural cavity swabbed clean. Diaphragm sutured with catgut. Laceration of outer and lower border of liver admitting three fingers, but liver not bleeding. Peritoneal cavity swabbed dry, peritoneum closed. Right kidney split across beyond repair. Nephrectomy. Incision closed except for small two-way catheter left in para-renal space for forty-eight hours. The operation was carried out entirely under local anaesthesia—no gas and oxygen. An almost continuous conversation was carried on between the patient and the anaesthetist during the whole operation.

Progress.—On account of difficulty in finding another donor of his blood group, sodium bicarbonate was given intravenously at the end of the operation. Recovery was complete and uneventful. The lung was in almost complete expansion in less than forty-eight hours. Although the patient remained perfectly well and had never complained since operation, on the twenty-first day an increasing area of dullness was noted in right chest. On exploration, fluid was found and 48 oz. of thin serum, of the colour and consistency of olive oil, was withdrawn by aspiration. Cultures, staphylococci. Explored ten days later—no fluid found. He was evacuated on November 20th, 1917, perfectly well.

CASE VI.

Sgt. G., aged 32. Case of chest crushed by falling in of dug-out. Subscapular fracture of four ribs (third, fourth, fifth, and sixth) on left, and two ribs on right side. Small haemothorax or haematoma of lung (left). Detained at advanced dressing station for twenty-four hours.

Admitted September 6th, 1917. On arrival at the casualty clearing station he was deeply under the influence of morphine, but coughing and complaining of intense pain in the left scapular region. Kept submerged with omnopon for five days. Each day an effort was made to discontinue omnopon, but violent coughing and pain made this impossible. X rays showed overriding of fractured ends of fourth, fifth, and sixth ribs (left side) to the extent of nearly three inches; the third rib on left, and the two ribs on right showed clean fractures. Effusion in left pleural cavity increasing. It was decided to undertake this most serious operation because it seemed impossible to relieve the pain otherwise, and the patient's condition was becoming rapidly worse.

Operation (September 9th).—Omnopon-scopolamine; para-vertebral (six spaces) and local anaesthesia. A curved incision was made from the second to the seventh intercostal space (left), internal and parallel to the vertebral border of the scapula. Pleura found open in the fourth, fifth, and sixth spaces. Three inches of each of these ribs removed. Haemothorax (3 to 4 oz.) cleared out. Left lung in almost total expansion, with its entire posterior surface excoriated, and showing minute petechial haemorrhages in its substance. Pleural cavity swabbed dry. Incision closed. No gas and oxygen given.

Progress.—Aspirations were made at the following periods after operation:

- 18 hours: 10 oz. blood-stained serum.
- 11th day: 1 oz. blood-stained serum haemolysed.
- 14th day: 12 oz. blood-stained serum with streaks of pus.
- 19th day: 10 oz. thick, foul-smelling pus. Cultures: aerobic, staphylococci; anaerobic, gas producers.
- 24th day: 20 oz. thick, foul-smelling, yellowish-green pus. Cultures: staphylococci and gas producers.
- 28th day: Explored; no fluid found.
- 31st day: 7 oz. fluid, more serous and sweeter.
- 33rd day: 6 oz. thin yellowish serum, sweet.
- 36th day: 4 oz. yellow serum, streaked with pus, sweet, sterile.
- 42nd day: 8 oz. yellowish-red serum, sweet. Cultures: aerobic, sterile; anaerobic, gas producers.
- 45th day: Explored; no fluid found.

Convalescence uninterrupted. He was out of bed on the seventieth day, and evacuated on November 20th, 1917.

As the hospital had to be cleared, this patient, together with two others, was evacuated before being put on light duty. All aspirations were made in practically the same place in the left mid-axilla. They appeared to empty a small localized collection. Otherwise the lung was in complete expansion eighteen hours after operation. Although this case was operated on under the most rigid asepsis and there was not even an abrasion of the skin, bacteria gained entrance to the pleural cavity. The wound itself healed by first intention. Immediately after operation the patient lost his pain and it did not return. The success of this operation, in spite of a subsequent empyema, suggests that more radical surgical measures might be adopted in similar cases in civil practice. The rapid recovery by aspiration from an empyema infected by aerobes and anaerobes demonstrates that repeated aspiration should be resorted to before considering resection and drainage. The mortality of the latter operation in chest wounds at casualty clearing stations is nearly 50 per cent. (Elliott).

THE School of Maritime Hygiene at Naples has, by permission of the Italian Minister of Marine, assumed the name of the late Professor Alessandro Pasquale, colonel in the medical service of the Italian army, its founder and organizer. He made it a centre of higher study in hygiene and tropical pathology for the special instruction of medical officers of the navy.

A PRELIMINARY NOTE ON THE TREATMENT OF INFECTED HAEMOTHORAX.

BY

LIEUT.-COLONEL J. F. DOBSON, M.S., F.R.C.S.,
R.A.M.C.(T.F.).

SURGEON, LEEDS INFIRMARY.

THE surgical treatment of infected haemothorax depends, as in other infections, on the stage at which the case is seen and the necessity for intervention recognized. Resection of rib, evacuation of fluid and clots, the removal of foreign bodies when possible, and immediate closure of the pleural cavity, is ideal, and is being more and more widely adopted at the casualty clearing stations. It is only applicable in the earliest stages of the infection, and at present the published records leave some doubt as to the results and the number of cases in which a secondary drainage has to be established. Experience of men detained on the lines of communication as unfit for further transport shows that when recurrence of symptoms arises these patients very rapidly become seriously ill.

A high degree of surgical judgement is required in the selection of cases of infected haemothorax suitable for immediate closure. As experience increases, and facilities for early operation are improved, we may expect much better results; but at the present time there are a large number of cases which cannot be treated in this way—the infection has passed beyond the contents to the walls of the pleural cavity.

I have had some opportunities of treating cases of this kind by a method of irrigation through a special cannula (Fig. 1), which appears to be of promise. The curved silver cannula has no terminal aperture, and is perforated with twelve small holes. It is employed in the following manner:

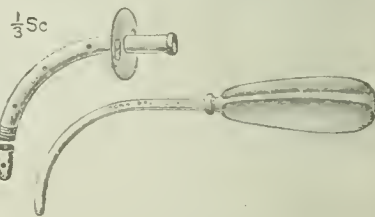


FIG. 1.

A sufficient opening is made into the chest by resection of a length of rib, preferably the eighth. Tuffier's spreader is then inserted, the pleural cavity wiped out, and perhaps a foreign body is removed or other complication dealt with. A point on the chest wall towards the upper limit of the cavity is selected where the cannula may most conveniently be introduced. This is usually in the third or fourth space, about or just external to the mammary line; a small incision is made through the skin, and the cannula pushed through the intercostal muscles into the

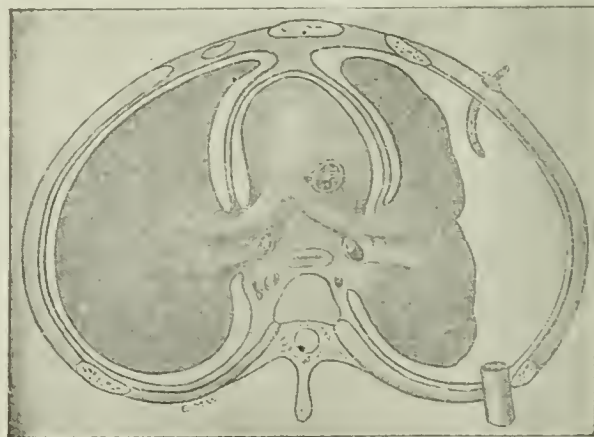


FIG. 2.

chest. The tip of the cannula should point outwards and downwards, and the instrument is fixed in position by two sutures to the skin. The original incision is then closely sutured around a tube which may be long enough to reach into a bottle of antiseptic fluid (Fig. 2). The tube of a Carrel ampoule is then attached to the cannula, and

the cavity irrigated every two hours. Hitherto I have used eusol, but no doubt other solutions will be as efficacious.

If the working of the cannula is tested in the *post-mortem* room, it will be seen that a fine spray of fluid is thrown in every direction on to the lung and chest wall. The irrigation causes no distress; a full ampoule of fluid has been run through the pleural cavity at one dressing without any inconvenience to the patient. As the lung expands the point of the cannula is pressed against the chest wall and causes some pain; it should then be removed. For this reason it is desirable to insert it at some little distance from the anterior and upper limits of the cavity, otherwise it may have to be taken out before the infection is controlled.

It is too early yet to speak of actual results. The impression I have gained from a limited number of cases, and these all late, with severe infection, is that the infection is quickly controlled, that the lung expands well, and that the general condition of the patient improves very rapidly. Certainly at present the results of drainage of a badly infected haemothorax are not good. (I refer now to cases which cannot be treated by immediate closure.) Many cases discharge for long periods, and only heal after much falling in of the chest wall, or after wide resection of ribs—in any case with a greatly damaged and comparatively useless lung, and a deformity of the chest and spine.

I have not yet had a case in which there seemed any necessity for secondary closure of the chest. If the lung did not expand after the pleural cavity had been rendered sterile, or approximately so, by irrigation, I should not hesitate to reopen the wound, free the adherent lung, and close the chest.

GUNSHOT INJURIES OF THE ELBOW-JOINT: TREATMENT BY EARLY EXCISION.

BY

CAPTAIN W. MOIR SHEPHERD, M.D., CH.B. EDIN.,
F.R.C.S. EDIN., D.T.M. and H. CANTAB., R.A.M.C.

INJURIES inflicted in the region of the elbow-joint of necessity vary with the nature of the missile, the degree of sepsis, and the amount of damage to bone and soft parts.

The experience of civil practice in connexion with fractures involving this joint serves to show how even a slight injury may interfere with and cause permanent disability and restriction of function. The ultimate results of injuries to the elbow-joint caused by gunshot wounds cannot be regarded as satisfactory, as in the majority of cases there is complete ankylosis, and not always in the most favourable position. Several such cases have recently come under observation at the base. Even if the wound remains aseptic, bony outgrowth will in the long run inhibit movement to a considerable degree. It is, however, the regrettable experience of most surgeons that comparatively few gunshot injuries remain aseptic, and this is particularly true in the case of joints.

When the bones are badly comminuted, especially the lower end of the humerus, and with it perhaps also the olecranon process of the ulna, results are deplorable—sepsis spreads in the surrounding parts, which become oedematous and swollen, the synovial membrane is infected, drainage is difficult and unsatisfactory, and the patient rapidly shows signs of septic absorption. Whatever method to combat infection be undertaken the results are the same—the bone goes on necrosing, and accurate apposition of fragments is out of the question, a long and tedious illness results, and one not devoid of risk to the patient—risk of both life and limb.

Primary excision of the elbow for tuberculous disease, fracture dislocation, and the like yields good results, and it would therefore appear feasible that equally good results might be obtained by early excision of wounded joints. The degree of sepsis in the surrounding tissues forms no contraindication to immediate excision—in fact, experience has shown that the free drainage immediately provided by the excision of the joint is coincident with a rapid fall in pulse and temperature, and the patient makes strides towards recovery, and is soon able to be up and about.

The question arises, How much bone is to be removed to secure a satisfactory new joint? but this, of course, will largely depend upon the nature of the primary injury.

A large number of cases of gunshot wounds of the elbow-joint with little or no damage to heads of radius or ulna have passed through my hands at a base hospital. In an early series of cases the classical excision of the joint was performed, removing the humerus just above the level of the epicondyle, the whole of the head of the radius and ulna at the same level, but, as was to be expected, movement was long in returning, and the forearm muscles had to be re-educated. A more satisfactory functional result can be obtained by removing less bone and interfering less with muscle attachments.

In a late series the lower end of the humerus was removed above the level of the epicondyles and rounded well off, preserving the radius and ulna intact and not interfering with the attachment of triceps to ulna if the latter was not already damaged. The incision employed was the angled incision of Kocher, beginning at the lateral epicondylar ridge two or three fingerbreadths above the joint level, pressing vertically down to the head of the radius and thence along the lateral border of the anconeus to the dorsal border of ulna about three inches below the tip of the olecranon, and finally curving medially over the ulna. In certain cases the incision had to be modified to suit the wound existing, but as far as possible the angled incision was employed to avoid damage to important structures.

The treatment naturally varied, depending upon the degree of sepsis present. If severe the wound was left widely open and treated with eusol gauze or after the method of Carrel-Dakin, the arm being fixed to a splint at right angles until sepsis subsided and the surrounding parts returned to normal. In milder cases the wound was partially closed with sutures, while the last few cases which came to the base early were excised, bipped, and closed after the method of Rutherford Morison, with excellent results.

The splint is left off as soon as the wound has healed sufficiently and the arm supported with a sling, the patient being encouraged from the first to use his wrist and fingers. At night the arm is extended on a pillow or fixed to a straight or widely-angled splint, if desirable.

The results, even in very septic cases, were surprising, the wounds cleared up rapidly, and the patient was able in all cases in the series to be out of bed at an early date, and movement was encouraged by the end of the fifteenth to eighteenth day. One patient at the end of a month could flex and extend his elbow as well as pronate and supinate his forearm and only a small healing sinus remained. The earlier the excision is performed the more certain is the patient to have a good and serviceable arm with free movement.

The conclusions arrived at from observation of fourteen cases are as follows:

1. Excision of the elbow-joint in gunshot wounds offers the patient the best chance of combating the infection and of a rapid recovery with a movable joint.
2. If excision can be performed without the removal of the heads of radius and ulna, the results are better and more quickly attained.
3. Where possible the triceps insertion should always be preserved.
4. The earlier the excision is performed the shorter is the illness and more perfect the result.

TWO CASES OF ABSCESS OF TESTIS DUE TO BACILLUS COLI.

By W. GIFFORD NASH, F.R.C.S.

THE two cases related in the following notes illustrate a comparatively rare affection and one which has received very scant notice in works on diseases of the genito-urinary organs.*

CASE I.

On February 17th, 1913, I saw, with Dr. L. Gifford Nash of Turvey, Beds, a gentleman suffering from acute cystitis, following a wetting whilst shooting in Ireland. The urine was acid, and contained a fair amount of albumin with a deposit of pus and blood. The Clinical Research Association reported that it also contained a colon bacillus of the *Bacillus lactis aerogenes* type. Under urotropine the cystitis soon cleared up.

* A very complete description of a similar case was given in the *Lancet* of October 4th, 1913, by Mr. W. P. Bonner.

In May, 1913, the patient had a mild attack of epididymo-orchitis whilst staying in Sussex, and also suffered from boils, for which he was treated with a vaccine.

On December 13th, 1913, he was admitted to the Bedford Nursing Home under my care, suffering from high fever and swelling of the right testis and epididymis. The urine contained pus. On December 24th an abscess of the testis was opened, and the body of the testis, which had sloughed, was removed.

On January 13th, 1914, the epididymis was excised and sent to a pathologist, who found a coliform bacillus resembling the *B. pseudo-asiaticus* of Castellani.

A vaccine was prepared and used for a considerable time. Dr. L. G. Nash informs me that there have been occasional mild attacks of swelling of the left epididymis, and that *Bacillus coli* is still present in the urine.

CASE II.

On August 11th, 1917, I saw with Dr. Harrison of St. Neots a married man, aged 27, suffering from acute swelling of the left testis and epididymis. His history was that whilst serving in the army he had an acute attack of swelling of the right testis on May 7th, 1917. About May 20th the swelling was punctured and pus found. On June 1st castration was performed, and he was told that he was suffering from tuberculous disease of the testis. There was no history of urethritis. He left hospital on July 28th, and was discharged from the army.

On July 31st he returned home to his wife and sexual intercourse took place. On August 2nd he had pain in the left testis and slight swelling which progressively got worse. The swelling of the testis was preceded by frequency of micturition.

When I saw him on August 11th there was redness of the left side of the scrotum, and swelling and tenderness of the left testis and epididymis. From the history of the acute attacks in May and August I diagnosed an infection with *Bacillus coli*, and as he had lost his right testis I advised incision of the left testis with a view to letting out the infected products and saving some part of the testis. The patient was removed to the Bedford Nursing Home, and on August 12th I incised the scrotum and also the testis and epididymis. The testis had commenced to slough. Pus from the testis was sent to Dr. Eastes's pathological laboratories, and it was reported that the material contained the *B. coli* and *proteus*. A vaccine was made and twelve doses were given.

On October 25th Dr. Harrison reported that the wound had healed, the testis was atrophied, and the sexual functions were a good deal impaired.

REMARKS.

The cases related were both due to infection of the testis and epididymis by bacilli of the colon type. It is probable that the infection gained entrance along the vas deferens, as in both cases the inflammation of the testis was preceded by bladder disturbance.

In the diagnosis of this condition we must think of acute gonorrhoeal epididymitis, acute tuberculosis of the epididymis, and acute torsion of the testis. In both cases the occurrence of gonorrhoea was denied, and there was no history of any urethral discharge. Gonococci were not found in the urine or in the epididymis and testis. Further, gonorrhoeal epididymitis very rarely suppurates. In neither case was there any evidence of tubercle in the genito-urinary tract, and the acute onset and rapid sloughing of the testis did not resemble tuberculous disease. Torsion of the epididymis was not present in either case.

As to treatment, I believe that the use of a vaccine and early incision of the inflamed structures give the best chance of saving the testis.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

REFERRED SYMPTOMS IN COMMENCING INGUINAL HERNIA.

I HAVE examined 18,000 English and German soldiers, and have been much struck with a common symptom amongst a considerable number—namely, pain in the region of one costal margin, increased tension of the upper segment of one or other of the rectus muscles, a general feeling of discomfort in the upper part of the abdomen without any definite physical signs of indigestion or other intra-abdominal trouble. If such a case presents itself, and if the patient has been standing or walking for a couple of hours, and equal pressure is applied over both internal abdominal rings (with the thumb of each hand), the facial expression will show uneasiness, or actual pain may be localized over the ring on the same side as the abdominal pain for which advice was sought. Over and over again a cure of the symptoms has been obtained by the application of a lightly fitting truss.

The anatomical reasons to my mind are quite plain. The nerve supply of the intestines is from the solar plexus, situated chiefly round the crura of the diaphragm, and that of the abdominal muscles is through the lower intercostals.

The diagnosis to be correct must not depend upon asking if there is pain in a particular locality in the iliac region. If there is a facial expression of discomfort, or actual pain, ask where. The answer will mention the ring on the same side as the abdominal symptoms. This method of examination will exclude malingerers, and any leading question will cause in all probability a false diagnosis.

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A CASE OF PORENCEPHALY.

R. I. M. was admitted into the Jamaica Government Lunatic Asylum on April 13th, 1914, with a history of epilepsy. She was a well-developed woman, aged 37, with right-sided hemiplegia. The right upper limb was flexed at the elbow, wrist, and finger-joints, a very limited range of movement being left. The muscles of the limb were quite wasted. The right lower limb was equally affected as regards wasting and limitation of movement. She could neither spit nor whistle, and saliva was continually dribbling from her mouth. She was suicidal but not dangerous. There was no instrumental delivery at birth. She began to have fits when 16 months old. The paralysis was noticed at the time, and she attended school for a period, but, owing to the severity of the fits, had to be taken away. No one of her relatives has been insane.

During her stay in the institution she had fits periodically, and suffered from recurrent attacks of pellagra, otherwise she enjoyed fairly good health. For six months before her death she had fits, but she gradually began to get very emaciated, and had to be confined to bed up to the day of her death, September 2nd, 1917.

Post-mortem examination revealed the following: The skull was very thick, dense, and heavy. The dura mater was thickened, fibrous, but not adherent to the calvarium. The pia arachnoid was opaque and oedematous. *Brain*: There was a notable disproportion between the two sides; right hemisphere—simple convolitional pattern, congested, no wasting; left hemisphere—simple convolitional pattern, pale, general wasting. On section from the anterior to the posterior pole there was a well-marked cavity containing straw-coloured fluid which was not turbid. When the fluid was let out the cavity was smooth, there being a complete absence of the basal ganglia or any other vestige of brain matter. Lying across the floor of the cavity were remnants of the choroid plexus. There was an excess of cerebro-spinal fluid. The brain weighed 895 grams. Examination of the cerebellum, pons, and medulla showed nothing abnormal. No morbid changes calling for special note were found in any of the other viscera.

For permission to publish particulars of this case I am indebted to Dr. D. J. Williams, Medical Superintendent.

H. E. BOND, M.D., Dip. Psych. Med. (Can.),
L.R.C.P. and S. Edin.,

Junior Medical Officer, Lunatic Asylum, Jamaica, B.W.I.

Reports of Societies.

FARM COLONIES IN THE TREATMENT OF TUBERCULOSIS.

A DISCUSSION on this subject was opened at a meeting of the Tuberculosis Society on January 21st by Sir R. PHILIP. He stated that it was nearly twenty years since in the *BRITISH MEDICAL JOURNAL* (July 23rd, 1898), he had made a plea for the establishment of farm colonies for tuberculous patients. It was founded on the experience of the Royal Victoria Hospital, Edinburgh, which showed that in a considerable number of cases complete arrest of tuberculosis could not be attained within the ordinary time limit of sanatorium residence, nor even when it was considerably extended, and that work of a definite

purposive character, far from impeding cure assisted its completion. It was not easy to estimate the proportion of cases falling into the two groups: (1) patients discharged from the sanatorium in about six months fit to return to their ordinary occupation, and (2) those in whom return to the ordinary conditions of home environment and work was apt to lead to relapse. Sanatorium statistics, stated broadly, went to show that within four or five years some 50 per cent. of cases apparently arrested had relapsed even when care had been taken in the selection of patients for admission, and treatment had been regulated with the individual precision possible at such sanatoriums as Frimley or the Royal Victoria Hospital. He was appalled by what was occurring in relation to the more limited course of three months' sanatorium treatment now usually meted out to subjects of tuberculosis, all and sundry, under the Insurance Act. In his evidence before the Departmental Committee on Tuberculosis he had said that even when the period in the sanatorium was not curtailed, it would be desirable in from 20 to 25 per cent. of the cases to prolong the period of treatment, probation by residence in a colony. The farm colony was complementary to the sanatorium, affording a simple means, economically sound, for securing in a certain proportion of cases more permanent arrest of tuberculosis than, without undue expenditure, was possible at the sanatorium. The name "farm colony" had the attraction that it carried forward the open air idea, but it was not to be taken to imply limitation of the occupations open to the colonists.

Selection of Cases.—If a colony was to be of real practical value the cases admitted must be carefully selected; it must not be used as a dumping ground for all sorts of cases. Many cases of tuberculosis did not require residential treatment, but skilled surveillance at the home or the tuberculosis dispensary. The more advanced cases were segregated in the interests of themselves, their households, and the community; others, again, required close treatment at a sanatorium, either, in a certain number, until arrest had been attained or assured, or, in others, until the patient had mastered the principles of management and cure, provided always that the conditions to which he was to return were such as to admit of his putting the principles into execution. There remained patients whose lesions were of such a character as to require greater continuance of medical supervision and the prolonged maintenance of conditions and environment not attainable in their homes or work places. Arrest might be achieved by a longer stay at the sanatorium, but such prolonged residence at a highly equipped sanatorium was unnecessary and uneconomic.

Colony Life and Work.—The fact that the main object of a colony was to cure a patient of his tuberculosis seemed to have been lost sight of in some of the published statements with regard to colony schemes. Training must be subordinate to cure and adapted to achieve the ultimate purpose of a colony, which was the completion of the cure and the establishment of such relations to future work as would most tend to the maintenance of recovered health. For a certain number the only hopeful outlook after cure was to continue an outdoor life; with sufficient capacity and energy some would develop skill in some department of work which would ensure an ample livelihood later on. Included within the colony curriculum were such trades as carpentry, and the colony might embrace numerous departments provided the colonists were trained not only in the trade but in the daily application of sanatorium principles to their workshops and homes.

Results.—The work of the Royal Victoria Hospital Farm Colony, established in 1910, had been disturbed in various ways by the war, but it could be said that eighty-eight persons had been in residence, in almost every case for twelve months, and with very few exceptions discharged, with the disease arrested and with a first-rate working capacity. Dividing the records into those of colonists in whom bacteriological tests were positive and those in whom they were negative, the cases included as negative were those in which either tubercle bacilli were found on admission, or, in the absence of such proof (no sputum, etc.), a tuberculin test was decidedly positive. The returns as to after-history had been brought down to the autumn of 1917. The facts are summarized in the table.

ROYAL VICTORIA HOSPITAL FARM COLONY.

(Opened July, 1910.)

SUMMARY OF SUBSEQUENT HISTORY OF ALL "COLONISTS" DISCHARGED UP TO OCTOBER, 1914.

(The facts, in most cases, brought up to date (August, 1917), and in the remainder up to December, 1916.)

I. "Colonists" in whom Bacteriological Tests were Positive.

Date of Discharge.	Total No.	Traced	Alive in Good Condition.		Alive in Indifferent Condition.		Dead through Natural Causes.	
			No.	Per cent.	No.	Per cent.	No.	Per cent.
(a) Oct., 1911 ...	13	8	5	62.5	1	12.5	2	25.0
(b) Oct., 1912 ...	31	25	15	60.0	1	4.0	9	36.0
(c) Oct., 1914 ...	81	68	41	60.3	4	5.9	23	33.3

II. "Colonists" in whom Bacteriological Tests were Negative.

Date of Discharge.	Total No.	Traced	Alive in Good Condition.		Alive in Indifferent Condition.		Dead through Natural Causes.	
			No.	Per cent.	No.	Per cent.	No.	Per cent.
(a) Oct., 1911 ...		1	0	—	0	—	1	100.0
(b) Oct., 1912 ...	3	2	1	50.0	0	—	1	50.0
(c) Oct., 1914 ...	7	5	3	60.0	0	—	2	40.0

In appraising the value of results it must be kept in view that all were cases in which treatment at the sanatorium for periods often exceeding six months had failed to secure decisive results; they were typically those which would have gone to swell the roll of sanatorium failures.

Finance.—Life at the colony should be much less costly than at an ordinary sanatorium; everything was simple, the bed and board good, but nothing extravagant. A considerable part of the food might be found on the spot as the result of the colonists' own activity, and if, as was the ideal arrangement, the colony was linked with other tuberculosis institutions and perhaps other hospitals in the neighbourhood, a considerable amount of co-operation might be effected. Waste material from the sanatorium or hospital might be used in the colony piggery and poultry yard, while potatoes were supplied by the colony to the other institutions. The Royal Victoria Hospital Farm Colony had to begin by adapting an old mansion house and getting its parks into cultivation. For the first few years the debit balance was large, but by 1915-16 it had been reduced by over 50 per cent. The war had stopped development, prevented increase in the number of colonists, and added greatly to the cost of food and supplies of all kinds; otherwise the financial results would have been better. Still, the figures for 1916-17, after three years of war, showed that the actual cost, after deducting revenue from total expenditure, free of rent, was £1 2s. 5d. a week for each colonist. Each case in the colony must be subject to individual care. In the early days after the admission of the patient the medical superintendent must gauge the degree and kind of arrest possible and the form of activity most likely to conduce to recovery and maintain it. The medical superintendent must not only understand tuberculosis, but have some knowledge of farming and industrial work, and must distribute jobs and adjust training in the interests of the colonists individually, as well as in the common interest. Too much had been made of the disadvantage of an enforced change of occupation; it was not always necessary; and by the interposition of a year of the simple outdoor active life of the colony a colonist might be restored to health and physiologically trained, and then frequently resume his old work with considerable confidence. Experience, however, proved that where a change of occupation was desirable it was achieved with less difficulty than might be expected. Clerks, miners, bakers, tailors, and ironmongers had become farmers; shopmen had become travellers and van-drivers, clerks railwaymen, and saddlers carters. Brief reference was made to the question whether beyond the provision of institutional treatment more was to be done for the tuberculosis patient in the way of subvention when under control or if he continued disabled, but it was considered too large a subject for discussion at the time. In conclusion, Sir Robert Philip said that if the treatment

of tuberculosis was to be really effective it must be freed from the hampering influence of the *res angusta domi*, and pointed to the arrangements made by the Ministry of Pensions in relation to institutional treatment of discharged sailors and soldiers as a precedent.

Discussion.

Dr. NOEL BARDSWELL considered that the principle of farm colonies was sound, for by them treatment was prolonged and suitable accommodation provided. There was great difficulty in the employment of consumptive labour except in colonies or in sanatoriums.

Dr. A. H. MACPHERSON (resident physician-superintendent, Hairmyres Colony, Lanark) said that the farm colony must be based on sound economic lines, and at the same time so treat and train a patient that he became capable of earning a livelihood under suitable conditions with the risk of relapse reduced to a minimum. Patients with the disease dormant and who no longer required nursing were transferred to the farm colony, thus relieving pressure on the sanatorium. Each department should be a separate unit, complete with equipment in every detail for carrying on the work assigned to it. The work of the farm colony must be as varied and interesting as possible in order to supply different grades of labour and at the same time sustain interest. A farm colony should be situated within a reasonable distance of a good market, and should not be contiguous to the sanatorium with which it worked in co-operation. The residences for colonists need not be elaborate. Buildings for the rearing and housing of stock should be well designed, kept scrupulously clean, and ventilation should be a special feature. Whatever stock was kept should be typical of the breed. Every colony should have a minimum staff, consisting of a physician-superintendent, a nurse-matron, and a farm grieve or bailiff. The outdoor staff should be engaged by and under the direct control of the physician-superintendent. The appointment of the matron should be approved by him also. There were two farm colonies in existence in Scotland—the Royal Victoria Hospital Farm Colony, inaugurated in 1910, and the Hairmyres Colony in Lanarkshire of later date. Both worked in intimate co-operation with associated sanatoriums. The usual period of residence was about one year. The Hairmyres Colony was on a large scale and held in it all the elements of success. A pavilion for children suffering from tuberculosis was opened in 1914, and a certificated teacher was in residence, who took care of the patients during school hours and when working in the garden or forestry. The farm colony was destined to form an economic factor of high value in the treatment and training of children with tuberculosis. They were hardened to resisting point and, on discharge, were in a condition to cope with unfavourable environment. It had been proved that risk of infection to stock and produce might be entirely disregarded on a colony under strict medical supervision.

Dr. F. N. K. MENZIES said that conclusions had been reached on insufficient grounds that sanatorium treatment was a failure. Proper perspective was lacking as to the type of clinical case suitable. Certain aspects of farming were appropriate, such as market gardening and the small holding type. A comprehensive scheme was necessary for large areas such as London.

Dr. JOHN SORLEY said that rigid selection of cases was necessary for sanatoriums and farm colonies. The crux of the matter lay in the treatment of tuberculosis of infants and children, because they showed the greatest tendency towards regaining a power of resistance.

Drs. JANE WALKER and ESTHER CARLING took exception to the name "farm colony" on the ground that few patients leaving a sanatorium could do farm work. Dr. F. R. WALTERS suggested the name "health colony." Those suitable for admission were (1) slight cases, and (2) severe and more chronic cases. Those suffering slightly were not conscious of a bad breakdown and did not like sanatoriums. He suggested a short period of training in a sanatorium after which they might be induced to go to a health colony.

THE French Government has drafted a bill to render illegal the use of casein for any other purpose than human consumption.

Reviews.

ACUTE POLIOMYELITIS.

DR. DRAPER'S compact account of the disease in his book entitled *Acute Poliomyelitis*,¹ contains his experience at the Hospital of the Rockefeller Institute for Medical Research, New York, and may be said to reflect Flexner's teaching at that institute both before and after the great epidemic of 1916. His object is to present the most recent conception of this general infective disease, in the course of which paralysis is but an accidental occurrence; there are thus two distinct phases of the disease—one of general systemic infection, the other characterized by a disorder of the nervous system. The author is rather cautious about Flexner and Noguchi's globoid bodies; he states that their presence has been confirmed by several laboratories, that there has been no complete disproof of their specificity, and that whether or not they are the same biological entity as the polymorphic organism with affinities to the streptococcus described by Rosenow and others, must be left for future research to decide. In acute poliomyelitis widespread visceral changes are mentioned, especially in the lymphatic organs which show hyperplasia.

Three types of the clinical picture may be recognized: in the first group the patient appears to recover completely or in part from the general systemic infection, and then to suffer an attack on the cerebro-spinal tract; there are thus two periods of symptoms, or humps, with an interval of well-being, and hence this is termed the "dromedary" type; in the second or "straggling" type there is no interval of freedom from symptoms; and in the third or sudden onset type implication of the nervous system is obvious from the first, but is really preceded by an unobserved because mild systemic stage. From 50 to 80 per cent. of the cases attacked do not suffer any implication of the nervous system, and these cases, formerly spoken of as abortive, are far commoner than has been realized in the past. The meninges have escaped invasion, and the cerebro-spinal fluid is normal, so that the case ends with the first hump of the dromedary type. In the early stage of meningeal implication the cerebro-spinal fluid is rarely opalescent or turbid, but contains multilobed cells, resembling and usually called polynuclears, though probably wandering tissue-cells, which rapidly give place to lymphocytes, so that in twenty-four to thirty-six hours 90 per cent. of the cells are lymphocytes. With very few exceptions this cell count runs parallel with the intensity of the "spine sign," namely, pain and rigidity on flexing the neck forwards. That this spine sign may precede changes in the cerebro-spinal fluid is explained as due to pressure on the ganglia on the posterior roots, which experimentally may be seen to be invaded before the meninges, during flexion of the neck. Combined intrathecal and subcutaneous or intravenous injection of serum from a recovered patient should be begun early, within thirty hours of the onset of meningeal invasion. This book gives a clear account of the subject, and well carries out the author's intentions.

THE FUTURE OF THE DISABLED SOLDIER.

THE problem of the future employment of mutilated soldiers is acute in this country, but if the statement that the total number of our casualties is less than that of the French dead be even approximately true, the dimensions of the question with which our allies have to deal is apparent. In his little book on the *Future of the Disabled Soldier*,² Dr. HUTT deals at some length with the experience of France and Belgium in dealing with this problem.

Both those countries had the advantage of possessing special institutions for the training of workmen mutilated in peace time, which supplied experience and data for the development of much more extensive organizations. L'Institut Militaire Belge de Rééducation Professionnelle at Port Villez, of which we gave an account some time ago, is now, Dr. Hutt says, "not only self-supporting, but has long

¹ *Acute Poliomyelitis*. By George Draper, M.D. With a foreword by Simon Flexner, M.D. London: William Heinemann (Medical Books), Ltd. 1917. (Pp. 149; 19 illustrations. Price 7s. 6d.)

² *The Future of the Disabled Soldier*. By C. W. Hutt, M.A., M.D. Cantab., D.P.H. Oxford, Temporary Lieutenant R.A.M.C. London: J. Bale, Sons, and Danielsson, Limited, and T. Fisher Unwin, Limited. 1917. (Cr. 8vo, pp. x + 199; 14 figures. 6s. net.)

ago paid back the Belgian Government the entire capital cost of installation." It makes and supplies to the Belgian army a large number of tools and other useful articles, and teaches forty-three different trades. A good deal of the economy of this institution rests upon the fact that all Belgians are mobilized, and teachers and others only receive army pay.

In France there is a large number of *écoles professionnelles* busily at work which combine the functions of curative workshops with those of training establishments. In these, as in the Belgian schools, the re-education of the left hand is specially attended to. In connexion with the training of the wounded the scientific work of Dr. Jules Amar is worthy of notice. In 1912 he was appointed Professor of the Physiology of Work at the Paris Conservatoire des Arts et Métiers, and he has since applied his methods of investigation and record to the study of the work of disabled soldiers. Dr. Hutt reproduces illustrations showing the apparatus used registering movements and energy produced in the use of various tools. These methods not only furnish valuable information as to the effort made in using tools, but also show the onset of fatigue, and enable the observer to check over-exertion and watch the progress made. Dr. Amar's table showing the average power of stumps of different lengths is of great interest. Taking the power of the whole segment of the limit as 100, the power of a stump of half that length is generally about 65, except in the case of the leg below the knee, where it is 73. Dr. Amar estimates that 80 per cent. of the amputated will repay re-education.

Dr. Hutt gives succinct accounts of the work being done in Germany, Canada, Australia, and New Zealand, and also of the curative workshops advocated and established under Sir Robert Jones, and at Queen Mary's hospitals at Roehampton and at Brighton, and the Polytechnic in London. These curative workshops will play an important part in the orthopaedic treatment of wounded and of discharged men for some time to come. Many men who have lost a leg are now earning far better wages than they were getting before the war, not because of the rise in rates of pay, but because they have become skilled instead of unskilled workers. The loss of an arm is a more serious handicap but one which training and perseverance often nullifies. Every person who is interested in the reinstatement of the wounded in the ranks of industry will find Dr. Hutt's book instructive and useful. Especially is a knowledge of what is being done in other countries stimulating and destructive of undue self-complacency.

NOTES ON BOOKS.

SIR FRANCIS DARWIN has published a charming book of essays, *Rustic Sounds and Other Studies in Literature and Natural History*.³ The first paper gives its title to the book: in it the author recalls the rustic sounds of his boyhood's home at Down—the primitive notes of birds, trees, and running water, the swish of scythes, and the voices of haymakers. This love of the countryside is revealed also in a story of a lane in the Cotswolds. Biographical essays deal with his kinsmen, Francis Galton and George Darwin, and with Stephen Hales, who in the eighteenth century was a pioneer in vegetable as well as in animal physiology. The author leads us again to his own subject in the chapters on the movements of plants and on picturesque experiments in botany. His feeling for the poetry of research is revealed in many pages. "After all," he says in a genial outburst, "the real fun of science begins when one finds out something that was not known before." There are three papers on the aims and methods of education which are especially interesting at the present time. It is to be noted that Sir Francis Darwin has a very poor opinion of the classics as a training for the average boy, and protests strongly against the "great Moloch" of examination. As was to be expected from the subjects he selects to treat in this book, Sir Francis Darwin is an Austenian, but we wonder whether his admiration of the divine Jane does not carry him too far when he suggests that she is the most re-read author of the last hundred years. Music also furnishes him with a theme; there is an erudite little essay on the pipe and tabor, the traditional instruments for English folk dancing, and an inspiring fragment on war music—both originally delivered as addresses to a society of Morris dancers.

³ *Rustic Sounds and Other Studies in Literature and Natural History*. By Sir Francis Darwin, F.R.S. London: J. Murray. 1917. Cr. 8vo, pp. 231; 8 figures. 6s.)

Lastly, there is a very sympathetic paper on dogs and dog lovers, with its reluctant admission that, after all, it may be that not to care for dogs is no more a blemish than a lack of musical ear.

Messrs. Longmans have published in a well printed, well illustrated pamphlet (price 3d.) entitled *The Trail of the Barbarians*, a translation by Mr. Ford Madox Hueffer of the small book written by Pierre Loti for French school children. It relates a journey he made through the devastated districts, describing the ruined towns, the desecrated churches, the smashed farm implements, and the hacked fruit trees. Revised into good idiomatic English, the pamphlet would be a more valuable piece of propaganda literature than most of its forerunners.

MEDICINAL AND DIETETIC PREPARATIONS.

Jardox.

WE have received from Messrs. Jardox, Ltd., Crystal Palace Works, Anerley, a sample jar of Jardox, which is claimed by the makers to be a pure beef food containing the albumin and fibrin of the meat in an easily digested form, in addition to the usual extractives present in preparations of this type. Our analysis shows it to contain:

Moisture ...	...	40.7 per cent.
Total nitrogen ...	...	6.87 "
Mineral matter ...	...	14.1 "

When mixed with boiling water in the proportion directed the resulting liquid is very palatable, and bears quite a close resemblance to home-made beef-tea prepared in the usual manner.

VITAL STATISTICS IN ENGLAND AND WALES, 1917.

WE are indebted to the Registrar-General for the following statement showing the birth-rates and death-rates and the rate of infantile mortality in England and Wales and in certain parts of the country during 1917.

ENGLAND AND WALES.

Birth-rate, Death-rate, and Infant Mortality during the Year 1917 (Provisional Figures).

	Birth-rate per 1,000 Total Population.	Civilian Death-rate per 1,000 Civilian Population.	Deaths Under One Year per 1,000 Births.
England and Wales	17.7	14.4	97
95 great towns, including London (populations ex- ceeding 50,000 at the Census of 1911)	18.0	14.6	104
148 smaller towns (popula- tions from 20,000 to 50,000 at the Census of 1911)	17.9	13.1	93
London	17.4	15.0	103

The following table, which we have compiled from the statements published for ten years, will be of interest. The figures (not standardized) of the death-rates do not disclose any very distinct movement; the deaths of infants appear to indicate a slight increase. The most disquieting set of figures are those showing a further marked decline in the birth-rate since 1914.

ENGLAND AND WALES.

	Births per 1,000 Total Population.	Deaths per 1,000.	Deaths Under One Year per 1,000 Births.
1903 ...	26.5	14.7	121
1909 ...	25.6	14.5	109
1910 ...	24.8	13.4	105
1911 ...	24.4	14.6	133
1912 ...	23.8	13.3	95
1913 ...	23.9	13.7	109
1914 ...	23.6	13.9	105
1915 ...	21.9	15.1	110
1916 ...	21.6	14.0	91
1917 ...	17.7	14.4	97

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THE ARMY MEDICAL SERVICE TO-DAY.

GENERAL SIR A. HUNTER-WESTON, who commanded the famous 29th Division at the landing at the Dardanelles, in a maiden speech in the House of Commons on January 24th, when discussing some of the criticisms which army administration has had to encounter, said: "Objection has furthermore been made that sufficient use has not been made of the best brains, and that there is a prejudice against the Territorials and the new army men. Nothing could be further from the truth. When men are fighting for their lives and honour, as we are now, they ask, not who a man was, not whether he was a Regular, a Territorial, or a New Army man in the past; they ask what is the best man now? We want to get the best assistance to help us to win the war, and a man at the front is taken for what he is, and not for what he was." Lord Derby repeated this assurance on January 29th and gave some statistics of the number of regular, reserve, special reserve, new army, Territorial Force, and overseas officers holding general and administrative staff appointments. It appears that the number of regulars so employed is 1,944, of the reserve and special reserve 352, and of the new army, Territorial Force, and overseas officers 1,022. The report of the Committee appointed over a year ago with Mr. Winston Churchill as chairman, but which has concluded its labours under the chairmanship of Colonel Lord Burnham, recommends in its second report, issued this week, that "the selection of officers for administrative medical positions should continue to be made from the Royal Army Medical Corps as a whole" (see p. 164).

It is satisfactory to know from an officer so distinguished and experienced as General Hunter-Weston that the leaders of the combatant forces take the view he expressed, and it is natural for medical men to ask if there is the same freedom from prejudice and the same readiness to make full use of the best brains, wherever found, in the administration of the Army Medical Service. If any change of attitude has occurred, it must be of recent origin, and there is still a widespread belief that "thus far and no further" expresses the attitude of the chief regular medical officers towards their Territorial or temporary brothers.

It seems well, therefore, to consider this matter, not in any carping spirit, nor with any thought of ousting the capable Regular from appointments to which his life's service fits and entitles him, but in the hope of contributing something towards the solution of the problem of how to make the best use possible of every medical officer in the army, whether Regular, Territorial, or temporarily commissioned. We propose to examine into the origin of the criticisms to which we have referred, the grounds on which they are justified, and the methods available to remove the causes of any complaint which can be shown to be legitimate and well founded. In the early days of the war, before the first burst of enthusiasm had subsided into the recognition of war conditions as part of our daily life, men were content to accept the organization which had been built up by the expert corps of the old army, and placed themselves voluntarily and

without question under the system. The number of regular medical officers of the R.A.M.C. was originally a little over 1,000, but during the first six months the number was raised to about 1,200, chiefly by the employment of retired officers. While the new armies were being formed and trained at home and the force abroad was relatively small, a sufficient proportion of capable administrators could be found among the regular medical officers on the active list to cope with the situation. The officers of the Special Reserve, R.A.M.C., had been at once called up when war broke out, and medical officers of the Territorial Force were of course mobilized as a part of that force. At an early date also a considerable number of civilian medical men received temporary commissions; they numbered, we believe, nearly twelve hundred before the end of 1914. Since then this number has been increased tenfold as the new armies grew and the area of operations extended, until at the present time the civilian element outnumbers the regular military probably by twelve to one; the total number of medical officers in the army, indeed, equals, if it does not exceed, the number of general practitioners left to deal with the whole of the civil population of England and Wales.

The civilian addition to the medical officer personnel of the R.A.M.C. included men engaged in every variety of medical practice, and among them men of wide experience and the highest capacity in clinical medicine and surgery. It is due to the heads of the Army Medical Service to say that they at once recognized the value of these recruits on the professional side, and made very full use of their capacity in such parts of the duties of the service as directly concern the treatment of the sick and wounded. They availed themselves also of civilian experience in matters of sanitation, and many modifications in the details of administration were introduced into this most important part of military organization. The use of consultants in every branch of medical science has been of enormous value. That the treatment of the sick and wounded in the present war surpasses anything achieved previously is in largest measure due to this recognition of the value of civilian assistance on the professional side.

We are now well on in the fourth year of war, and the civilian practitioners who entered the Royal Army Medical Corps in the earlier years have learnt much of army organization and army methods, and have had time and opportunity to view the situation in the light of their experience in the field. It is inevitable that they should have compared the work they are doing in the army with the work they used to do in civil life. Long hours of leisure have given to some the time to clarify their views on the administration of an Army Medical Service. They seem to have found it difficult to obtain consideration of these views by administrative regular officers, whose minds perhaps are occupied by more immediately urgent matters. Temporary officers have found themselves in unsuitable or uncongenial posts, and they wonder who is responsible for the selection, and on what evidence it was made. Again, surgeons busy in the practice of their art in the days before the war are apt to criticize the continued enforcement of old army regulations requiring them to prepare documents in triplicate in their own handwriting when it seems to them conceivable that the copying would be done as well by a typist from the W.A.A.C. They know that the supply of doctors for the civil population of these islands has been depleted until it is certain that no more can be secured without causing serious difficulty to the community.

It is not surprising, therefore, that medical officers have asked themselves whether the authorities of the Army Medical Department are fully alive to the necessities of the future. Many have come to the conclusion that the department's arrangements ought to be improved in two directions. They consider that it is extravagant in its use of medical officers, and that it is reluctant to admit defects in its methods of administration. These critics think that improvement in the administration of the Army Medical Department would accrue from greater infusion of civilian capacity on the administrative side.

Thus in the Army Medical Service, as now constituted, a mass of personal grievances has arisen, based largely on the charge of extravagance in the use of medical officers, as regards the time occupied in their duties, the way in which their talent is made use of, and the numbers employed. It is, of course, easy to assert that men love a grievance, or to recall the statement that no army ever had so many grievances as Wellington's. Nevertheless, when grievances are so widespread that almost any man will unburden himself privately on the matter, and when opinion on the cause of grievances is so concordant, it would seem wise on the part of those in charge of the machine to consider whether some adjustment of its parts may not be desirable.

The examination of the question whether the complaint is justified is a lengthy matter, and cannot be fully developed in this article. But we may at least put together some of the questions which appear to call for investigation. We hope that their formulation may be of assistance, especially to the Army Medical Department, but also perhaps to the Ministry of National Service, for both are concerned with the very difficult problems which have arisen.

The questions that seem to require close consideration are, in the first place, whether in fact a sharp line is drawn between administrative and professional work, and if so whether this sharp line should be maintained. Another question is whether it is not the case that larger emoluments attach to administrative posts than to those concerned with professional work, and, if this be so, whether a regular officer R.A.M.C. who has reached a certain rank may not in consequence be diverted from the professional work in which he is really interested to administrative work for which he may have no special capacity or experience? The next question which arises is whether officers of the Territorial Force or those holding temporary commissions are being appointed to administrative posts. An order encouraging action in this direction was issued last summer; how far it has been acted on we do not know nor to what kind of post such officers have been appointed. Again, what is the official position of the consulting physicians and surgeons with regard to an expression of their views on administrative questions? Finally, it has to be asked whether the office and clerical methods of the Army Medical Service are up to date, whether the system required to be followed in furnishing reports could not be simplified, and whether the methods of filing documents for reference and preparing card indexes, as well as other parts of the machinery used in a large business, have been adopted in the Army Medical Service.

The justification of the complaints which are made depends largely upon the answers to these questions. From the evidence at our disposal we gather that there is no doubt that some at least of the older regular medical officers draw a very decided line between administrative and professional work. Officers holding such appointments as those of D.G., D.M.S.,

and D.D.M.S., and members of their staffs as a rule do no professional work, nor is it wise in most cases that they should interfere in work to which many of them have become unaccustomed. On the other hand, it does not appear that these directors are commonly in very close touch with the medical officers under their command, nor that they have any thorough knowledge of the capacities of these officers. It would appear that their acquaintance with the varying capacities and experience in practice of medical officers serving under their command is often picked up in a rather casual way, as though it were assumed that every medical officer is capable, as Wellington said of his Peninsular army, of "going anywhere and doing anything." Consultants, drawn from civil life, are attached to the armies, and are no doubt prepared to advise on the capabilities of medical officers when the matter is brought to their notice, but we cannot gather that this is done systematically from front to base, nor do the consultants appear to occupy any official position in the deliberations at various head quarters. With an army in which the civilian-derived element now preponderates to the extent of twelve to one, it would seem advisable to make far more official use of the consultants than appears to be the rule.

If it should be proved that there are grounds for the complaint that the Army Medical Department does not make full use of the best brains of the medical profession, and if it be found that it is on the administrative and organizing side that the fault lies, what remedy or remedies should be applied? To us it seems that there are two directions in which improvement should be obtainable. First let the Army Medical Department invite the assistance of capable non-regulars in every capacity in which they can be useful. Let it establish officers' branches in connexion with the department at home and the various general head quarters, and give the staff of these branches every facility for gaining knowledge of the capabilities of the medical officers working at each front. Every source of information should be at the disposal of these officers' branches, and the senior officer of such a branch should be present at, and take part officially in, such administrative discussions at head quarters as concern the use and distribution of personnel. Secondly, let the Army Medical Department overhaul its office machinery, and consider whether its work could not, with advantage to economy of personnel and speed of working, be reorganized on more modern business lines.

THE EFFECTS OF EXPERIMENTAL HYPERTHYROIDISM.

THE relation of disturbances of the ductless glands to conditions arising during the war has attracted a certain amount of attention. At a comparatively early stage the view that the soldier's heart or "effort syndrome," the name suggested by Dr. T. Lewis, was due to hyperthyroidism came forward and was sufficiently debated. As the most obvious manifestation of a general over-stimulation of the ductless glands by excitement or the toxæmia of infections is hyperthyroidism, this is often regarded as the sole change, but Dr. A. F. Hurst pointed out that in reality the disorder is more complex, and concerns all the endocrine glands. The importance of the inter-relations of these glands has long been recognized, especially in connexion with the pathogeny of diabetes, and it has been thought that between thyroid and pancreas and between pancreas and chromaffin tissue there is

a mutual restraining influence, and between thyroid and chromatin tissue a mutually stimulating influence. In these difficult problems imagination and speculation, valuable as they undoubtedly are in their way, must be controlled by exact experimental researches, such as those recently published by Professor P. T. Herring.¹

In his first paper he records the results of careful investigations of the influence of thyroid feeding, and of the weight and adrenalin content of the adrenals. Male white rats were given daily for about twenty-five days 0.2 to 0.5 gram of fresh ox thyroid, with the result that the medulla, and more especially the cortex of the adrenals, were found to have undergone hypertrophy, and that the adrenalin content was increased absolutely, though diminished relatively, to the percentage weight of the glands. A further research on the action of thyroid upon the growth of the body and organs of the white rat, while confirming in the main the results obtained by E. R. Hoskins, brings out some new points. Rats of both sexes, the females being found to be more susceptible, were given 0.1 to 0.2 gram of fresh ox thyroid in their food daily and weighed weekly. When the experiment was finished the organs were weighed and examined but the full histological details have not yet been published. Thyroid feeding causes profound changes in the body, eventually leads to death, and "acts on metabolism as a forced draught acts on the fuel in a furnace." As estimated by body length, the growth of young rats is little affected but the body weight is, on the whole, diminished, though the loss due to disappearance of fat may for a time be counterbalanced or even more than counterbalanced by the increased weight of many of the viscera. In addition to the adrenals the heart, kidneys, and pancreas are constantly and greatly hypertrophied; the weight of the heart being more than trebled, that of the adrenals and pancreas more than doubled. The hypertrophy of the kidneys is closely related with that of the heart; both correspond to the amount of thyroid consumed, and are prominent features in rats dying suddenly, as sometimes occurs, while thus rendered hyperthyroidic. The liver, spleen, testes, and ovaries are also, though not so markedly, enlarged. The hypertrophy of all the organs mentioned was explained by Hoskins as due to increased metabolism, and Professor Herring accepts this view as regards the liver, spleen, testes, and ovaries, but considers that the extreme enlargement of the adrenals, heart, kidneys, and pancreas points to the existence of some additional factor. Thus, there is an increased production of adrenalin in thyroid-fed animals, and the maintenance of their health appears to depend on this; further, in Graves's disease, in which there is usually believed to be excessive thyroid secretion, an increased amount of adrenalin has been found in the blood, and its medicinal use is sometimes followed by temporary improvement of the cardio-vascular symptoms; these considerations suggest the conclusion that the increased output of adrenalin is compensatory and overcomes the effects of thyroid in the circulation. These additional factors in combination with heightened metabolism may be responsible for the great hypertrophy of the heart and kidneys. The pancreatic enlargement may be connected with regulation of carbohydrate metabolism which would otherwise be upset by the excessive amount of adrenalin, but it should be noted that islands of Langerhans were not proved to be more numerous than in normal conditions. In young rats the growth of the uterus and of

the pituitary body appears to be inhibited by thyroid feeding, and a close correlation between these organs is suggested.

As the weight of the thyroid is reduced, and its cells histologically thinned and flattened, it is reasonable to assume that experimental hyperthyroidism checks the functional activity of the gland. It is interesting in this connexion to find that thyroid feeding has not any constant effect on the thymus, whereas this gland is practically always persistent and large in Graves's disease, in which the hyperthyroidism or dysthyroidism is intrinsic, and thus contrasts with its extrinsic production in this research.

THIS WEEK'S ISSUE.

It has been necessary considerably to curtail the number of pages in this issue owing to serious damage by fire to the machines on which the JOURNAL is printed. It has indeed been possible to publish a number this week at all only through the help generously offered by other printers, for which courtesy we desire to express our gratitude. We must ask correspondents whose communications have been omitted to accept this explanation.

LORD RHONDDA ON NATIONAL RATIONING.

LORD RHONDDA's speech at the Mansion House on January 24th was naturally of great interest, but the details of his rationing scheme were not sufficiently developed for extended comment to be helpful; we shall merely notice a few points which require to be elucidated. Lord Rhondda is reported to have said that the distribution clearing house which he is setting up "will show how much meat, bacon, margarine, and butter should go into different districts, making allowance for districts in which heavy work is being carried on." This may only mean that an effort will be made to secure priority of distribution to such districts, but if, as the actual wording seems to imply, manual workers are to be allotted larger rations, something more than a clearing house is needed, and the individual allocation of supplies ought not to be left to local control committees without further instructions. We think that a common practice of butchers at present is undesirable. The practice in question is this. The butchers cannot secure more than 50 per cent. of their October supplies, and they ration their regular customers uniformly on this basis. But, as the wealthier customers consumed proportionally far more meat than the working classes, a 50 per cent. reduction of supplies to the latter is a much greater hardship than in the case of the former. This is a grievance which should be dealt with at once. Another point is as to the position of the army. The public will certainly endorse Lord Rhondda's contention that the army must come first in supplies, but it may well prove possible to reduce the meat rations supplied to soldiers employed on clerical and other light work, especially at home. It is, indeed, very disputable whether the proportion of energy provided in the form of animal food should be maintained at its present level amongst the troops in training at home. It is extremely difficult to overcome the popular prejudice in favour of meat, a difficulty which, as we have so often pointed out, the injudicious and ill-informed advertising campaign of the Food Ministry last spring has notably increased. It is not easy to maintain on physiological grounds that the men in training or on home defence ought to receive a larger meat ration than manual workers in essential industries. We are, however, sensible of the fact that changes in an army ration can only be made with caution. We do not doubt that Colonel Weigall, M.P., who has been appointed by Lord Rhondda to deal with questions of rationing in the public services, will carefully consider the point. As we go to press an apparently inspired paragraph

¹ P. T. Herring: *Quart. Journ. Exper. Physiol.*, London, 1917, xi, pp. 47-57, 231-253.

In a daily newspaper asserts that the Army Council is about to modify the army ration with a view of meeting the objections just noted.

WAR BREAD.

In the second of the series of lectures at University College, London, on biological problems of the day, delivered on January 28th, Professor F. G. Hopkins, F.R.S., said that, with the goodwill of miller and baker, the nation might benefit rather than otherwise from the consumption of the war bread. The prejudice in favour of the pure wheat loaf was very ancient, as a poem by William Langland, written in the fourteenth century, bore witness, but such prejudice had little support from the strict point of view of nutrition. The choice of wheat as against other cereals was not due to any pre-eminent superiority in nutritive value, but to the secondary consideration that it was wheat alone which furnished (according to its strength) the spongy texture of the loaf which, especially during the last generation, had come so greatly into demand. Wheat used as an exclusive food for animals stopped their growth or their reproductive capacity. The drawback of wheat, apart from the rather unsatisfactory adjustment of its protein, was the small proportion—1 per cent.—of fat in its constituents; hence the logic of bread and butter. No cereals were satisfactory sources of fat, but both oats and maize were distinctly better than wheat in this respect; if the cereals were mixed the result was a better loaf. A loaf which contained more than one cereal, therefore, should not be looked upon as adulterated. Another change in the loaf which the public had had to face was the inclusion of more of the wheat grain. Professor Hopkins described some experiments carried out lately by a committee of the Royal Society with a view to determining the digestibility of war bread in certain carefully dieted individuals. In the case of the original war bread, in which 80 per cent. of the grain was used, the average amount digested was 96.1 per cent., and the range of variation among the twelve individuals who were the subjects of the experiment was very slight; the highest was 97.1 per cent., and the lowest 95.1 per cent. In the case of the present war bread of 90 per cent. extraction the individual variation was just as slight, and the average digestibility was 94.5 per cent. Thus, even allowing for the diminished digestibility in the latter case and for the diversion of the offal from the foodstuffs previously available for animals, it was a sound national economy to use the 90 per cent. flour instead of the 80 per cent.; the gain was equivalent to one-twelfth of the whole supply, and the advantage over the pre-war 70 per cent. was, of course, correspondingly greater. The additional vitamins obtained by reason of the retention of the husk and embryo of the grain was another argument in favour of war bread, especially when bread bulked largely in the dietary, with the consequent difficulty of getting sufficient vitamins from other sources. The occasional "ropiness" of the bread was only to a small extent due to the extra percentage of wheat; much more important was the subsequent treatment of the loaf, and experience in this respect was diminishing the likelihood of the disease.

THE ANAEROBIC BACTERIA OF WAR WOUNDS.

ALTHOUGH there was a large pre-war literature on anaerobic bacteria, the subject was never really dealt with according to the more modern exact bacteriological technique; and as a result of the difficulty of obtaining pure cultures of these organisms any particular anaerobe cannot be identified with the same degree of certainty as in the case of an aerobic. The frequency of gas gangrene during the war has greatly increased the output of this work, and Major Carroll G. Bull, U.S.M.C., has already produced an anti-toxic serum against infections with *Bacillus welchii*.¹ In a

recent publication of the Medical Research Committee Dr. James McIntosh² has published the results of an elaborate investigation of the anaerobic organisms and cleared away some of the obstacles to more accurate knowledge on the subject. The employment of a new apparatus for the isolation and cultivation of anaerobic organisms, designed in conjunction with Dr. Paul Fildes (now honorary Staff Surgeon R.N.V.R.), with whom the earlier part of the work was carried out, enabled pure cultures to be obtained. Two hundred individual strains have been isolated and examined. With the exception of the *B. welchii* group, for which agglutinins are not produced, the identification of a strain can be much simplified by the use of agglutinating serums prepared from rabbits. Although agglutinins could not be demonstrated in serums prepared against members of the *B. welchii* group, the presence of specific antibodies in these serums was shown by means of the complement fixation test. Out of nineteen different types of anaerobes identified by Dr. McIntosh all except *B. chauvoei* and *B. botulinus* have been obtained from war wounds. A detailed description of these nineteen types, illustrated by fourteen plates, is given. Only two of these anaerobes were found to be truly toxogenic—a result opposed to Bull's and Pritchett's description of an exotoxin for *B. welchii* (vide BRITISH MEDICAL JOURNAL, 1917, ii, 432). The anaerobic flora of wounds is shown to be much more complex than some of the earlier publications during the war indicated, and in the majority of gangrenous wounds, both acute and chronic, several anaerobes can be isolated; of the pathogenic varieties the most frequently isolated are the *B. welchii* group, and next in order of frequency Pasteur's "*Vibrio septique*," which must now be regarded as the same organism as Koch's bacillus, afterwards described under the name of malignant oedema; while of the non-pathogenic varieties certain forms of *B. welchii* and *B. sporogenes*, which has often been mistaken for the bacillus of malignant oedema, are almost constant. Gas gangrene may therefore be regarded as a clinical symptom-group which can be produced by one or more of a series of anaerobic bacteria. A further memoir on the important practical questions associated with the pathology of gas gangrene is now in preparation.

ACUTE POLIOMYELITIS IN A CARRIER.

FLEXNER's view that acute poliomyelitis is spread by personal contact, though based on clinical observation and experiment, is not universally accepted, and as alternatives some form of insect transmission or an unknown mechanism have been suggested. Taylor and Amoss³ support Flexner's contention by the record of poliomyelitis in a family of four children living in a village otherwise free from the disease. The eldest boy was exposed to infection when away from home, and ten days later, after his return to his family, developed the disease and subsequently died. Four days after he became ill nasopharyngeal irrigations taken from his sister and one brother were injected intracerebrally into monkeys, which subsequently became paralytic. The nasopharyngeal irrigations therefore contained the virus, and the sister and the brother were thus shown to be carriers. As the brother had a febrile attack just before the irrigation, it is probable that he had a non-paralytic or abortive poliomyelitis. The other brother, aged 7 years, who could not be irrigated, developed the disease two days later. The sister became ill with acute poliomyelitis five days after she was shown to be a carrier. This is the first instance in which a proved carrier has

² *The Classification and Study of the Anaerobic Bacteria of War Wounds*. By James McIntosh, M.D., associated at the beginning of the work with Paul Fildes, M.B., B.C., Honorary Staff Surgeon R.N.V.R. With Supplement on Methods for Cultivating Anaerobic Bacteria, by P. Fildes, M.B., B.C., National Health Insurance, Medical Research Committee, Special Report Series No. 12. London: Sir Joseph Causton and Sons. 1917. (Pp. 74; 15 plates.)

³ E. Taylor and H. L. Amoss, *Journ. Exper. Med.*, Baltimore, 1917, xxvi, 745-754.

¹ BRITISH MEDICAL JOURNAL, 1918, i, 62.

been known to develop the disease. The author's suggestion that every case of acute poliomyelitis has been a carrier is logical, but does not obtain any support from the analogy of cerebro-spinal fever. Among the large number of meningococcus carriers that have been detected the recorded incidence of cerebro-spinal fever has been infinitesimal.

ORGANIC PARAPLEGIA DUE TO LIGHTNING STROKE.

PARALYSES are not rare in persons who have survived being struck by lightning. They are, however, commonly functional paralyses, and have a good prognosis. A. Porot¹ has recently described three cases in which the physical signs pointed to organic rather than functional paraplegia due to lightning stroke. The patients were Serbian soldiers. In August, 1916, on the Macedonian front a number of these men were reposing under a tree during a thunderstorm, in spite of the general belief that it is unwise to take cover under trees during thunderstorms, when the lightning struck and killed four of them. Others were struck and survived, and two of these were under the author's charge six and eight months after the accident. One had very extensive scars of burns on the right chest, iliac fossa, thigh, and knee. He was unable to stand or walk, exhibiting intense spasmodic paraplegia, with much wasting of the muscles, particularly in the left thigh and right leg. The left quadriceps extensor showed clonic spasms while at rest; there was patellar clonus and an extensor plantar reflex on the right side, while no plantar reflex could be obtained on the left. On both sides the abdominal and cremasteric reflexes were increased. Both legs were insensitive to touch, pain, and heat up to a level some two inches above the patella, and there was similar hypo-aesthesia of the trunk and arms up to the base of the neck. The sphincters were not involved. The second patient was less badly burned, and, by May, 1917, had to a great extent recovered. He still exhibited, however, permanent diminution of sensation (touch, pain, and heat) in various areas of the left leg, especially those supplied by the second lumbar and first and second sacral segments, with loss of sensibility to heat in the same areas on the right. The third patient, who was not under Dr. Porot's charge, had not lost his senses when he was struck (as the other two had), but was suddenly seized with paralysis while marching next day. By June, 1917, he had greatly improved, but showed much increased reflexes, ankle clonus on both sides, patellar clonus, and a feeble extensor plantar reflex on the left. He also had a traumatic cataract in the right eye, dating from the accident.

Medical Notes in Parliament.

Army Medical Service in France: Committee of Inquiry's Report.—Major David Davies asked Mr. Macpherson whether the Committee of Inquiry presided over by General Sir Francis Howard had now concluded its labours; and whether it was proposed to give any information to the House in regard to the questions upon which it had reported. Mr. Macpherson said the report had been received and was now under consideration. He was not in a position to make any statement. Major Chapple asked whether the War Secretary would institute periodic conferences of medical officers representative of the staffs in the various commands in order to discuss matters connected with the efficient and economical administration of medical officers. Mr. Forster replied that there existed already a special machinery for this purpose in the War Office, and this was in close touch with the hospitals and staffs of command and in communication with the Food Controller.

Hospital Treatment of Discharged Disabled Men.—In reply to Lord Henry Cavendish-Bentinck, Sir Arthur Griffith-Boscawen, Parliamentary Secretary to the Ministry of Pensions, repeated the information given by Mr. Hodge to Sir Henry Harris, as published last week (p. 128), and added that the Ministry of Pensions was taking steps to provide institutions. A large number of beds was available for the neurasthenic, epileptic and paraplegic, and for advanced cases of tuberculosis. Three orthopaedic clinics had been opened in Glasgow for out-patients, and a large number of similar institutions was being established in all parts of the country. In reply to Mr. Richards, on January 23th, Mr. Hodge said that the number of disabled men at present receiving treatment in South Wales and Monmouthshire under conditions entitling them to full allowances was 418, but the total number of men under treatment, including out-patient treatment, would be substantially larger. He was unable to distinguish between those permanently and temporarily disabled. The institutions available for such treatment at present under the direct control of a Department of State in Wales numbered eighty-six, but it was given also in many civil hospitals and institutions. He hoped presently to secure another 500 beds. The South Wales Joint (Disablement) Committee possessed under the Naval and Military War Pensions Act, 1915, such functions as might be delegated to it by the constituent local committees, and these functions included that of making arrangements for treatment or training with institutions designed to serve extended areas. It was the policy of the Department to use the Joint Disablement Committees as agents for the provision and maintenance of new institutions. Mr. Hodge added that he understood that these committees got financial assistance, upon which Mr. Hugh Edwards observed that it was not to the amount they had asked for.

Military Hospitals: Officers' Pay.—Commander Bellairs asked Mr. Macpherson whether he was aware that, while Article 361 of the Royal Pay Warrant, 1914, provided for the issue of charge pay to officers in charge of a general or other hospital, or of a division of a general hospital, the War Office letter 48 A.M.C. 895 (A.M.D.1) of November 21st, 1917, limited the issue of charge pay to the officers in charge of the surgical and medical divisions only of certain hospitals; whether he was aware that the medical officer in charge of the mental division of 1,000 beds in the Lord Derby War Hospital, Warrington, had been refused charge pay, although the medical officers in charge of the medical and surgical divisions in the same hospital, of 462 and 1,538 beds respectively, were recognized as eligible for charge pay if drawing full army pay. Mr. Forster replied: The letter in question merely explained the provisions of the Royal Warrant governing the issue of charge pay. The Warrant allows charge pay for the divisions of a general hospital, and these hospitals are invariably organized into two divisions—medical and surgical—the former including all cases that are not surgical in character, and it is not proposed in this case to alter the practice of the service. The mental cases in the Lord Derby War Hospital are treated in the mental section of the medical division.

Nerve-strained Soldiers.—Mr. King asked Mr. Macpherson whether any steps had been taken in consequence of a conference held before Christmas between the War Office and certain alienists and other medical men, in which the latter had brought forward proposals for the retention under military control up to the time of complete recovery of all cases of transitory uncertifiable loss of balance due to the strain of battle; whether it was intended to provide new institutions for the treatment of such soldiers while they remained in the army, which should be mainly under the charge or supervision of lunacy experts; if so, what provision would be made in order that, if unfit for military service, they might be speedily discharged to the disablement department of the Pensions Ministry and afforded facilities, with as little risk of delay and detriment as possible, for their return to self-supporting industrial life? Mr. Macpherson said that steps were being taken to find suitable premises, and that the institutions would be provided with staffs of neurological experts.

Advisory Committee for the Blind in Scotland.—Mr. Munro announced that the composition of the Advisory Committee for the Blind in Scotland is as follows: Sir David Panlin (Chairman), Mr. J. Frew Bryden, the Rev. Thomas Burns, D.D., F.R.S.E., Mr. Alexander Butters, Mr. W. C. Long, Mr. C. G. Lothian, Miss Isabella Lyall, Mr. George Mackay, F.R.C.S., M.D., Major William Reid (Vice-Chairman), Mr. Thomas Stoddart, and Mr. W. M. Stone. The Secretary is Mr. J. B. B. Brown, of the Local Government Board for Scotland.

¹ *Revue Neurologique*, Paris, 1917, xxiv, 13.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

MAJOR G. M. HUNT, M.C., A.A.M.C.

Major Gladstone Montague Hunt, aged 28, was killed in action while leading stretcher-bearers forward in the battle of Broodseinde Ridge. He was educated at the Sydney High School and graduated M.B., Ch.M. Sydney University in 1910. He acted as R.M.O. to the Goalburn Hospital, N.S.W., and as honorary surgeon to the Charleston District Hospital, Queensland, and the Bega District Hospital, N.S.W., after which he practised successfully at Candello, N.S.W. Receiving his commission in the A.I.F. in April, 1915, he saw service in Egypt, Gallipoli, and France. He was awarded the Military Cross early in 1917 for gallantry during the German retreat near Bapaume, and was promoted to the rank of major in June, 1917.

Died of Wounds.

MAJOR T. J. FRIZELL, A.A.M.C.

Major Thomas J. Frizell, whose death on December 2nd, 1917, aged 29, from wounds we recorded in our issue of December 15th, p. 806, was educated at the Sydney Grammar School and graduated M.B., Ch.M. at the University of Sydney in 1911. He was resident medical officer to the Sydney Hospital for two years, and at the outbreak of war was a resident officer at the Coast Infections Hospital, Sydney. He received his commission in August, 1914, and served as an ambulance officer in Gallipoli and in France. He was promoted to the rank of major on November 14th, 1916. While in charge of an advanced dressing station near Weshock on October 8th, 1917, he received his fatal wounds.

CAPTAIN J. R. TILLET, A.A.M.C.

Captain J. R. Tillet, whose death from wounds on October 2nd, 1917, we announced in our issue of November 3rd, 1917, p. 599, was the son of Mr. J. V. Tillet, Crown solicitor, N.S.W. He was educated at the Sydney Grammar School, and graduated M.B., Ch.M. at the Sydney University in July, 1916. After a term as R.M.O. at the Toowoomba General Hospital he was commissioned in the A.I.F. in November, 1916. After working in a base hospital in France he joined a field ambulance, and was immediately posted as M.O. to a field artillery brigade in June, 1917, with which unit he was serving when wounded. His good work has been recognized, and he was mentioned in dispatches on January 1st, 1918.

Died.

CAPTAIN F. B. METCALFE, A.A.M.C.

Captain Frank B. Metcalfe, who died on October 6th, 1917, from the effects of an injury received in France, was 26 years of age and the second son of Dr. Metcalfe of Norfolk Island. Educated at King's School, Parramatta, he entered St. Paul's College, Sydney University, and graduated M.B., Ch.M. in July, 1916. After holding the appointment of resident medical officer to the Children's Hospital, Brisbane, he received his commission in the A.I.F. in October, 1916, and proceeded overseas, where he received the injury that caused his death. He was a fine footballer and very popular among his fellow-students and officers.

Wounded.

Captain T. Martin, R.A.M.C. (temporary).
Captain J. L. Pearse, R.A.M.C. (temporary).
Captain T. C. Storey, R.A.M.C. (S.R.).

Prisoners of War.

Captain A. G. Bryce, R.A.M.C. (temporary).
Captain H. B. Goulding, R.A.M.C. (S.R.).

Formerly Reported Wounded, now Reported Not Wounded.

Captain D. R. Alexander, R.A.M.C. (temporary).

DEATH OF SON OF MEDICAL MAN.

Floyd, William Eric, Probationary Flight Officer, Royal Naval Air Service, eldest son of Dr. W. E. Floyd, of Claughton, Birkenhead, killed in a flying accident, January 21st, aged 18.

MEDICAL STUDENT.

Croft, Eric, M.C., Captain Royal Field Artillery, killed by a fall over banisters in a London hotel on January 16th, aged 26. He was a medical student at the London Hospital before the war, and came to join from Dunedin, New Zealand. He had been gassed at the front, and had gained the Military Cross.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

FOREIGN DECORATIONS.

A list of decorations recently awarded by the King of Serbia for distinguished services rendered during the campaign includes the following medical officers, all of whom belong to the A.M.S. or R.A.M.C. unless otherwise indicated:

ORDER OF ST. SAVA.

2nd Class. Surgeon-General Sir H. R. Whitehead, K.C.B., Director of Medical Services, British Salonica Force.

3rd Class.—Colonels: S. F. Clark, A. A. Sutton, C.B., D.S.O. Temporary Colonels: Sir T. Crisp English, K.C.M.G., Sir J. Purves Stewart, K.C.M.G. Lieut.-Colonels: F. J. Brakenridge, C.M.G., H. J. M. Buist, D.S.O., B. Forde, C.M.G., A. G. Hay. Major (temporary Lieut.-Colonel) A. E. Kidd.

4th Class.—Majors J. T. Johnson, D.S.O., H. Rutherford, F. A. Stephens, D.S.O., H. Walker, W. J. Weston, D.S.O. Brevet Major D. M. Corbett. Temporary Majors G. P. Mills, K. W. Monsarrat, L. G. Parsons. Captains: A. E. Barnes, E. J. Y. Brash, B. L. Davis, H. W. Farebrother, J. Fenton, R. Fullarton, W. R. Galwey, M.C., A. W. Harrington, A. B. Jameson, P. H. Mitchiner, A. R. Moodie, W. L. Murphy, R. V. Slattery, W. A. Valentine. Temporary Captains F. M. Bishop, R. D. Fitzgerald, C. Y. Flewitt, A. A. Greenwood, W. Haward, C. O. Stallybrass, L. D. Woods. Temporary Lieutenant B. W. Howell, and Dr. Harold W. Wiltshire, one of the teachers in clinical medicine at the Royal Army Medical College.

5th Class.—Captain H. J. Shields, C.A.M.C.; temporary Lieutenants J. N. McTurk, H. C. Terry, J. H. Watson; temporary Quartermaster and honorary Major H. H. Taylor; temporary Quartermasters and honorary Lieutenants H. J. Angell, J. Fraser, F. W. Sharpe.

ORDER OF THE WHITE EAGLE.

4th Class.—Lieut.-Colonel G. Gow, Canadian Army Dental Corps, Canadian General Hospital.

MENTIONED IN DISPATCH.

The name of Major (now Brevet Lieut.-Colonel) L. J. M. Deas, I.M.S., has been added to the list of officers mentioned by General Sir Percy Lake, K.C.B., K.C.M.G., in his dispatch of October 19th, 1916, whose services were deserving of special mention.

NOTES.

Captain H. E. Gamlen, M.B., B.S., 11th General Hospital, has been appointed to be Consulting Radiographer for the British Expeditionary Force in Italy.

Dr. R. Arderne Wilson, of Guernsey, has been appointed Surgeon to the Serbian Relief Fund on the Salonica front and second in command.

ALLOCATION OF ORTHOPAEDIC CASES TO CENTRES AND HOSPITALS.

The Army Council has issued an Instruction directing that all military orthopaedic cases transferred to this country from overseas shall in future be sent direct to a military orthopaedic centre, or to a hospital approved by the consulting surgeons or other officers. Such patients are not on any account to be distributed from railway stations to auxiliary and other hospitals. In all the commands at home orthopaedic centres have been established, or special hospital accommodation provided. The order does not apply to men belonging to the Canadian, Australian, or New Zealand contingents, who will be dealt with as notified in previous orders.

VILLAGE SETTLEMENTS FOR DISABLED MEN.

In a paragraph entitled "Garden Cities for Disabled Men" an account was given (JOURNAL, November 17th, 1917, p. 666) of the proposals of a committee, of which Dr. R. Fortescue-Fox is chairman, for the establishment of village settlements for the cure and training of disabled ex-service men. The scheme has, we are informed, received the approval of the Ministry of Pensions so far as treatment and training are concerned, but the settlement of men in village communities, which is the ultimate aim of the committee, not only as a measure of social reconstruction but as a powerful attraction to the men themselves, is not considered by the Ministry to be within its present scope. It will grant the usual allowances for treatment and training. It is proposed to take steps at once to provide a village centre for the London district. The committee is now seeking funds for the purchase of a suitable site. Its honorary secretaries are Lady Grogan and Miss Hilda Fox, 36, Devonshire Place, W.1, and the treasurer is Mr. W. Cecil Harris.

Correspondence.

THE CO-ORDINATION OF BRITISH MEDICAL POLICY.

SIR,—May I ask whether, as a profession, we have any definite political policy respecting legislation that is likely to be brought before Parliament in the near future? Do we know what we want? What do we consider best for the nation? Are we sure our opinions have not been based on what is best for ourselves? Or have we decided to obtain a report from a committee which will be sent wandering about between Executive, Divisions, Representative Body, and Committee until Parliament has decided for us what we are to have?

It appears probable that a Ministry of Health will be set up in the near future, a National Health Amendment Bill is overdue, and there is also an Infant Welfare Bill in the offing. The first of these might well be one of the most important medical Acts ever passed. The Insurance Act will probably extend the medical benefits to dependants. Here alone we require to have a general policy which will cover changes that may take years to bring about, or may, in the changed temper of the times, be brought about in a short time. It is no use to say men are away at the war and we cannot form a policy without them; time is too precious, we cannot be too prepared. We must also remember that there is a probability of a Labour Government in the not far distant future.

May I draw attention to another point? When the daily papers discuss probable changes they give the opinions of the "societies" or the Insurance Commissioners—of any one but the medical profession. Why? Why is it so dreadful for a medical man to discuss medical politics in a lay paper, even under a *nom de plume*? Methinks if we ignored the daily press less we might be less ignored. Are we content to be nonentities? Why be satisfied with being told what is good for you by people who know nothing about you?—I am, etc.,

Mumbles, Glamorgan, Jan. 28th.

F. DE COVERLY VEALE.

THE PULSE PRESSURE TEST BEFORE OPERATIONS.

SIR,—Will you permit an anaesthetist to utter a warm welcome to a few words from a physician such as he has long hoped to hear? In your issue of January 19th, p. 101, Sir J. Mackenzie writes: "So many bogeys have been raised at one time or another about the heart being unable to stand anaesthetics," and these are the words to which I refer. They cheer one heart at least, and they will, I hope, save many others from unmerited condemnation. My experience has not presumably been unusual in this matter, and it is that I have on a great many occasions given anaesthetics with perfect safety and but little anxiety to persons who had been assured that "their hearts could not stand it." I am certain that the opinion is much too frequently given that a patient must not have an anaesthetic "on account of his heart." When given, it tends by the alarm it raises to put into a position of peril the person who would otherwise have run none but the average risk of anaesthesia. The condition of the heart, as evinced by ordinary clinical signs, plays by no means the leading part in anaesthesia that is commonly assigned to it by those who are not constantly giving anaesthetics or attending operations. Every variety of valvular disease, for instance, has been present in one patient or another who has safely passed through anaesthesia in my hands, and doubtless in the hands of any other experienced anaesthetist. Yet the mere presence of an organic murmur will in the case of many a practitioner lead him to forbid an anaesthetic, and thus, when the patient is confronted with the necessity for an operation, an additional and unnecessary anxiety is cast upon him, and the anaesthetist is called upon to dissipate fears that never should have arisen, and to give his anaesthetic under needlessly unfavourable conditions. The time will come, probably, when accurate scientific tests of the reserve power of the circulatory as well as of other systems will be applied before every major operation, and perhaps some operation fatalities will thus be avoided. In the meantime it is well to bear in mind that anaesthetics,

properly chosen and given, make little call upon the heart, and that when an operation is necessary it is extremely seldom that it should be banned upon the score of cardiac risk.—I am, etc.,

London, W. Jan. 23rd.

J. BLUMFIELD.

SIR,—I have not had the opportunity of reading Dr. Cashman's article on the pulse pressure test, but I feel qualified to ask a little space to state my views on the matter because I made a large number of tests myself some years ago, and came to the conclusion, and am still of the opinion, that variations in blood pressure, as a result of change in bodily position, or bodily exertion, have no value whatever as a test for the efficiency of the heart. I made trials on ninety healthy industrial school boys, and found that those in the first athletic squad gave such changes in pulse pressure, that had the test been a reliable one, they ought to have died from cardiac failure there and then.

I also made tests in the out-patient department at Mount Vernon Hospital, when I was acting as clinical assistant to Sir James Mackenzie, on a large number of old people with signs of cardiac failure, and I found in most of them that the difference in systolic and diastolic pressure reading after exertion indicated that they had strong hearts, although nearly all of them showed marked symptoms of cardiac failure brought out by the exertion.

I therefore say that when a supposed test for the reserve power of the heart indicates heart failure in a group of trained athletes and a large reserve of power in hearts on the verge of failing, it is a worthless and dangerous criterion.—I am, etc.,

Southall, Middlesex, Jan. 26th.

J. DAVENPORT-WINDLE.

VINCENT'S ANGINA.

SIR,—There seems to have been enough correspondence on the subject of Vincent's angina and associated stomatitis and gingivitis to warrant your publishing finally when and where the first observations on this disease were made, as occurring amongst British troops.

In vol. ix (1916) of the *Proceedings* of the Royal Society of Medicine a report was presented by me, and again published in the *BRITISH MEDICAL JOURNAL* of March 1st, 1916. Nine months later Taylor and McKinstry read a paper on the same subject, making practically the same observations, and came to the same conclusions. My paper, as it appeared in the *BRITISH MEDICAL JOURNAL*, was published in the form of an official pamphlet to be issued to medical officers of the Canadian forces, by the D.M.S., Canadians.

In the *BRITISH MEDICAL JOURNAL* of January 19th, Taylor and McKinstry have published an article on the serology of the condition, which was discussed by me previously, and which they have quoted.

The condition is still very prevalent, but it would seem to me that if correspondents would familiarize themselves with the literature, much space taken up with such discussion would be saved.—I am, etc.,

F. B. BOWMAN,

No. 1 Canadian General Laboratory,
Folkestone, Jan. 24th.

Major C.A.M.C.

THE DISTRIBUTION OF TRYPANOSOMIASIS.

SIR,—In the *JOURNAL* of July 28th, 1917, page 164, Sir Patrick Manson states, in regard to the human trypanosomiasis due to infection by *T. rhodesiense*, that "it appears to be confined to Rhodesia particularly, but not entirely to the north of the Zambesi."

I feel that this observation, as it is so definite in form, should not be allowed to go unchallenged. Trypanosomiasis due to *T. rhodesiense* is endemic in Nyasaland, as was first shown by Stannus and Yorke,¹ also in German and Portuguese East Africa, to the east of Lake Nyasa, as demonstrated by Taute. This disease has, therefore, a very much more widely spread distribution than is indicated by Manson.—I am, etc.,

H. S. STANNUS.

Conquered Territory, German East Africa,
Oct. 29th, 1917.

Obituary.

HENRY MAUDSLEY, M.D., F.R.C.P.,

FORMERLY PROFESSOR OF MEDICAL JURISPRUDENCE, UNIVERSITY COLLEGE, LONDON.

HENRY MAUDSLEY came of a yeoman family long settled in Yorkshire near the border of Lancashire. He was born on February 5th, 1835, the third son and fourth child of Thomas Maudsley of Rome, near Settle, Yorkshire. He attended Giggleswick School, but when twelve or thirteen, at the suggestion of his uncle, Dr. Bateson, at one time medical officer of health for Southwark, he went as a private pupil to Mr. Newth of Oundle, Northamptonshire. From there he matriculated in due course at the University of London, and, again on the advice of Dr. Bateson, was apprenticed to the apothecary at University College Hospital, Mr. Clover, afterwards the well-known anaesthetist. His career at University College and in the University of London was very distinguished. He was the first in most class competitions, and carried off ten gold medals; he also took the University Scholarship and gold medal in surgery when he graduated M.B.Lond. in 1856. Still he was not reckoned a diligent student, and often seemed to his teachers less interested in science than in sport, becoming, indeed, an authority on cricket. But his brilliant intellect carried all before it. At first he thought of becoming a surgeon, and was house-surgeon at University College Hospital to Mr. Quain; afterwards he contemplated entering the Indian Medical Service, and in order to fulfil the regulation requiring candidates at the examination to have had experience in lunacy, he took an appointment in the Essex County Asylum. This accidental circumstance may be said to have determined his career, for after a short period at the Wakefield Asylum he became, at the age of 24, medical superintendent to the Manchester Royal Lunatic Asylum, Cheadle, in 1859, an appointment which he retained until 1862, when he went to London to try his fortune. He had already written some essays, including one on "Hamlet," which had attracted the notice of Dr. John Conolly, who at that time was superintendent of Hanwell Asylum; he had a small private asylum near by, and Maudsley was resident physician there for a time, and afterwards married Conolly's youngest daughter. Soon after settling in London Maudsley was appointed editor of the *Journal of Mental Science*. Two years later he became physician to the West London Hospital, Hammersmith. He was appointed professor of medical jurisprudence at University College, London, in 1869, and retained the chair until 1879. He early attained success in the practice of his speciality, and contemporaneously became well known as a writer, by a series of books which were not only of high technical distinction but appealed to the more thoughtful section of the general public. In 1866 he published his first large book on the *Physiology and Pathology of Mind*, which has been described as epoch making. In 1874 he published a book on responsibility in mental disease. Afterwards he rewrote his early book, and issued it in two separate volumes, the one in 1876, on the physiology of mind, and the other in 1879, on the pathology of mind; this last volume reached a second edition in 1895. In 1883 he published *Body and Will*, and in 1886 *Natural Causes and Supernatural Seemings*, a book which reached its third edition in 1897. Another book was *Life in Mind and Conduct* (1902), and his final work, which may be said to embody the philosophy of his long life, entitled *Organic to Human, Psychological and Sociological*, appeared in 1917.

He became a Fellow of the Royal College of Physicians in 1869, and we believe was at the time of his death, both by age and seniority, the fourth on the list. He delivered the Goulstonian Lectures in 1870 on body and mind. He received the honorary degree of LL.D. Edin. in 1884, and was an honorary member of the Medico-Psychological Society of Paris, of the Imperial Society of Physicians, Vienna, and of the Medico-Legal Society of New York.

His interest in the work of the British Medical Association is shown by the fact that he was vice-president of the Section of Psychology at the annual meeting in Newcastle in 1870 and president of the same section at the annual meeting at Birmingham in 1872. In 1905 he delivered the address in medicine at the annual meeting

at Leicester. This address covered a wide field and contained the germs of his later book, for he looked forward then to the ultimate levelling of all artificial partitions, to the recognition of inorganic, of organic, and of spiritual nature as grades in a continuous scheme woven together by the golden thread of evolution. But it also dealt in a philosophic spirit with the practical problems underlying the prophylaxis of disease, for, specialist though he was, Dr. Maudsley took care to keep himself acquainted with all movements in medicine.

Dr. Maudsley may be said to have retired from practice in 1903, when he paid a visit to Australia for the purpose, as he said, of "seeing how cricket was played." He retained his mental faculties and the clearness of his intellect to the very last, and had just finished the revision of the proofs of a volume of essays. He had been failing in health for some two or three months, but died peacefully in his chair on January 24th after a few weeks of confinement to his house overlooking Bushey Heath, not far from Harrow, one of the last of the untouched heaths near London.

We are indebted to Dr. F. W. Mott, F.R.S., for the following tribute to Dr. Maudsley's life and work.

By F. W. MOTT, F.R.S.

At the age of 30 Maudsley's philosophical mind revealed itself to the general public by the publication in the *Westminster Review* of a remarkable essay on "Hamlet." He had been previously known to the profession by a number of original articles in the *Journal of Mental Science* under Dr. Bucknill's editorship, by whom he was nicknamed "the young philosopher." Is it not strange to know that he harked back to his grandfather, who was notable in the countryside for his sayings, sardonic and sarcastic, which had earned him the sobriquet of "the old philosopher." Henry Maudsley's next most notable work was *The Physiology and Pathology of Mind*, published in 1867; and as early as this he declared his aim to be—

To treat of mental phenomena from a physiological rather than from a metaphysical point of view, and to bring the manifold instructive instances presented by the unsound mind to bear upon the interpretation of the obscure problems of mental science. Also to do what he could to put a happy end to the inauspicious divorce between the physiology and pathology of mind.

I was informed by a very eminent physician that upon reading that work when he was studying philosophy and law as a young man at Oxford, he determined to take up medicine, and especially that branch relating to disease of the nervous system. Thus the seed soon fell on fruitful ground, and during the last generation Maudsley's name has been pre-eminent in all that pertains to mental science. Indeed, it would repay the present generation to read his later separate works on the *Physiology of Mind* and the *Pathology of Mind*, which are referred to frequently by Charles Darwin and by Ribot, and many other great contemporaries of his. William James, the author of *Principles of Psychology*, recommended his students to read Maudsley's *Pathology of Mind*. One of the most interesting chapters I know, and from which I have gained much valuable information, is on "the emotions or affections of mind." It is prescient and original in thought, and is particularly interesting at the present time when emotional stress is operating on a large part of civilized humanity. One passage in relation to modern conditions of shell shock may be noted:

To all appearances a violent emotion may react as a strong physical shock to the nervous system, for it may produce convulsions, fainting, loss of sensation, paralysis of movement, deafness, exactly the effects which a strong electric shock may produce. We have not then to do with mysterious self-determining agencies, we have to do with phenomena which, complex as they are, will eventually receive a complete analysis.

In a copy of this work which he presented to me he said: "The quotation-notes at the end of chapters might at any rate be interesting." These quotations and the references show his extraordinary knowledge and wide reading in philosophy, whence he got the broad grasp of science as applied to the physiology and pathology of mind, and how he has analysed and woven these into his work in a most lucid and convincing way, so that it has become his own fabric, and not a patchwork of ideas and thoughts of others.

The same might be said of his book *The Pathology of Mind. Responsibility in Mental Disease* was another

work which aroused a great deal of attention and was regarded as a standard book on account of its practical application to medico legal questions relating to insanity, crime, and responsibility. When Dr. Maudsley was lecturer on medical jurisprudence at University College I well remember his coming in and reading a case of mistaken identity from the *Times* and commenting upon it in a way that immediately attracted the attention of the students by his originality, humour, and critical insight. His latest work, *Organic to Human*, embodies his philosophy, which may be summed up in the principle of unity of the human organism and its continuity with the rest of Nature's processes. Borrowing his own words, it may be said that having done diligently the work which it came in his way to do for a livelihood and fulfilled his life-function in the sincere utterance of himself Maudsley has left his philosophical and philanthropic work to the fate of time and events, well knowing that when all is said—

Thought is the slave of life and life the fool of time,
And time that takes survey of all the world
Will have a stop.

The Maudsley Hospital.

Dr. Maudsley in 1907 communicated to me his desire to give £30,000 to the London County Council if it would build a hospital for the study and treatment of acute mental cases. I mentioned the matter to Sir John McDougall, who pointed out to me the desirability of such a hospital being associated with the University of London; consequently I drew up a scheme, and this was supported by Mr. Balfour and Sir Arthur Rücker, the late principal of the university. The offer was then communicated privately to the chairman of the London County Council, and in December, 1907, Dr. Henry Maudsley put before Mr. H. P. Harris, who was then chairman, his scheme for the establishment of a fully equipped hospital for mental diseases in London. Towards the cost of carrying it into effect Dr. Maudsley offered to contribute a sum of £30,000. In a letter to Mr. Harris, dated February 14th, 1908, Dr. Maudsley said that as a physician who had been engaged in the study and treatment of mental diseases for more than fifty years, he had been deeply impressed with the necessity of a hospital whose main objects should be the early treatment of cases of acute mental disorder, with the view as far as possible of obviating the necessity of sending them to the county asylums; the promotion of exact scientific research into the causes and pathology of insanity, with the hope that much may yet be done for its prevention and successful treatment; and the provision of an educational institution which should offer to medical students the opportunities of getting good clinical instruction in a class of diseases of which under existing conditions it is not easy for them to obtain a competent knowledge. Dr. Maudsley's gift was accepted, but much delay occurred before a site was finally chosen at Denmark Hill, opposite the new King's College Hospital. The following statement submitted by the London County Council to the Royal Commission on University Education, 1913, as to clinical instruction in special hospitals, may with advantage be quoted from the final report of the Commissioners:

In addition to the advantages which it is expected will ensue to the patients who are treated there, it is hoped that the hospital will prove of great value in the dissemination of knowledge of mental diseases and in the provision of systematic instruction in methods of treatment. The proposal includes the provision of a department for pathological research, which, it is suggested, would be accomplished most economically by the removal of the staff and equipment of the Claybury Laboratory to the new institution. It is hoped that this institution, when in being, will be in close touch with the London University and medical schools.

The hospital was not finished when the war broke out, but to the 4th London General Hospital, of which King's College Hospital is the nucleus, the London County Council not only handed over two large Grove Lane schools, but in addition hastened the completion of the Maudsley Hospital, the whole being placed in connexion and forming the Maudsley extension of the 4th London General Hospital. For the past two years or more this has formed the neurological section, and served as a clearing hospital, and for the treatment of cases of shell shock and war psychoneuroses. It has already fulfilled a most useful purpose, which, it is to be hoped, may be extended to the civil population after the war is

over. We only regret that Dr. Maudsley did not live to see this practical application of his life work and principles.

Some Personal Reminiscences.

In connexion with the planning, building, and future objects of the hospital, I had many opportunities of becoming personally and intimately acquainted with Dr. Maudsley, and I made frequent visits to Bushey Heath. It was a great pleasure and intellectual treat to talk with the grand old philosopher, and after dining and spending the evening with him, I would come away sometimes humbled but always mentally refreshed. No matter what subject we talked upon I always learnt from him; even upon technical matters of which I had more knowledge and experience, I would find his keen, critical mind ready to detect weak points in the argument, but his sound judgement seemed intuitively to tell him when the facts were adequate to support a proposition.

To those who had not the privilege of knowing him intimately he might seem cynical and satirical, but beneath a seeming hypercritical manner was a most kindly disposition. I cannot help thinking that at times the tinge of pessimism which he generally showed was partly due to his having no children, and partly to an inborn trait; for he told me that he believed a man may inherit two unblended temperaments, and that it was so in his case.

His knowledge of character, derived from long experience and contact with men in all ranks of society in his professional capacity and otherwise, made his conversation upon politics and social problems most interesting and entertaining, for it revealed a keen insight into human conduct, and the motives activating it.

He had a great love of Nature, and up to a few years ago he worked industriously in his garden, but he had no taste for music; although he possessed the sense of rhythm, that of melody was lacking.

Up to the very end he retained all his remarkable mental faculties, and his memory was marvellous; for he would quote long passages from the great authors and poets, and show that he still kept abreast with the general principles underlying modern biological science.

SIR GEORGE HARE PHILIPSON, M.D., F.R.C.P.,

CONSULTING PHYSICIAN, ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE; EX-PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

The announcement of the death of Sir George Hare Philipson will cause deep regret to many members of the medical profession. Although age had begun to tell upon him lately, he yet looked the picture of health, and seemed as if he might have had several years of useful work before him. He died literally in harness and in a manner which, if choice had been granted him, he would probably have preferred. On January 22nd he presided at a meeting of Council in the College of Medicine and next day was out and about as usual, but towards the evening he did not appear to be quite well. When the butler called his master at 6.45 a.m. on January 24th he found him in bed in a condition of unconsciousness. Dr. J. R. Baumgartner, a near neighbour and an old friend, was at once summoned, and shortly afterwards his colleague and intimate friend, Sir Thomas Oliver, was called in consultation. Their patient, who had somewhat rallied from the shock, was still in a condition of incomplete coma, from which he could only be partially roused, but the paralysed right arm, leg, and face all too clearly pointed to the fact that a serious cerebral haemorrhage had taken place. The coma deepened, and at 10.45 the same evening Sir George breathed his last. His nephew, Mr. John Philipson, was in close attendance upon him, as also his butler, to whom, after twenty-eight years' service, he was much attached.

Sir George Philipson, who was a bachelor, belonged to an old Newcastle family. He was proud of his origin, of the city of his birth, and of the county of Northumberland. A son of the late Mr. George Hare Philipson of the firm of Messrs. Atkinson and Philipson, carriage builders, Newcastle, he was born on May 18th, 1836. At the time of his death he was, therefore, nearly 82 years of age. He was educated at University College, London, and at Gonville and Caius College, Cambridge; he graduated B.A. with honours in the Natural Science Tripos and took the M.B. in 1862; in 1865 he proceeded to the higher degrees in

arts and medicine. In 1873 he became a Fellow of the Royal College of Physicians. He was an Hon. D.O.L. of Durham University and LL.D. of Glasgow.

Although Sir George in his earlier years wrote several papers on medical subjects and gave the Bradshaw Lecture at the Royal College of Physicians in 1884 and was held in high esteem in the North of England as a consulting physician, his best work, and that for which he will be longest held in grateful remembrance, was done in and for the Royal Victoria Infirmary and for the medical charities of his native city. His appointment as physician to the infirmary dates back to April, 1868, but for four years previous to this he had acted as pathologist to the institution. It was a fitting recognition of his fifty years' service to the infirmary that in 1915 he was presented by the staff and the house committee with some silver plate. The duties of the office of chairman of committee he continued to discharge. He was an excellent chairman—patient in listening to other speakers and sound in giving advice. He took an active part in the building of the new infirmary. At the laying of the foundation stone, owing to the illness of the chairman, it fell to Sir George Philipson as vice-chairman to receive King Edward, then Prince of Wales, and to read the address of welcome. It was a proper sequel to this event that when, a few years later, the new infirmary was opened he should again have been brought into close association with His Majesty. Sir George received the honour of knighthood in 1900. He was a distinguished Freemason. He did not join the craft until well on in life, for it was in 1890 that he was inducted into the Universities Lodge. Rapidly passing through the Chairs he became Prov. S.G.W. of Durham in 1891, and two years afterwards he was largely instrumental in founding the University of Durham Lodge.

He was the representative of the University of Durham on the General Medical Council since 1892, and although he rarely took part in the discussions of that body, he was a most useful member of its committees.

By his death Newcastle and the North of England have sustained a great loss. There were few movements of a medical and philanthropic nature with which his name was not associated. He was extremely methodical and punctilious. One of his most striking features was his courteous manner. In matters of ceremony he was unsurpassed as regards knowledge of procedure and precedence. To all ceremonial events he lent a particular grace and dignity. His treatment of all persons, irrespective of rank and social worth, was alike gentle and considerate. Behind an old-time manner which was peculiarly his own, there was yet a strength of will which could make itself felt when occasion required. For over four decades he occupied the Chair of Medicine in the University of Durham. When vice-chancellor of the university it fell to his lot to induct into office the present chancellor, the Duke of Northumberland.

He was an active member of the British Medical Association. For fifteen years he acted as local secretary, a post he vacated on being made president of the Branch. At the Worcester meeting of the Association he was a vice-president of the Section of Medicine. He occupied the presidential chair when the Association met in Newcastle in 1893. Those members of the profession who attended the public meeting in Newcastle to listen to the president's address may remember how, on the occasion of welcoming on the platform the colonial and foreign delegates, there occurred a contest of courtesies between himself and Professor Pozzi, of Paris. It was a trial of bowing acknowledgements, and as to whom the last bow would belong. Notwithstanding the deference and the politeness of the Frenchman, Sir George had the last bow, at which the meeting cheered, Newcastle having won. In this little episode was exhibited that urbanity which was so strikingly his own.

A special memorial service was held at St. Nicholas Cathedral on Monday last which was attended by the Lord Mayor and the Corporation, the city magistrates, the professors of the University of Durham, of the College of Medicine, and Armstrong College; by the graduates and undergraduates of the university, the medical profession, representatives of the various medical charities with which he was connected, as well as by officers and men of the O.T.C. in khaki. The body was carried shoulder high by students of the College of Medicine from the cemetery gates to the family vault.—T. O.

SIR JAMES ALEXANDER RUSSELL, M.D., LL.D., F.R.C.P.E., F.R.S.E.,

ONE-TIME LORD PROVOST OF EDINBURGH.

JAMES ALEXANDER RUSSELL, a son of the manse and born in Argyllshire in 1846, was 21 when he graduated with honours in the University of Edinburgh, a time when the chairs were adorned by Syme, Simpson, Bennett, and Christison, but it was Goodsir who impressed him most. It was to anatomy, therefore, that he attached himself; he remained assistant and demonstrator with Turner in the university till 1876. Those who remember him recall him as a keen student, fond of all sorts of scientific problems, careful and exact in argument, and ready of speech. It was perhaps on account of these attainments that he left the serene atmosphere of the university for the more active and troubled sphere of municipal and general politics.

Though he early severed his immediate connexion with medicine, yet throughout his life he maintained a most profound interest in medical and scientific problems, and perhaps in the part he chose he did as much for the progress of medicine in the city of Edinburgh as many of those who remained entirely devoted to purely professional work.

Before entering on municipal work he studied sanitation for two years in France, and acquired a fluency in the language which stood him in good stead in after years. On his return he delivered a series of lectures on sanitation, which perhaps more than anything else brought him in touch with his future work. When he entered on municipal work he was an instant success. His intimate knowledge of medicine, public health, and sanitation placed him at once on a platform above his colleagues, and gave him a unique opportunity of serving his city, of which he made ample use. The work in the improvements of housing and sanitation generally in the city, much of which was carried out on his initiative, remains a monument to his capacity and industry, and has done much to raise the moral and social status of Edinburgh.

Russell entered the town council of Edinburgh in 1880. He became a member and afterwards chairman of the health committee, and during his tenure of office the health and amenity of the city improved immensely. He undertook the organization of the New Fever Hospital, which is one of the largest and best equipped in the kingdom. He devoted himself heart and soul to health work, and gradually rose in the council from one position to another, until he ultimately reached the civic chair, which he adorned for the usual term. During his occupancy of that chair the profession of medicine in Edinburgh came to its kingdom, for to every medical institution and to all medical charities he gave not only his own personal encouragement as Lord Provost, but that of the civic authorities as well; and the members of the profession themselves enjoyed his generous hospitality. He was amongst the first, if not the very first, medical Lord Provost of Edinburgh, and it would be a very great advantage to that city, and not to that city only, if men of his calibre, with his scientific and medical knowledge, who had leisure at their disposal, would grace such chairs again.

The university, recognizing his great work in regard to the fever hospital and the clearing of the city of many of the more objectionable slums, as well as his work in sanitation generally, conferred on him the degree of LL.D., and shortly after Queen Victoria bestowed on him the honour of knighthood. He was an active Fellow of the Royal Society of Edinburgh and took a keen interest in its work and debates. He was also a Fellow of and examiner in the Royal College of Physicians. Russell kept up his relation with anatomy to the very last, because for a long period of years he was inspector of anatomy and vivisection for the whole of Scotland—an appointment which involved often much delicate work, and which he performed with his usual tact and ability.

He was not a very prolific writer, but he wrote two excellent papers—the one on the Morse alphabet and the other on sanitary houses—and made several contributions to the Royal Society of Edinburgh.

In politics he was a Liberal. He was most genial and kind-hearted, whether at a board meeting, a social party, or in private, and, what is most important in a public man, he was most easy of approach.

On previous occasions he had suffered from bronchitis,

and to this, along with heart failure, he succumbed on January 22nd, after four days' illness.

Sir James Russell was twice married, and is survived by Lady Russell and one daughter. He was buried in the Dean Cemetery, the last resting place of so many of Edinburgh's honoured citizens.

H. C.

CHARLES TEMPLEMAN, M.D., D.Sc.,
M.O.H. DUNDEE.

WE regret to announce the sudden death of Dr. Templeman on January 20th, at the age of 59. He was a native of Blairgowrie and was educated at Dundee High School, where he was medallist in classics, and at Edinburgh University, where he graduated M.B., C.M. in 1879, and subsequently became M.D. and D.Sc. in Public Health. He was resident to Professor Annandale and later in Dundee Royal Infirmary, to which he afterwards became visiting surgeon. After a period of general practice, he, over twenty years ago, became medical officer of health and police surgeon as a whole-time official. He was also lecturer in Medical Jurisprudence and Public Health in the University of St. Andrews. At the time of his appointment the department of the sanitary inspector was separate from the health office, and in the co-ordination of the two departments and in the multifarious developments which the preventive services have undergone since then Dr. Templeman took an active and highly-appreciated part. As a friend Dr. Templeman was distinguished by his geniality and hospitality, as a colleague he was valued for his keenness in his own work and for his tact and readiness to co-operate and to assist in those relations which brought contact with his fellows, and as a teacher he was appreciated for his clearness, for the conscientiousness with which he met his duties, and for the wealth of illustration which his long experience as police surgeon furnished for illuminating the technicalities of medico-legal affairs. He secured early and maintained the regard of his local authority as a competent, cautious, and wise officer, of wide outlook and progressive spirit.

DR. FRANK ROTHERA, who died on January 5th from double pneumonia, aged 56, was the youngest son of the late Mr. George B. Rothera, solicitor, of Nottingham. He received his medical education at Edinburgh University, and graduated M.B., C.M. in 1883 and M.D. in 1887; he also took the diploma of M.R.C.S.Eng. in 1885. After a short experience in general practice in Devonshire, Dr. Rothera settled at Beeston, where he was eventually appointed medical officer to the Beeston Urban District Council, which post he held at the time of his death. He was a member of the Nottingham Division of the British Medical Association.

THE sudden death of Dr. CHARLES VALLANCE VEREKER whilst returning from visiting a patient caused universal regret in Woolton, where he had practised for many years. He was the son of the chief cashier of the Bank of Ireland, was born in Dublin, and studied at Carmichael College, Dublin. After taking the diplomas of L.R.C.P. and S.I. in 1890 he became resident medical officer at Adelaide Hospital in the same city. Two years afterwards he settled in practice in Woolton, then a residential suburb of Liverpool, and became a member of the Liverpool Medical Institution in 1892. Dr. Vereker was a capable practitioner, and to a cheery exterior added a personal charm which, as an appreciative notice in the *Liverpool Daily Post* stated, made all his patients his friends. He was M.O.H. for Woolton and honorary medical officer to the Woolton Military Auxiliary Hospital. Dr. Vereker was not married, but leaves two brothers and many sorrowing friends to mourn his loss.

WE regret to announce the death on January 18th, from pneumonia, of Mr. FERGUS MENTFITH OGILVIE, F.R.C.S., of 72, Woodstock Road, Oxford. Mr. Ogilvie was the son of the late Alexander Ogilvie, of Sizewell House, Suffolk. He received his medical education at Cambridge University and St. George's Hospital, obtaining the M.R.C.S. and L.R.C.P. diplomas in 1888 and the F.R.C.S.Eng. ten years later. He graduated M.B., B.C. in 1890. After holding the posts of chief clinical assistant at the

Royal London Ophthalmic Hospital and the Royal Westminster Ophthalmic Hospital and ophthalmic assistant and assistant demonstrator of anatomy at St. George's Hospital, Mr. Ogilvie went to Oxford in 1899, and in the following year entered into partnership with the late Mr. R. W. Doyne, and became acting assistant surgeon to the Oxford Eye Hospital. About 1905 he retired from private practice and was appointed consulting surgeon to the hospital, where his services will be greatly missed. He contributed a number of papers to the *Transactions* of the Ophthalmological Society between 1896 and 1906. Mr. Ogilvie's mother founded the Margaret Ogilvie Readership in Ophthalmology in the University of Oxford. He was a keen fencer and a generous supporter of the Oxford Fencing Club, of which he was subsequently elected president.

LIEUTENANT-COLONEL WILLIAM HENRY QUICKE, Bombay Medical Service (retired), died in a nursing home at Reigate on January 20th, aged 59. He was educated at Westminster Hospital, took the M.R.C.S. and L.S.A. in 1880, graduated M.D.Brussels in 1882, and took the F.R.C.S.Eng. in 1896. After filling the posts of resident medical officer at Queen Charlotte's Lying-in Hospital, and of assistant obstetric physician at Westminster Hospital, he entered the I.M.S. as surgeon on March 31st, 1883, becoming surgeon-major on March 31st, 1895, and lieutenant-colonel on March 31st, 1903, and retiring on April 25th, 1911. He served in the Zhob Valley expedition on the North-West frontier of India in 1884, and was present at the affair at Daulatzai, and in the third Burmese war in 1885-86, receiving the frontier medal with a clasp. Most of his service was spent in civil employ in Bombay, where he was acting port health officer in 1888-89, and civil surgeon of Kaira in 1890-92. In April, 1893, he was appointed surgeon to the Jamsetji Jijibhai Hospital in Bombay, and professor of anatomy and curator of the Museum in the Grant Medical College, and in November, 1903, became professor of surgery and first surgeon to the hospital.

The Services.

OFFICERS, SPECIAL RESERVE AND TERRITORIAL, R.A.M.C.

A SECOND report of the Committee on the Promotion of Officers of the Special Reserve, New Armies, and Territorial Force, issued this week, deals with the promotion and rates of pay of officers of the R.A.M.C. Special Reserve and Territorial Force, and it is notified that the Government has approved and is taking action on the recommendations, with one exception. The recommendations approved are (i) that the regulations regarding increments of pay shall remain as at present, (ii) that a general list shall be introduced for the Territorial Force field ambulances and regimental medical officers, (iii) (a) that the promotion of officers belonging to general hospitals shall continue as at present, with the proviso that when *à la suite* officers leave the hospitals for other employment they shall be held supernumerary, and the consequent promotions made, and (b) that the promotion of officers belonging to sanitary companies shall continue as at present, but that a general list for sanitary companies shall be introduced at a later date, (iv) that majors R.A.M.C. (Special Reserve) shall be linked with majors of the regular R.A.M.C., and be eligible for promotion, provided they are duly recommended, when the regular officer next below them is promoted, and (v) that "the selection of officers for administrative medical positions should continue to be made from the R.A.M.C. as a whole." The recommendation of the committee not accepted by the Government was that "officers R.A.M.C. Territorial Force and Special Reserve, who joined before the war, should be put on a level with temporarily commissioned contract officers as regards pay, allowances, and gratuities, where they would gain thereby."

The recommendations, it will be seen, leave untouched some of the points to which the British Medical Association called attention in its memorandum furnished to the Committee last May. It is of interest to note that the report of the Committee contains the following paragraph: "We hope and believe that the British Medical Association and other corporate bodies concerned with the welfare of the profession will do their best to ensure that their members may suffer as little as possible in the future from their enforced absence on military service. Among

other classes and avocations there has been a similar call for material loss and sacrifice which is inseparable from any 'one-man' business, and the medical profession, though conspicuously entitled to credit and consideration, does not stand alone in this respect."

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS.

At a meeting of the Committee of the above fund, on January 25th, the following two cases were considered:

Widow of a captain in the Auxiliary R.A.M.C. who died in France after two years' service. Applicant is training for a nurse in a maternity hospital. Granted £10 at once and another £10 in March.

Widow of a private in the R.A.M.C. who was drowned while on active service. Left with two children, ages 2 and 4. Only income army pension. Voted £5.

Major Ewen Maclean was reappointed chairman of the committee, and Colonel Hale White and Colonel Mansell Moullin commenced their duties as honorary secretary and honorary treasurer. The committee are anxious to receive applications for the relief of the orphans of commissioned officers in the Auxiliary R.A.M.C., also from the widows and orphans of non-commissioned officers and men in the same service.

Donations and subscriptions will be gratefully received, and should be addressed to the Honorary Treasurer, at 11, Chandos Street, Cavendish Square, W.1, and all other communications to the Honorary Secretary at the same address.

EXCHANGES.

R.A.M.C.(T.F.) Captain, M.O. in charge of troops, R.A. barracks, is desirous of changing over from shore to sea duties.—Address No. 450, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

AN officer in the Southern Command wishes to exchange with one in the London district.—Address No. 449, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

COLONELS Sir T. Crisp English, K.C.M.G., A.M.S., and Sir J. Purves Stewart, K.C.M.G., C.B., A.M.S., have been appointed Knights of Grace of the Order of the Hospital of St. John of Jerusalem in England.

THE report of the Special Committee appointed by the Central Control Board (Liquor Traffic) to inquire into the physiological effect of alcohol has been settled, and its publication is expected before the middle of February.

THE Lettsomian lectures on jaundice before the Medical Society of London will be delivered by Colonel William H. Willcox, C.B., C.M.G., A.M.S., as early as possible, and Dr. T. B. Hyslop will deliver the annual oration on May 13th at 9 p.m.

SIR ALNBROTH WRIGHT will deliver a lecture on the method of testing and judging the divers forms of wound treatment, at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, February 13th, at 5.30 p.m. The chair will be taken by the president, Sir Rickman J. Godlee, and the Director-General, A.M.S., Sir Alfred Keogh, G.C.B., intends to be present.

ONE of the main objects of the Central Association for the Care of the Mentally Defective is to give advice to parents and friends of individual defectives and to form throughout the country representative local voluntary associations to visit defectives in their own homes and advise the parents. It has arranged to hold a conference at the Guildhall, London, on Tuesday next, when the chair will be taken by Mr. Leslie Scott, K.C., M.P., at 10.15 a.m.

BREAD tickets came into force in Paris and its suburbs on January 23th. The system will be applied to the whole of France on March 1st. The ration is 300 grams (10½ oz.) a day. The reasons assigned for making this ration compulsory are two: first, the necessity of meeting the requirements for seed grain of farmers who are putting larger areas under wheat; and secondly, the demands on shipping caused by the transport of American troops to France.

MESSRS. H. K. LEWIS AND CO. ask us to state that all the copies of Binnie's *Regional Surgery*, vol. i, which had been announced for immediate publication, have been lost at sea through the wreck of the ship that was bringing them from America. Copies of Gould's *Pocket Medical Dictionary* and Stitt's *Tropical Diseases and Practical Bacteriology* were lost at the same time. The same publishers have nearly ready the sixth edition of Dr. H. Lewis Jones's *Medical Electricity*, revised and edited by Dr. L. W. Bathurst.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology, Westrand, London*; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES.

MORBID FLUSHING.

AFFLUXUS asks for suggestions as to treatment in the case of a lady, aged about 45 years, with delicate skin and complexion, who has suffered since girlhood from an increasing intense flushing of the skin of the cheeks, temples, and neck, provoked by any deviation from the ordinary daily routine.

. This subject was discussed at some length in these columns a few years ago. The conclusion seemed to be that there is no specific that will cure this condition; it is a question of overcoming the reflex by practice. For the most part the treatment is a matter of auto-suggestion in which the assistance and encouragement of the medical man are important factors.

INCOME TAX.

A MEMBER is serving as captain in the R.A.M.C., and inquires as to the liability of his wife's income as matron of a military hospital.

. The joint income of husband and wife presumably exceeds £500, in which case separate abatement cannot be claimed, and the wife's pecuniary emoluments are liable to assessment. Our correspondent does not state the precise nature of his wife's appointment, but the special service rate—for example, 1s. 9d. in place of 2s. 6d.—applies if she is "paid out of money provided by Parliament," or is "serving in any work abroad of the British Red Cross Society, St. John Ambulance Association," or similar bodies.

"BEAT" HAND.

A CORRESPONDENT inquires whether there is any different procedure in the case of a miner and other industrial workers suffering from "beat" hand (cellulitis), and if so, what is the reason for the difference.

. The industrial diseases known as beat hand, beat elbow, beat knee are scheduled as such in the Workmen's Compensation Acts to apply solely to the occupation of mining. Consequently, only a miner, if suffering from these disorders, can apply to the certifying factory surgeon for a certificate of disablement, either employer or workman having the liberty of appeal through the registrar of the county court to a medical referee if dissatisfied with the certifying surgeon's certificate. Should the disorders arise in any other employment, the workman so disabled must establish, to the satisfaction of the county court judge, by the usual county court proceedings, that the condition followed personal injury by accident arising out of and in the course of the employment. The reason the simple procedure applies to mining is that beat hand, beat elbow, beat knee are considered specific to the employment of mining. If any trade can show that these disorders are so prevalent among the workmen as to be specific to that trade or employment, the matter should be brought to the notice of the Home Office for the purpose of having that trade or employment added to the schedule.

ANSWERS.

SPECIALIST PAY.

S. S. O.—In respect of their remuneration, officers in the army fall into two distinct classes. Class I receive what is known as consolidated pay, which covers the whole of their work, whatever it may be, and does not vary so long

as they are doing the work in question. Class II is remunerated partly by pay and partly by allowances. In the Army Medical Department one of the allowances is known as specialist pay. This can be obtained by an officer who makes a special study of certain subjects, passes the army examinations therein, and then succeeds in obtaining an appointment in which he devotes himself to the specialty in question. Surgery is one of those subjects and sanitation is another. The specialist pay was introduced for the purpose partly of encouraging army medical officers to continue to study professional subjects, but mainly in order to provide the army with its own specialists. It is not the obtaining of a certificate as a specialist that entitles an officer to specialist pay, but the obtaining of an appointment open to a specialist, which has been directly approved by the War Office through the officer in command of the locality or the division of the army concerned.

Temporary R.A.M.C. officers serving under contract would seem to fall into Class I. Their contract pay of 24s. a day, a higher rate than that drawn by lieutenants and captains (even when the allowances of the latter are included), is a composition rate, and covers the whole of their work. Nevertheless, the practice has arisen abroad of granting contract officers additional pay when they are holding specialist appointments in the same circumstances as would entitle regular officers to such pay, despite the fact that they have not "qualified" in such subjects after joining the army. Consequently, it might be worth while for our correspondent to make an application for specialist pay through the P.M.O. of his area.

LETTERS, NOTES, ETC.

CIVIL SURGEONS IN MILITARY HOSPITALS.

MALTA writes: Civil surgeons (Maltese) in military hospitals in Malta wear the ordinary officer's uniform, but with the St. John badge on the collar. They do not wear a Sam Browne belt.

MEAT, FISH, AND PEASE.

THE *Westminster Gazette* has found in a letter from Dr. Johnson to Mrs. Thrale the following statement, which may make some of us who are disposed to grumble at two meatless days blush: "Last week I saw meat but twice and I think fish once; the rest was pease."

EAST LONDON HOSPITAL FOR CHILDREN, SHADWELL.

MISS ADELAIDE ROW is retiring from the post of Matron to the East London Hospital for Children, Shadwell, E. A number of those who have worked as residents or nurses at the hospital during the thirty-five years she has been connected with it have asked to have an opportunity of expressing their regard for her, and the exceptional success of her administration, but there are doubtless many others who would like to contribute to the testimonial which it has been decided to raise. Subscriptions will be acknowledged by Mr. W. M. Wilcox, secretary, at the hospital.

THE CAUSATION OF SEX IN MAN.

W. E. L. writes: With reference to the note by Dr. J. Singleton Darling, M.D., in the *JOURNAL* of January 26th, p. 135, I should like to know if Dr. Darling is absolutely certain beyond all possible doubt that not even a particle of the left ovary was left in the broad ligament. I have proved Dr. Rumley Dawson's theory correct in 81 out of 87 cases.

THE BASLE ANATOMICAL NOMENCLATURE (B.N.A.).

B.A.OXON. writes: For the last four or five years the Basle anatomical terminology has been finding increasing favour amongst students of anatomy, but now a reaction in favour of the old terminology appears to be setting in. It is not my intention to enter into a discussion on the relative merits of the two terminologies, but perhaps I may be excused if I quote a brief extract from Professor Arthur Robinson's preface to the fourth edition of *Cunningham's Anatomy*. He says (writing in April, 1913): "It is scarcely necessary, to-day, to urge reasons for the use of the Basle nomenclature, for it is now generally recognized, not only that it is based on sound general principles, but also that it is, at the same time, less cumbersome and more definitely instructive than the terminology previously in use in this country." Surely it is time that the profession decided which terminology is to be taught in the various medical schools in the United Kingdom. The situation at present is impossible. All the latest editions of the textbooks contain the new terminology, and yet the vast majority of teachers of anatomy continue to use the old. The result is that the unfortunate student has to learn both—an unnecessary tax upon his already overburdened memory, especially at a time when he is urged to qualify in the least possible time.

*. The views of those teachers of anatomy in this country who are indisposed to countenance the anatomical nomenclature adopted by the German Anatomical Society at its meeting in Basle in 1895 were fully stated by Professor Arthur Keith in the *BRITISH MEDICAL JOURNAL* on July 28th, 1917, p. 134, and in that issue an editorial article on the subject was published (p. 121).

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND. The following subscriptions to the Fund have been received during the week ending Monday, January 28th:

	£	s.	d.		£	s.	d.
Lient.-Col. J. G. Adami,				Sir Thomas Barclay ...	20	0	0
A.D.M.S. ...	2	2	0	"Clandius Civilis" ...	6	0	0
Dr. J. Tremlett Wills ...	5	5	0	Mr. Walter Hills ...	5	3	0
Jersey Medical Society				Dr. J. H. W. Laing ...	1	1	0
(per Dr. O. C. Powell)	2	2	0	Major Charlesworth ...	2	2	0
Dr. Florence Stonay ...	2	2	0	Dr. J. Auriol Armitage...	5	5	0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE STERILIZING OF HYPODERMIC SYRINGES.

DR. C. D. SOMERS (Aldeburgh) writes: In selecting the best method for sterilizing syringes, it has to be remembered that besides sterilizing the syringe one has to remove all traces of the sterilizing solution in case it affected the serum that is about to be used. The quickest and best way is to place the syringe into methylated spirit and then burn it off, or else to boil the syringe in methylated spirit, but for this a sand bath is necessary and is not applicable for the bedside. Now that it is so difficult to obtain methylated spirit I should be most grateful if I could discover some solution that is safe and quick in action; but, for reasons stated above, I should be afraid to use the solution recommended by Dr. Lyon Smith, not that any harm would be done, but in the case of vaccines the desired effect would not be obtained.

AN ERRANT FISHBONE.

DR. I. DAVID (Colombo) writes: The following notes on a case of a fishbone accidentally swallowed and said to have been expelled per urethram after two years and five months were read before the Ceylon Branch of the British Medical Association on November 19th, 1917: A respectable, intelligent patient of mine, aged 40, of Jewish descent, consulted me on April 30th, 1915, because he had accidentally swallowed a fishbone while eating his dinner. As he showed no serious symptoms which called for interference, I advised him to leave it alone; but without consulting me he took a strong purgative the next day. On May 2nd, three days after the accident, I was sent for again. On arrival I found him suffering from a severe pain in the back and lower abdomen, most intense in the region of the bladder. The urine passed was muddy and mixed with blood, and his temperature was 102° F. I diagnosed the case as acute cystitis, and put him on the usual treatment. He got over the attack in about two weeks. He had a second attack of cystitis on September 9th, 1916, and a third attack on April 9th, 1917, which lasted for one month, and a fourth attack on September 5th, 1917. During each attack he suffered severely from difficult and painful micturition. On September 15th, while having a hot hip bath, he found it extremely difficult and painful to micturate, but by straining and massaging the perineum with the fingers, a fishbone (triangular in shape, $\frac{1}{2}$ in. by $\frac{1}{2}$ in., thin and sharp-edged) is said to have appeared at the external urethral meatus with free bleeding. The bone presented with its apex foremost with its body folded lengthwise. The patient was able to extract it for himself. I was sent for at once and shown the bone. I have not the slightest reason to doubt the statements made to me by my patient, whom I had known for more than seven years. Evidently the fishbone entered the bladder on May 2nd, 1915, from the rectum through the space intervening between the peritoneal fold and the prostate, or by some other route, and remained in the bladder for twenty-nine months, until expelled as described above.

U.S.A. MEDICAL CORPS.

A NEW section of the office of the Surgeon-General of the United States army has been established charged with the duty of providing moving pictures or slides of camp activities relating to the work of the medical department. The films and slides are to be available for purposes of instruction in medical schools, officers' training camps, and the National Guard and National Army camps.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

POSSIBLE PITFALLS IN LIFE ASSURANCE EXAMINATION,

AND REMARKS ON MALINGERING.*

BY

F. PARKES WEBER, M.A., M.D., F.R.C.P. Lond.

In thanking the society for electing me its President, I feel that it must be a difficult task for me to occupy worthily a post which has been in turn held by my father, by one of my distinguished masters at St. Bartholomew's Hospital, and by several others whom I admire and honour.

EXAMPLES OF DISEASE WHICH MAY ESCAPE DETECTION AT LIFE ASSURANCE EXAMINATIONS.

Arterial Hypertension, with or without Granular Kidneys.

—It is certainly quite easy at a single examination to overlook a case of hypertension if one does not employ the sphygmomanometer, even when the brachial systolic blood pressure is as high as 190 or 200 mm. Hg. Here we have the grave risk of premature death from such causes as cerebral haemorrhage, etc. In many cases the urine may be found on repeated testings to be free from albumin, and tube casts may be absent, or only one or two hyaline casts may be discovered by the help of the centrifugal machine, as they may be sometimes in the urine of healthy persons. Ophthalmoscopic examination may likewise show nothing abnormal in this class of cases. The heart may not appear enlarged by ordinary examination, notably in fat or fleshy subjects; moreover, a moderate amount of pulmonary emphysema may mask hypertrophy of the left ventricle.

Disease of the Myocardium or Coronary Arteries of the Heart in Syphilitic Subjects.—In early cases, without knowing the subjective symptoms, one may easily overlook disease of this nature at a life assurance examination. Moreover, a history of past syphilis may not be forthcoming. The Wassermann reaction is not likely to be taken. A first attack of angina pectoris may be fatal. Other grave symptoms of myocardial disease may suddenly develop in young or middle-aged individuals. Sometimes considerable areas of the cardiac wall undergo degenerative changes owing to obstruction in their supply of arterial blood, and then death is likely to occur rather suddenly before a true cardiac aneurysm has developed.

Malignant tumours in the thorax or abdomen may easily be overlooked in an early stage of their development, especially at a single examination. Symptoms regarded as connected with ordinary dyspepsia may signify commencing cancer of the stomach. In some cases the persistent absence of free hydrochloric acid in the contents of the stomach after a test breakfast might have furnished valuable evidence as to the nature of the case, though it must be admitted that free hydrochloric acid is probably more often absent in non-malignant conditions than is ordinarily supposed. It is not surprising that an operation for a malignant tumour in the abdominal viscera may occasionally be heard of in bona fide cases not long after acceptance for life assurance, even when there was no suggestion of a tumour being present at the time of the life assurance examination.

Disease of the suprarenal glands, notably primary malignant disease (malignant hypernephroma), may escape recognition at first. Tuberculous disease, with caseous degeneration, in one or both glands, is often not recognized, even if there are asthenic symptoms, before the characteristic cutaneous pigmentation of Addison's disease has developed. The following case bears on the question of the difficulty in the diagnosis of "latent Addison's disease," with asthenic symptoms and delayed recovery from infections, before the typical cutaneous pigmentation has developed.

In December, 1899, I saw a man, aged 24, suffering from a pyrexial attack, which was regarded as influenza. The illness was accompanied by some pleurisy at the left base, and was followed by remarkable debility. Several medical consultations were held, and gradually he apparently recovered. In 1901, when shooting in India, he was attacked by malaria, probably not a particularly severe attack, and was sent up to the hill station of Darjeeling. There his condition was one of great

asthenia without fever, and he had syncopal attacks, in one of which he died. Some pigmentation was observed in India, though none had been noted during the illness in England. A most careful *post-mortem* examination was made, and in a report sent over to a life assurance office in England it was stated that the suprarenal glands contained yellow caseous material and calcareous plates, and were matted together across the aorta. It seems to me that suprarenal disease (latent Addison's disease) was probably the true explanation of the asthenic condition connected with convalescence from the previous illness in England, and was perhaps also present when his life was heavily assured at ordinary rates by a great English life assurance company before the illness in question. More than one English company was affected by his early death.

Cirrhosis of the liver is sometimes very hard to detect, especially in fat or apparently well-nourished persons, with thick abdominal walls which make palpation of the liver or spleen difficult. In such cases the disease, though it may have had an ordinary alcoholic origin, may be not only quiescent, but also actually latent. When the abdominal walls are thin or flabby, the hardened liver generally seems enlarged to palpation, even when it is in reality more or less atrophic. Evidently the position of the liver is changed in such cases, for the lower margin can usually be felt projecting below the costal margin. Slight enlargement of the spleen can often likewise be made out, and this, together with an occasional subicterio tinge of the conjunctivae, and perhaps (when present) relatively dark-coloured urine, and excess of urobilin in the urine, may facilitate the diagnosis.

Splenic Enlargement.—Every medical examiner knows the difficulty in regard to slight chronic enlargement of the spleen, when the enlargement is not certainly the result of malaria. I suppose no candidate for life assurance with great enlargement of the spleen would be accepted, whatever the nature of the enlargement might be. I may draw attention here to a certain rare class of cases of splenomegaly. A young woman, or a young man, suddenly complains of considerable pain in the upper part of the abdomen, possibly accompanied by temporary fever and a little ascites. The ascites soon disappears, but the spleen is found to be enlarged, and there is probably slight anaemia. Soon the pain passes off, the patient feels well, and there may be no anaemia, but more or less enlargement of the spleen persists. In some cases there may be a little early haematemesis. Later on the patient may seem and feel as well as any healthy person, in spite of the persistence of the splenomegaly. After a year or two the blood count will probably show nothing abnormal excepting moderate leucopenia. For the clinical aspect of the case at this stage I have suggested the term "anaemia splenica sine anaemia." Sooner or later, however, grave haematemesis is likely to occur, and the case will then probably be diagnosed as one of splenic anaemia or Banti's disease. But in this class of case, as *post-mortem* examination shows, the real cause of the splenic enlargement, haematemesis, etc., is a kind of pylophlebitis adhaesiva, with resulting obstruction in the splenic and portal veins.† The obstruction to the return of blood from the spleen may become compensated, and the disease may remain quiescent for a long period, but fresh attacks of thrombosis in the portal vein are apt to occur, ultimately leading to complete obstruction. There may or may not be a history of traumatism at the commencement of the disease, and the etiology of the thrombo-phlebitis in these cases has not been satisfactorily explained.

Pulmonary Tuberculosis.—I need scarcely mention the well-known danger at single life assurance examinations of failing to recognize the presence of early pulmonary tuberculosis, especially when, for one reason or another, the medical examination is somewhat hasty or incomplete. Early cases are by no means always the most favourable cases of pulmonary tuberculosis. Apart from the general nutrition and build (and possibly the family history) there are no data at first to help one to form an opinion as to how the disease is likely to progress or how efficient ordinary hygienic and therapeutic measures are likely to prove to be. On the other hand, in old cases, and after the disease has been under observation for a considerable time, the resistance of the patient has been more or less estimated. When a person is not overwhelmed by the disease, even when it has considerably progressed, the power of gradually acquired resistance and compensation

* Presidential address before the Assurance Medical Society, January 9th, 1918.

† For one of many typical examples of this kind of case see F. Parkes Weber, *Proc. Roy. Soc. Med., Clinical Section*, 1916, vol. ix, pp. 1-6 (including the discussion which followed the paper).

may prove to be tremendous. A man may be slowly "chased through life" by the disease and yet live to a fair, or even old, age. The disease, although very advanced and after extensive cavernous formation has taken place, may ultimately become quite quiescent or obsolete, and death may occur from other causes.

In September, 1909, I saw a gentleman (W. M. M.) with extensive cavernous signs over the upper part of the left lung, back and front. He was 67 years old, but looked rather younger. Cavity formation had occurred, according to the history, in the upper part of the left lung after an attack of measles at the age of 16 years. At 38 years of age he is said to have had a bad "cold" so that "the hole in his left lung got disturbed," and the pulmonary tuberculosis became active again. Since that time he had been much abroad, in Egypt, Malta, the West Indies, and Madeira, but especially in the Canary Islands. For some time he had had a house near Las Palmas in Grand Canary. A tragical complication for the patient was the death of his wife (to whose devoted attention he owed so much) by suicide, a few months before I saw him, in 1909. He died at Pau in January, 1913, aged 70.

Diabetes Mellitus.—When diabetics are passed in life assurance examinations the most probable reason is neglect or mistake in urine examination, but it must not be forgotten that by means of the modern fasting treatment the urine can often be rendered temporarily free from sugar in the case of young patients (often apparently well nourished), precisely those who are almost certain to die early from diabetic coma. Such cases would, I believe, often be passed, if fraudulently sent up for life assurance examination after a preparatory course of fasting treatment. In 1909, before the general introduction of the treatment of diabetes mellitus by Allen's fasting method ("alimentary rest"), the urine in a grave case under my care was temporarily freed from sugar in the following way:¹

The patient was a young woman, aged 23 years, an in-patient at the hospital. The sugar in the urine was reduced by dieting to about 70 grams for the twenty-four hours. On September 10th, 1909, the diet was temporarily limited to 200 to 300 grams of olive oil in the day, with as much water as was wished, and a codein-phosphate pill (which the patient had been taking three times a day) was continued. As a result of this "disguised starvation" method sugar completely disappeared from the urine on September 12th. On September 13th I ordered a return to the special diet which she had previously been having for her diabetes, and on the next day the urine was found to contain 4.5 per cent. of sugar. During the days of exclusive olive oil diet the patient did not feel hungry or as if she was being starved. Once or twice the oil, she stated, made her feel a little sick, but she looked well and had her usual, somewhat florid, complexion. She lost only about 4 lb. in body-weight. She was not emaciated, and, on the whole, gained weight whilst she was in the hospital.

This case was certainly one of grave diabetes mellitus, and afterwards died, as I heard, from diabetic coma, but surely a life assurance examiner, had he examined her when the sugar disappeared, might have been deceived.

Syphilis and So-called Parasyphilis of the Nervous System.—Nervous syphilis is supposed by some to have become relatively more frequent since the introduction of the methods of treatment by salvarsan and neo-salvarsan. The blood serum and cerebro-spinal fluid are naturally very seldom (if ever) tested, regarding the Wassermann reaction, for purposes of life assurance, and it is quite possible that persons actually suffering from headache, etc., connected with commencing nervous syphilis, may occasionally be accepted for life assurance. Future statistics of the great life assurance companies as to the causes of death in early claims will doubtless throw some light on these questions. Similarly, persons with commencing tabes dorsalis or general paralysis must sometimes be unwittingly accepted for life assurance—especially if no history of previous syphilis is forthcoming. I doubt whether as yet Argyll Robertson pupils are sufficiently examined for and the knee-jerks tested as a routine part of life assurance examinations. But occasionally at (several) repeated examinations knee-jerks cannot be elicited in neurasthenic, and even apparently quite healthy, individuals. One must acknowledge that tabetic symptoms, such as tabetic pains, tabetic paraesthesiae, gastric crises, and tabetic urinary troubles, are frequently supposed to be due to other causes. It may be noted, however, that patients with tabes dorsalis often live a long time, and in some cases the life assurance companies would not be losers if tabetics were accepted by mistake. Tabetics in whom optic nerve atrophy occurs early seem often to have

a relatively mild form of the disease in other respects—so much so that, I believe, in France, about Charcot's time, a kind of "arrested tabes dorsalis with blindness" was spoken of—that is to say, a class of tabetics was recognized whose symptoms (that is, the progress of their disease) were arrested by (or, rather, after) the development of optic nerve atrophy.

MALINGERING.

Knowledge in regard to the simulation of symptoms and diseases is of extreme importance for workmen's and accident assurance. The combination of simulated with genuine signs or symptoms is often especially difficult to detect. Functional nervous diseases and simulation of organic diseases are not rarely associated with each other. The artificial skin affections which I have seen have been chiefly in young women with abnormal psychical states. Unfortunately in these cases, as in other cases of artificially produced disease, though the artificiality of the disease may often be recognized, the exact means whereby the condition is produced frequently escapes detection.

Most of us recently have had to pay attention to the question of various forms of simulation in men. Amongst prisoners of war simulation of disease for purposes of repatriation tends of course to be regarded as fair play, and as rather creditable than discreditable, if it is successful. In such persons, however, as in accident insurance cases and "traumatic neurasthenia," there may be a real functional nervous element combined with the simulation of disease. In some cases a functional nervous disease may constitute the chief trouble, not combined with actual simulation, but fostered by a desire not to recover until liberty is regained, just as ordinary traumatic neurasthenia may be kept up and fostered by a desire to obtain monetary compensation, etc.

An intelligent and highly skilled business man, aged 36 years, had right hemiparesis and what seemed to be a kind of myoclonus (paramyoclonus) multiplex. He could not speak, except in a whisper, and could not walk. He was allowed by the military authorities to return to his native land, and I afterwards heard that not long after his return sudden recovery of speech and power of walking followed the shock of a fall from a tram-car.

This reminds me of some remarks in a recent paper by E. Farquhar Buzzard,² in the course of which the author stated that he mistrusted the complete genuineness of many of the reported sudden recoveries from functional nervous disorders (including functional loss of speech, etc.) following—that is, as result of—shocks. He suspected that the patients began to be tired of their loss of speech, etc., and began to be sure that their trouble was no longer really necessary; he thought that they then gladly accepted some "shock" or other exciting circumstance as a kind of "excuse" to recover suddenly. I wish some beneficial "shock" had occurred in an aggravated case of "chorea rhythmia" (functional) which was under my care for a long time.³

The patient was a man, aged 38 years, of Hebrew origin. When he was being examined by a doctor, the rhythmic movements of the neck and arms used to become increased in rate and amplitude and force. They quieted down somewhat when he was left to himself, and ceased altogether during sleep. They became more violent when any one tried to restrain them by force in any way. He said he could not walk, but he was able to move his lower extremities when he was sitting or lying down. He gave one to understand that he could speak only in a very slow and jerky manner, as if battling against some obstruction in articulation. On the other hand, he could eat, drink, and dress himself fairly well, when left alone, without any assistance. He was at first not losing weight, but afterwards he lost slightly. He was apparently free from any visceral disease. His knee-jerks were exaggerated; no ankle clonus could be obtained; his plantar reflexes were difficult to obtain, but, when obtained at all, they were of the flexor type. Obviously psychical factors played an important part in the case. The patient was removed to another hospital and I lost sight of him, but perhaps he has been allowed to regain his liberty, and in that case rapid improvement may have taken place.

In some cases I believe it is very difficult to distinguish between what one might call *bona fide* functional paresis (with limping on one lower extremity) and actual simulation, and equally difficult is it to distinguish between genuine painful remnants of sciatica and simulation.

A remarkable case of simulated amblyopia was complicated by a temporary attack of genuine optic neuritis. An intelligent man, aged about 45 years, with special

knowledge of chemistry, was repeatedly examined by two ophthalmic experts, and there can be no doubt whatever that typical optic neuritis was actually present for a time; it could not have been simulated. He, however, apparently managed, for purposes of simulation, to have his pupils generally under the influence of atropine, but occasionally, when examined unexpectedly, his pupils were found to react to light. On an occasion, later on, when he met one of the eye doctors unexpectedly, he committed the involuntary mistake of addressing the doctor, before the latter had spoken or given the patient any opportunity of recognizing him, except by sight. As to the possible causes of the attack of true optic neuritis in this case it may be remarked that the patient's blood serum gave a positive Wassermann reaction, that he complained of (possibly genuine) headaches, that he was given anti-syphilitic treatment, and that the Wassermann reaction afterwards became negative. One day the specific gravity of this patient's urine was found to be 1057, which I think was probably due to some common table salt having been emptied into it. It is quite possible that the patient had noticed that on ordinary urinometers used in England the portion of the scale above 1030 is marked "diabetes" on the reverse side. Owing to this curious statement, perpetuated on nearly all these instruments, as used by doctors and in hospitals, the idea may suddenly have occurred to him that by artificially raising the specific gravity of his urine he might simulate an important symptom of diabetes mellitus. If so, he probably gave up the idea when he found that, owing to the absence of sugar from his urine, the disease in question could at once be excluded.

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¹ Cf. F. Parkes Weber, *Diabetes Mellitus and Life Assurance Examinations*, BRITISH MEDICAL JOURNAL, 1913, vol. i, p. 73. ² E. F. Buzzard, *Lancet*, 1916, vol. ii, p. 1097. ³ F. Parkes Weber, *Proceedings of the Royal Society of Medicine* (Clinical Section), 1916-17, vol. x, p. 6.

TWO YEARS' EXPERIENCE OF SEPTIC WOUNDS IN A V.A.D. HOSPITAL.

BY

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WHILST it is true that many of the cases seen at a V.A.D. hospital are obviously selected as suitable for removal from the parent hospital, and that a certain number are already well on the way to convalescence, some at least are sufficiently serious to demand considerable care and constant attention. The great majority of the wounds are septic, and some of them have been treated at the military hospital with indifferent success, and are sent to the auxiliary hospital in the hope that an improvement in the environment may make for recovery. Many of the wounds are very foul, especially those of the limbs, and are suppurating freely. A certain number have been operated upon for the removal of bullets, fragments of shell, and pieces of necrosed bone. Sometimes recent cases are sent, and men have been admitted to Duncombe Park within a few days of being wounded and still dazed from the shock of battle. Our most intractable cases have been those in which the lower limb was involved, with sepsis arising from an infection of bone. Wounds in or about a joint are also, as a rule, serious.

From the outset our aim has been to treat wounds conservatively, with as little operative interference as possible, taking the view that the hospital partakes largely of the nature of a convalescent home. The patients are given a generous diet, and kept in the open air as much as possible. The hospital stands in most beautiful surroundings in a wide, open park overlooking the Yorkshire moors, and sheltered from the north and east. Suitable recreations and amusements, both outdoor and indoor, are provided, and a continuous atmosphere of cheerfulness is considered an integral part of the treatment.

Where there is obviously a foreign body in a wound, whether it be part of a projectile or a sequestrum of bone, the irritant is removed and drainage established at the earliest moment. One of the first operations was for a piece of shell at the bottom of a discharging sinus in a soldier who had been treated for tetanus in France. The

precaution was taken to give an injection of antitetanic serum, a procedure which since then has been widely recommended. Sometimes it has been necessary to reopen a wound to a considerable extent, or even to amputate, where the flaps were too meagre to cover a bad stump. Exposure to direct sunlight, in almost all cases, has been followed by good results, and bad cases have done best when removed from the wards and housed in shelters in the grounds. Our experience leads us to place reliance upon outdoor treatment with the minimum of dressings. Cases which at first appear almost hopeless begin to show healthy granulations in a very short time, and the patients soon become able to move about without assistance. A trained masseuse has done excellent work in the after-treatment of wounds where there is stiffness or contractions; when healing is delayed and there is no foreign body in the wound, massage is a means of speeding up the healing process.

With regard to antiseptics, at first there was comparatively little to choose between the antiseptics available. A solution of carbolic acid, lysol, or mercury biniodide, or a light dressing saturated with hypertonic salt solution, was employed with success in the milder superficial wounds. Wet dressings were discarded as far as possible, and the source of the suppuration searched for and removed. Deep-seated wounds, especially those of the lower limb, with infection of bone, and a foul sinus leading down to the damaged tissues, gave greater trouble, and it was soon discovered that the "physiological" method advocated by Sir Almoth Wright often failed to produce healthy granulations. Any endeavour to open up the wound, with a view to removing the infective irritant, usually necrosed bone or a piece of shell or casing of bullet, was apt to cause a septic invasion of the subjacent healthy tissue, and extensive osteomyelitis developed on at least one occasion. The ideal procedure of cleansing the wound thoroughly at one sitting, and afterwards applying dry dressing, was found impracticable and had to be abandoned. Where there was great sloughing of the parts the damaged tissue that could be reached without much cutting was removed, a stream of warm hydrogen peroxide introduced into every part of the wound and suitable drainage established. Where the suppuration was very profuse and there was swelling and redness of the parts, hot boric fomentations frequently applied gave good results, and where there was a compound fracture also, the continuous antiseptic bath was found to be the best treatment. Extensive frostbite and bad cases of trench foot also did well when treated in the bath. Foul sinuses of long standing, with thick ropy pus, were treated, according to the teaching of Lister, with pure carbolic acid, then irrigated with hydrogen peroxide in a gentle stream, and lightly covered with gauze and exposed to sunlight. An endeavour was always made to explore thoroughly all pockets in the wound; one of these overlooked was often the cause of delayed healing. Ensol and the Dakin-Daufresne solution have been more lately employed and are useful, as is also the introduction of the bipp paste of Rutherford Morison, the advantage of the latter being the lessened frequency of disturbance of the wound. For a time the mixture of ichthylol and glycerin was used with fair success. Each of these methods has its advantages as well as its disadvantages. We have not yet had the opportunity of testing flavine¹ and brilliant green. Meantime, our experience points to the superlative importance of sufficient drainage; given that, the antiseptic employed is of secondary importance. With faulty drainage, or a septic body deeply lodged in any part of a wound, the most ideal antiseptic will fail to produce healthy granulations and a sound cicatrix. Hence it is that different surgeons produce favourable results with widely varying substances which have been demonstrated to be anything but good antiseptics.

The following case goes to prove that drainage is the most important element in the treatment of a foul wound:

Sgt. B., admitted to Duncombe Park Hospital on June 14th, 1916, suffering from a deep suppurating wound of the right groin. He had been under treatment for nearly five months. The wound was opened up freely and swabbed out with pure carbolic acid and then daily irrigated with a warm solution of hydrogen peroxide. A long drainage tube was inserted reaching to the bottom of the wound. A pocket at right angles to the sinus was subsequently discovered and freely cleaned out and a packing of iodoform gauze inserted. The patient was removed to a shelter in the grounds and the

wound daily exposed to the sun; it healed soundly, and the patient was sent back on July 8th. A year later there was no recurrence.

The objection to rubber drainage tubes, quoted by Surgeon-General Sir George Makins,² has not been upheld by our experience, though it is probable that Rutherford Morison's system is now in use in many cases in which the rubber tube was formerly employed for the purpose of drainage.

After an experience of more than two years in a V.A.D. hospital I feel impelled to state that I have not yet met with anything materially different, as regards sepsis in wounds, from what I find in my own practice in this wild agricultural district. I am constantly seeing wounds that have been neglected for more or less prolonged periods, or treated by ignorant villagers with various abominations. These wounds are frequently fouled with earth and manure and greatly resemble the cases admitted to the hospital. It seems to me to be purely a matter of degree, with the absence in civil practice of the great depression and shock so often seen in the soldier. The treatment is much upon similar lines.

The importance of rest is great; placing the injured part in a position of immobility, with free access for dressing, where there is loss of bone in the lower limb, was found the best method of treatment. Where there is delayed healing due to persistent sepsis along the planes of fascia, and there is no necrosed bone or other foreign body, complete immobility may make the difference between success and failure. Many wounds seem to remain open, with weak, flabby granulations, especially where there has been extensive loss of tissue in the neighbourhood of the femur or the tibia. The wound heals up to a point and then remains obstinately open. Elastic pressure, as recommended by Liek,³ has given good results in such cases. Plenty of padding should be employed, and there should be a fair amount of pressure. The circulation of the limb is usually disturbed in these cases of delayed healing, giving rise to one or more ulcers with depressed bases and undermined edges. In a neighbouring V.A.D. hospital radiant heat has been the most successful means of treating these wounds, but has not been in operation at this hospital.

Dealing with a class of wound often in the condition of chronic suppuration, surely the most unpromising for any kind of treatment, as it is engrafted upon a constitution debilitated by exposure and prolonged fatigue, it is pertinent to inquire the proportion of failures to successes in treatment. I can recollect only one case that was not greatly benefited after prolonged treatment. It was one in which practically the whole femur was involved. For a time he did fairly well and the wound almost ceased to discharge. Then in an evil moment I operated for an extensive sloughing of the tendo Achillis, caused by pressure from a faulty splint applied abroad, I believe. There was extensive spread of the sepsis along the limb with osteomyelitis of the femur, and the limb had to be amputated. In chronic cases it is advisable, in my opinion, to give the limb a fair chance before resorting to extreme measures, and in a great proportion of such cases conservatism is fully justified. There is less likelihood of the surgeon being placed in a dilemma in a V.A.D. hospital than in a large hospital where the cases dealt with are of recent origin. In a small V.A.D. hospital of 30 beds, staffed chiefly by Red Cross nurses, the opportunities for observation as well as treatment must remain strictly limited.

Conclusions.

1. Treatment in a V.A.D. hospital should be, generally speaking, upon conservative lines.

2. Complications should be looked for and the cases carefully watched, and operations avoided unless distinctly indicated.

3. If the source of suppuration is of easy access, it should be removed early.

4. In deep-seated sepsis it is better to operate after antiseptics have been given a fair trial than to permit the case to drift into a condition of long-continued suppuration.

5. Where a wound is improving, even if slowly, patience should be exercised, rather than risk a septic invasion of the surrounding healthy parts by a cutting operation.

6. All classes of septic wounds are benefited greatly by outdoor treatment; the sun bath is a potent means of inducing healthy reaction in most cases.

7. It should be recognized that V.A.D. hospitals have their limitations, and that rest, good food, fresh air, and a cheerful outlook are the factors which are of most value in the treatment afforded by them.

SUMMARY.

Cases admitted to Duncombe Park V.A.D. Hospital, from June 28th 1915, to June 28th, 1917.

Nature of Disability.	Result of Treatment.						
	No. Discharged to Duty.	No. Transferred to Military Hospital Convalescent.	No. Transferred to Military Hospital for Further Treatment.	Average Duration of Treatment, in Days.	Percentage of Cases Returned to Duty or Convalescent.	Percentage of Cases Returned for Further Treatment.	Cases still in Hospital.
G.S.W. of lower limb ...	35	29	8	71	88.8	11.1	18
G.S.W. of upper limb ...	17	11	3	59	93.2	9.7	5
G.S.W. of chest ...	11	3	2	70	87.5	12.5	1
G.S.W. of abdomen ...	3	3	—	48	100	—	6
G.S.W. of head and neck ...	3	2	1	42	83.3	16.7	3
Rheumatism (chronic and acute) ...	7	2	5	65	64.3	35.4	14
Bronchitis and pneumonia ...	4	5	—	62	100	—	2
Nephritis ...	4	1	4	51	55.5	44.5	9
Heart affections ...	2	—	1	73	66.3	33.3	3
Frost-bite ...	3	—	—	52	100	—	3
Gas-poisoning ...	3	3	2	59	75	25	1
Neurasthenia and shell shock ...	2	3	3	46	62.5	37.5	8
Trench feet ...	6	1	—	37	100	—	7
Other diseases ...	11	2	3	42	81.3	18.7	16
Total ...	111	65	32				208

(a) The hospital accommodation was increased from twenty-two beds to thirty beds in May, 1917.

(b) In cases of multiple wounds the regional details are given of the most severely wounded parts only.

(c) The average duration of treatment in days for all cases was fifty-eight approximately.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, January 20th, 1917. ² Ibid., June 16th, 1917. ³ Ibid., May 19th, 1917.

THE TECHNIQUE OF THE CARREL-DAKIN TREATMENT.

BY

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AND

CAPTAIN F. H. H. MEWBURN, C.A.M.C.

In the following description of the method used in the Carrel-Dakin Ward, which has been in operation at the Duchess of Connaught Canadian Red Cross Hospital, Taplow, for fifteen months, standard methods are, as much as possible, passed over, and those details which have been introduced during the last year especially described.

The solution is prepared daily in the dispensary according to the method of Dr. Daufresne,* tested for hypochlorite content, and sent to the ward in a carboy of amber glass, without the addition of the potassium permanganate. The solution is at once tested by one of the surgeons, and if found of correct strength, the potassium permanganate is added and the bottle stored in a closet until used.

A study of the wounds treated with solutions of different strengths of hypochlorite has convinced us that the upper limit of strength of Dakin solution should be reduced. The use of the solution around 0.5 per cent. often causes

* The Dakin solution is prepared according to the technique of Dr. Daufresne as set forth in the circular of the laboratories of the Rockefeller Institute at Compiègne (Mission of Dr. Carrel), dated December 15th, 1917. The amount of potassium permanganate used to stabilize the hypochlorite is 5 mg. to each litre of Dakin's solution.

the wounds to develop a scalded, white appearance not seen with the lower strengths. We have endeavoured to limit our Dakin solution to between 0.460 per cent. and 0.485 per cent., between which percentages we consider we obtain the best results.

All the Dakin bottles in the ward are fitted with a rubber cork, rubber tubing, and pinch-cock. This was found to be more satisfactory than closing the mouths of the bottles with cotton-wool. Pinch-cocks on both stopper and irrigating tube are opened when the solution is being used.

A series of tests was conducted to determine the action of light on the solution in different types of protected bottles. The tests were made with Dakin solution in bottles exposed to winter light on a verandah. More marked results would be expected in the brighter light of summer. The first bottle was uncoloured glass, the second was thoroughly shellacked with Bismarck brown (amber-coloured glass bottles being unobtainable), whilst the third was enclosed in a bag of heavy duck impregnated with a brown floor stain.

On beginning the test—

The strength of the solution was hypochlorite 0.499150 %

At the expiration of 24 hours—

Uncoloured glass bottle showed hypochlorite...	0.406125 %
Bismarck brown bottle " " "	0.473075 %
Duck covered bottle " " "	0.487975 %

At the expiration of 48 hours—

Uncoloured glass bottle showed hypochlorite...	0.379950 %
Bismarck brown bottle " " "	0.461900 %
Duck covered bottle " " "	0.473075 %

These figures prove (a) that the brown duck covered bottle is the best for the protection of the solution, and (b) that, properly protected, the solution will retain its potency for at least forty-eight hours. Hence we use only the brown duck protected bottles.

A well-equipped dressing carriage is essential. A liberal supply of instruments, including eighteen pairs of thumb forceps, several pairs of scissors and sinus forceps, is needed. We use several syringes with rubber tubing and nozzle attachment to avoid any hand contact with wounds, also a separate container with long forceps for the use of the nursing sister, all instruments being sterilized after use by ten minutes' boiling.

We consider the disinfection of the Carrel tubes and the preparation of the vaseline pads most important. The Carrel tubes, after use, are syringed out with warm water, scrubbed with a brush, soaked all night in Dakin solution, washed off with ether, and then boiled for thirty minutes in a caustic soda solution.

In the preparation of the vaseline pads, ordinary dressing gauze with eight or ten threads to the inch is entirely unsuitable, as it does not retain sufficient vaseline. Cheese cloth, with twenty-four threads to the inch, gives the best results. This is cut in strips 6 in. by 4 in., one end turned up, and, in sets of twenty, dipped into hot vaseline. The surplus vaseline is drained off and the strips are placed neatly in layers, in a tin box with a perforated lid. This is repeated until the box is full, when the box is pinned up in a towel, and sterilized in the operating room. The resulting pads are thoroughly impregnated and adhere perfectly to the skin, allowing no Dakin solution to penetrate.

In the Dakin service at this hospital the medical officer invariably does all the dressings. This rule is rigidly enforced, as in no other way can there be certainty of the technique. It is possible for one medical officer to dress fifty cases a day, but it is difficult where his work also includes operations and clerical work. We have hence found two medical officers necessary for such a ward. As assistants we have one nursing sister (well trained), and two orderlies, one of whom may be an intelligent convalescent patient. Both nursing sister and head orderly are fixtures in the ward, as satisfactory team work and thorough asepsis are only obtained by permanent assistants. Their duties include no ordinary ward work, and are limited to the dressings and preparation of the same. One orderly looks after the sterilization and delivery of successive instruments; the other assists with the patients and on the carriage. The sister's attention is restricted to the carriage, handling all instruments and dressings by long forceps. In handing the medical officer the various instruments, tubes, and dressings, the sister's forceps are not allowed to touch those used by the surgeon.

The essential point of the dressing technique is that the wounds, tubes, and dressings, are on no account touched by the hands. Everything is handled solely by clean dressing forceps. No patient who is to be dressed should have Dakin solution less than two hours before the dressing. This ensures that the bacterial count is not diluted. After the old dressings are removed, a smear of the wound is taken on a clean glass slide, on which is marked the patient's name and the date. The slides are collected, and taken to the pathological laboratory, where the bacterial count is made and entered in a book, from which entries may be made on the patient's case sheets. Wounds are syringed with normal saline or Dakin solution. The surrounding skin surfaces are then carefully dried. One ply of the vaseline pads is next applied accurately to the edges of the wound and well smeared to the skin. It is most important that these pads should have sufficient vaseline so that they may adhere firmly. This allows any overflow of Dakin solution to pass over the vaseline and be absorbed by the large pads. If not, the Dakin solution passes under the pads and a most obstinate "Dakin dermatitis" results. These vaseline pads should be applied to a greater depth from the dependent sides of the wound. Carrel tubes are next applied. Surface wounds may be covered with a single layer of gauze, which may be kept in place by making it adhere to the vaseline pads surrounding the wound. A large pad of suitable size, made of absorbent cotton covered with gauze, is then applied. The idea of this pad is not to cover the wound, but to soak up any discharge which may result from the treatment. It has been our experience that wounds do much better when not completely shut off from the air. In the case of a wound on the anterior surface of the leg, this pad would be applied around the under side and pinned at each end, leaving the wound uncovered by the large pad. Forceps are changed after the old dressings are removed, and the Carrel tubes should be handled by clean forceps.

One of the hardest things is to keep the tubes in position in a large flesh wound. This can be made easier by employing specially shaped tubes. For long flesh wounds we employ a tube tied an inch or two from the end; holes are punched in it corresponding to the length of the wound. It is kept in place by strips of adhesive tape at each end of the wound. Rings of various sizes are useful not only for encircling the ends of stumps, but often are much easier to keep in position on flesh wounds. The object of placing Carrel tubes in a wound is to ensure that the flow of Dakin solution will cover the entire surface. The position of the patient at the time of dressing must be taken into account, as it may not be that which he usually occupies.

Conclusions.

We wish to emphasize the following points in the operation of a Carrel-Dakin ward:

1. All Dakin solution should be tested personally by the surgeon before use.
2. The upper limit of hypochlorite is best at 0.485 per cent.
3. Brown duck bags give the best protection to the solution.
4. Well-equipped dressing carriage and good team work are essential.
5. Vaseline pads properly made and properly applied give the best protection against "Dakin dermatitis."
6. Absolute "joint" asepsis in dressings is essential.

The results obtained with this technique have been most satisfactory in the majority of cases. The asepsis has to be rigid. The handling of everything with forceps is a little awkward at first but dexterity is soon acquired. Good team work, with a thoroughly trained, conscientious surgical nursing sister and two intelligent orderlies, combined with rigid "joint" asepsis, has given us surprising results.

AMONG the rectors of the Italian universities nominated for the academic year, 1917-18, are two representatives of medicine. These are Dr. Roberto Binaghi, professor of clinical surgery in the University of Cagliari, and Dr. Pio Colombini, professor of dermato-syphilology in the University of Modena.

THE TREATMENT OF WOUNDS BY FLAVINE.

BY

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AND

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We have seen lately in the *Lancet* and *BRITISH MEDICAL JOURNAL* two articles impugning the value of flavine and its congeners as antiseptics; and as we have used it largely in military practice and are confirmed in our good opinion of it as time passes, we think it would be something of the nature of an act of ingratitude if we allowed an excellent wound dressing to fall into discredit for want of support from its friends.

The first of the articles referred to takes flavine from the laboratory point of view and criticizes the technique by which its efficacy as against bacteria *in vitro* was established. With these points we may leave Dr. Browning and his collaborators to deal. But the second article, which appeared in the *BRITISH MEDICAL JOURNAL* of December 29th, 1917, and which takes us to the bedside of some fifty selected cases, we feel more competent to criticize. Its lucid exposition and fair and candid treatment of the observed facts make it easy to do so.

Two main theses are proposed in this article. First, a comparison is made between flavine and Carrel-Dakin treatment, in which the former, though not inferior at all points, is yet made, on the criteria chosen, to take a second place; and secondly, by histological examination flavine is shown to delay the process of repair, to allow organisms to remain on the wound surface, and to prevent epithelial ingrowth.

Now we hold that a comparison of any method with that of Messrs. Carrel and Dakin is not quite fair until the following facts are remembered: When these workers first showed that infected wounds could be cleansed by continuous washing with hypochlorite solution, they also pointed out the great difficulties of the method, the meticulous care required in the preparation of the reagent, in the protection of the surrounding skin, in the surgical ritual of the dressing, and so on. More than this, they were the first to set the ideal of ultimate wound suture, for we are sure no English surgeon had ever thought it possible before. Both these points—the difficulty of technique and the high ideal of repair—are characteristic of the Carrel-Dakin method, and explain why, though it is one of the most brilliantly successful ways of treating infected wounds in war, it is also one of the most difficult to carry out to full success. It is only in certain hands that it is really successful, and when it fails it fails badly.

One of us, who has opportunities of constantly visiting ten large hospitals, is prepared to affirm that not 10 per cent. of the surgeons whose work he sees have the requisite time in periods of stress, even though they possess the requisite patience of technique, to achieve anything like, for example, the success of the series of fifty cases quoted in this article. In making the comparison between the two series, the authors have heavily weighted the scales against the Carrel-Dakin method. This series is made up of "much more seriously wounded men," including cases considered too severe for experimental treatment with flavine, and the wounds submitted to the flavine treatment had previously for the most part been treated by the Carrel-Dakin method, and yet nearly double the percentage of suture cases is shown, the number of cases evacuated healed is two and a half times as many, and so on. This is plainly a series which has been in the hands of a master.

But to any observer who has opportunities of seeing the Carrel-Dakin method as performed by many hands, the above results seem a triumph of method indeed, but above all a triumph of individual technique. Results which we assert can only be obtained by an expert with much time and comparatively few cases are contrasted with a method which, to take a phrase from mechanics, is practically fool proof, for we suppose that, allowing adequate previous surgical treatment, any dresser can fill a wound cavity with gauze dipped in 1 in 1,000 solution of flavine.

We can only say that in the many hundreds of cases (rather more than 5,000 at present) so treated in the hospitals under the command of one of us, we have found

that for ease of preparation and application, rapidity when dealing with large numbers of cases, complete absence of surgical fidget, early cleaning of the wounds, and abatement of constitutional reaction to absorption, flavine (and its congener brilliant green) is an admirable application under all circumstances, but especially where surgeons are few, time is short, and wounds are many. But, even when contrasted with the Carrel-Dakin series, the series of fifty flavine cases does not come badly out of the test. We note that temperature falls early; that more than one-third reach the difficult suture ideal; and that, though there is delay in the process of healing, there is some diminution in the local and general reaction to infection.

We remember, of course, that the flavine series was in the same capable surgical hands as the other series, though this consideration must be discounted by the greater ease of application of flavine dressings. To sum up our criticism: we hold that, putting aside any question of the permanence and effectiveness of the antiseptic solution used in the Carrel-Dakin treatment (though this has been called in question), the method itself is not of universal application, entirely on account of its inherent difficulties of technique. If this is allowed, any simpler method which can be effectively used by less skilled workers, and which approaches in efficiency, as judged by the suture standard, the Carrel-Dakin method, is worthy in spite of minor drawbacks, of an extended trial in the army. We claim to have already passed through such a trial, and have made up our minds on the point. It only remains to add that in the 5,000 or more wounds under our observation no skin irritation has been observed, and we suggest that it is possible that the irritation observed in the cases quoted was due to the previous treatment by the hypochlorite method.

Coming next to the histological part of the article quoted, the appearances observed in the excellently reproduced series of sections given is conclusive evidence of a certain amount of surface destruction in wounds treated by flavine. This is clinically apparent in a few cases only in our experience. In these cases a fibrinous pellicle forms in the wound, and we have always been used to attribute this appearance to the use of too strong solution. There are no doubt individual idiosyncrasies with this as with any other application. Flavine, unlike other antiseptics, is not reduced in power by contact with serum, and therefore the evaporation of fluid may result in a concentrated mass action upon the tissues. We have found that the pellicle in question is readily removed by the application of saline solution. The lethal concentration of flavine against cocci in the presence of serum being 1 in 200,000 (Browning), we find the addition of hypertonic saline solution a valuable adjunct to the action of the antiseptic by producing free exudation; but allowing the fact of a microscopical layer of surface destruction, is it not a fact that all antiseptics are to some extent escharotic and produce in certain concentrations similar appearances? What we wish to know is—what is the exact clinical value of these observations? We are told that healing is delayed, that epithelial ingrowth is prevented, that organisms linger in the wound, and we find it extremely difficult to make these deductions from histological appearances square with our clinical experiences in thousands of cases. We are told gravely that "the employment of flavine and other dyes, as if they supplied royal roads to success, must be regarded as retrograde steps," and we go round our wards and find patients with normal temperatures, with no signs of constitutional reaction, with healthy granulating wounds, over which epithelium is growing naturally, and we wonder why the experience of the authors of this article was so different in fifty cases from our own in as many hundreds.

DR. LUIGI LUCIANI, the distinguished professor of physiology in the University of Rome, lately retired under the rule as to limit of age. He was born at Ascoli-Piceno in 1842. He was professor of pathology at Parma, and of physiology at Siena and at Florence before his call to Rome in 1894. His treatise on physiology has been translated into several languages. A review of the last volume of the English translation was published on January 5th. He is a Senator of the Kingdom of Italy, and as a Member of the Superior Council of Public Instruction he has done much during the past forty years for the improvement of medical education in his native country.

WOUND FLORA IN RELATION TO SECONDARY SUTURE.

BY

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I.

THE sterilization of septic wounds followed by secondary suture or closure, having for its objects the shortening of the patient's stay in hospital and the lessening of impairment of function, is the ambition of most army hospitals to-day.

Many brilliant successes have been recorded by those following the various methods in vogue. Several, on account of a few failures, have become sceptical about the results claimed by others, and have drifted back to pre-war methods.

An analysis of failures often teaches us much. The flora of all septic wounds consists of a conglomerate variety of bacteria—staphylococcus, streptococcus, *pyocyaneus*, *welchii* group, and bacilli with end or central spores, etc. On analysing fifty cases of secondary closure it has been noted that in all failures the anaërobic culture showed we had previously had to deal with a very active infection, which digested the meat medium rapidly and gave off abundance of gas with rotten-egg odour. The cultures obtained showed in some cases infection by an active streptococcus, in others by a spore-forming bacillus. In both cases, even when the bacterial count was low, the wounds so infected broke down on secondary suture. On the other hand, where the cultures obtained showed an absence of these particular groups of bacteria, and the meat medium was unchanged, wounds were closed successfully, even when affording a comparatively high bacterial count (20 to 30 per microscopic field).

Sufficient data are not yet before us to state definitely that all infected wounds might be classified clinically according to the findings of the anaërobic culture, but we have gone far enough to be of opinion that where the anaërobic culture shows a virulent infection, and where the culture obtained shows spore-forming bacilli, it would be advisable not to attempt secondary suture until the wound is absolutely sterile.

II.

After making many bacterial counts as a routine procedure in wounds, especially those which were being treated by the Carrel-Dakin method, it appeared that although the factor of the bacterial count was not an absolute guide it was of very considerable help, and a fair indication as to the progress of the combat between the tissues and the infection. Nevertheless, it seemed that other factors came into play, and it occurred to us that possibly the most important of these was the particular bacteria present in a particular wound. Accordingly it was decided to make cultures from a series of wounds with a view to determining the total bacterial flora of each, both aerobic and anaërobic.

A swab is taken from the wound either the day following or, in cases where the wound is very dirty, within two or three days after the patient arrives in hospital from France. This is planted in nutrient bouillon and in the meat medium recommended by the Tetanus Committee for the growth of anaërobics.

It seems advisable either not to inactivate the meat medium after inoculation with a view to eliminating all but spore-forming organism, or, if this be done, to run two cultures, one of which has been inactivated and one not, as the action of the facultative anaërobics on the medium appears to afford a clue to the virulence of the infection.

The broth culture is examined at the end of twenty-four hours and the findings recorded. The anaërobic culture is examined daily as to the bacteria present, colour, gas formation, digestion and odour, and the findings recorded. These examinations are carried out until it is apparent that nothing more is to be gained. A culture which has at any time shown *B. welchii* or bacilli of the malignant

oedema group is usually carried on for two or three weeks unless the bacilli of the end-sporing group appear before this time.

In attempting to judge of the virulence of the streptococci attention has been paid to the effect on the meat medium, the length of the chains formed, and the extent to which the streptococcus dominates the culture. Certain forms of streptococci rapidly digest and darken meat, produce gas, and even a disagreeable odour. These are considered virulent. Others, although a good growth is obtained, leave the medium unchanged. These have been regarded as the less virulent. Along with streptococcus, the *B. welchii* is found almost constantly, and in doing bacterial counts this organism in many instances accounts for a large percentage of the bacteria counted, although it would not appear to be an important factor in the healing of the wound. Streptococcus is the most persistent of all organisms we have found.

The malignant oedema group of organisms has been active on the meat culture, rapidly digesting it, forming gas, darkening it to brownish-black or even black, and producing an extremely disagreeable odour like that of rotten eggs. These have been regarded as a dangerous infection, even in the presence of a low bacterial count. The fact that the bacillus of malignant oedema may, in a non-inactivated culture, occasionally be mistaken for one of the *B. welchii* group, does not seem to be of great practical importance, as the identity of the malignant oedema group is later shown by the formation of the typical spores and the effect on the medium. Further, there is undoubtedly such a relationship between the occurrence of the two groups that where *B. welchii* is found one would hesitate in saying the other group is absent.

End-sporing bacilli, oval and round, have been found in a small percentage of cases. Among these may be mentioned a stump which repeatedly broke down, and a replating of femur for malposition, which broke down although the original wound had been completely healed for a period of six months.

It is within the power of many if not most of the laboratories now attached to our general hospitals in England to make cultures from almost if not all wounds in the hospitals where a secondary suture is likely to be undertaken. It is in the cases which early show a low bacterial count that the kind of organism present is of prime importance. At the end of a week or ten days the culture will have shown whether or not there is an extensive or virulent infection present, which it is probably not going to be advisable to close in by secondary suture.

THE VALUE OF A MIXTURE OF CYLLIN,
IODOFORM, AND OLIVE OIL IN
INTRATHORACIC SEPSIS.

BY

W. GORDON, M.D. CANTAB., F.R.C.P. LOND.,

AND

M. E. GATES, M.D., B.S. LOND.

MEDICAL OFFICERS, NO. 1 SECTION, EXETER WAR HOSPITALS.

A CASE of pulmonary gangrene, apparently cured by post-operative injection into the lung tissue of the following mixture, was published by one of us (W. G.) in 1912:¹

R. Iodoform	...	...	...	...	gr. v
Cyllin ...	...	...	...	...	℥ v
Ol. olivæ	...	...	...	...	3ss

We now desire to report two cases of intrathoracic sepsis in which the same mixture has proved of undoubted service.

CASE I.

Cpt. R. L. was admitted from overseas on September 14th, 1917; he had been seized with pains in the left side of the chest on July 25th, and on August 14th a fetid empyema had been opened and drained. On admission his temperature was 102° and the next day 103°. The discharge from the wound was copious and most horribly offensive. The wound was packed with gauze soaked in the above mixture. Chart 1 shows the result on the temperature. The offensiveness of the discharge ceased immediately; there was no bad smell next day or afterwards. The dressing with the mixture was continued until his

transfer to a convalescent home in excellent condition with his wound nearly healed. The drainage, however, having been

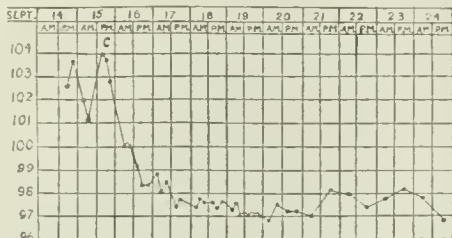


CHART 1.—Cpl. R. L. C = Cyllin, iodoform, and olive oil begun.

imperfect, on November 15th a larger piece of rib had to be removed, by Mr. Ellis Pearson, surgeon to the section, after which progress was uneventful.

CASE II.

Pte. W. W., admitted March 11th, 1917. Twelve years previously he had a left-sided empyema, which was drained. About a month before admission he had an attack of pleurisy in the left side, and the old wound reopened and discharged. On admission the temperature was irregular, and there was dullness at the left lung base, so on March 25th the wound was enlarged by Mr. Pearson, and better drainage established. On March 31st severe haemorrhage occurred from the wound and

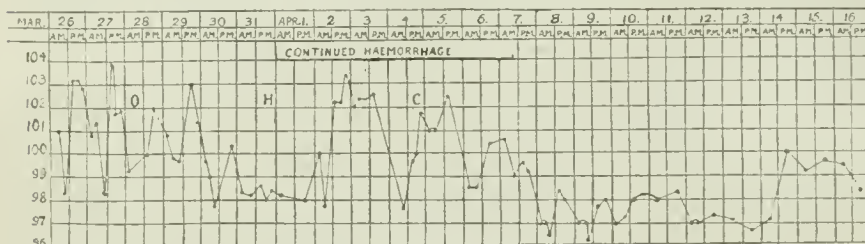


CHART 2.—Pte. W. W. O = Operation. H = Severe haemorrhage. C = Cyllin, iodoform, and olive oil begun.

continued to a considerable extent. The temperature, which had fallen after the operation, rose again to 102° on April 2nd. As the condition was obviously one of intrathoracic sepsis, injection of the cyllin and iodoform mixture was begun and continued, with the result shown on Chart 2. The haemorrhage ceased, and there was no further rise of temperature until April 14th, when the patient had a slight rise of temperature accompanied by slight haemorrhage lasting about two days, after which recovery was uneventful. The patient is now very stout and well.

We have since seen a third case of intrathoracic sepsis following a gunshot wound, in which the use of this mixture has been of great value.

REFERENCE.

¹ Practitioner, April, 1912.

MUTTON BIRD OIL.

BY

LIEUT.-COLONEL J. S. PURDY, D.S.O., M.D., C.M.ABERD.

D.P.H.CAMB., F.R.S.E., A.A.M.C.

FELLOW ROY. SAN. INST., METROPOLITAN M.O.H., SYDNEY.

As cod-liver oil is difficult to obtain in sufficient quantities it may be of interest to know that the oil extracted from the sooty petrel is not only an excellent substitute, but, in the opinion of some, more effective in the treatment of bronchitic conditions and phthisis.

The sooty petrel, which is known in New Zealand and Australia as the mutton bird, spends nine months of the year in the Antarctic, and, consequently, must be so constituted as to stand extreme degrees of cold. The birds arrive in enormous numbers at their breeding places on Stewart Island, to the south of New Zealand, and on the islands in Bass Straits. The chief islands on which they breed are Chapple Island, Hummocky Island, Tin Kettle Island, and the other small islands near Flinders Island and Cape Barren Island. These birds arrive on the same day every year, and depart in flocks at the end of their period of migration.

The female lays only one egg, which is hatched by the parents sitting in turn. The young birds are fed by the parents with marine life collected from far at sea. When about six weeks old, the young, which are found in burrows similar to rabbit holes, are taken by the residents and half castes who visit these islands for the mutton bird season. The young bird is lined with fat, which is expressed as oil. The birds are then gutted, salted, and smoked, and used to be sold in Tasmania and New Zealand at a retail cost of 1½d. to 2d. each, and in Sydney at 6d. each. Recently a certain number have been tinned for export; some have reached the western front, and have been much appreciated as an article of diet.

In 1900, whilst in practice in The Hutt, New Zealand, I found at Porirua and Otaki, in the Maori Pahs, that natives suffering from consumption in some cases put on flesh during a tangi, which is something akin to an Irish wake. At these times the natives consumed large quantities of mutton birds.

At Tawa Flat, where some Norwegians had settled, I induced two of the settlers, who were suffering from phthisis and did not object to the fishy taste of the mutton bird, to eat one mutton bird a day, and found after some months that there was a considerable increase in weight. I published a paper in 1900 in the *Australasian Medical Gazette* advocating the feeding of cases of phthisis with mutton birds. In 1910, on going to Tasmania as chief health officer, I found on the west coast of Tasmania a chemist at Zeehan who was putting up an emulsion of mutton bird oil and almond oil, which had earned a considerable repute for the treatment of bronchitis and phthisis.

On visiting the islands in Bass Straits with the then Governor of Tasmania, Sir Harry Barron, Sir Elliott Lewis, the Premier, and other members of the Ministry and Government officials, I found that the mutton bird was one of the principal articles of diet among residents of the islands. Later, in 1913, I was marooned on these islands for six weeks, whilst investigating an epidemic of what I diagnosed as atypical measles simulating scarlet fever, but what Dr. Wetter of the Mawson Expedition diagnosed as atypical scarlet fever simulating measles; my chief article of diet, as of the others, was mutton birds, and I found a progressive increase in weight.

On behalf of the Tasmanian Government, the Commissioner of Police, Colonel J. E. C. Lord, D.S.O., made a special report on the mutton bird industry. As a result, I understand that improved conditions have been introduced into the islands and that these birds are sufficiently protected to prevent any serious diminution in their numbers.

The supply of oil from this source is considerable and would be a valuable addition to the medicinal oils at the present time.

Another point of interest about this industry is that, until a German agent intervened, the feathers, owing to their oily state, were found to be a nuisance, but previous to the war were actually exported to Germany, where they were treated and used in the making of cushions and pillows.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PERICARDIAL KNOCK.

A FEW days before the appearance of Colonel S. Maynard Smith's article in the *JOURNAL* of January 19th, p. 78, I was called to see a boy who had been accidentally shot in the head and left side of the chest when rabbiting.

About an hour before he died a loud cardiac "click" developed which was synchronous with the heart systole and could be heard distinctly six or eight feet away. It bore no relation to the respiratory movements, as the respiration was Cheyne-Stokes in character and the sound persisted during the period of apnoea. The simile of the click in the ear-piece of a telephone when the lever is

raised illustrates it very well. During the last fifteen minutes of life the heart became very feeble and irregular and the "click" disappeared. I was very interested to read Colonel Maynard Smith's explanation of the phenomenon, as I was quite unable to account for it. A *post-mortem* examination was not ordered by the coroner, so no further investigations could be made.

Ilminster.

W. P. HENLEY MUNDEN, M.D.Lond.

A SERIES OF CASES OF TYPHUS FEVER.

OSLER points out that a remarkable feature of typhus fever is that a few cases may occur in any locality; this has led some to believe that it can originate spontaneously. Recent experience of seven cases during a few weeks in a mining village, separate from any seaport town or contact with any military barracks, tends to corroborate this opinion, and also the view that the virus becomes reinforced as the epidemic increases, the prominent symptoms of typhus showing only in the later cases.

The first case in the series here reported was anomalous. The patient had all the symptoms of influenza, but by the fourth day a slight haemorrhagic rash had come out on the arms; the throat and mouth were very dry, the tongue baked, and later a fungus-like growth filled the roof of the mouth. Swallowing became impossible, and I suspected an acute suppurative condition of the oesophagus. The pulse at the wrist was imperceptible and vomiting very prominent. The second case showed early prostration, with high temperature, delirium, and cardiac failure by the fourth day, when there was a rash all over the body, but not typical. The third patient had all the above symptoms; the rash was more typical but was not present on the face. This patient developed bronchopneumonia. She lay on her back in muttering delirium with the typical flushed face of typhus.

The other cases became more typical; the rash came out first on the extensor surfaces of the arms and lumbar region of the back, and gradually covered all the body, the face and even the ears being well covered by the fourth day. The rash resembled rubella, but there was typical subcuticular mottling. The rash looked as though one were looking through a dim glass at it. Epistaxis was present in one case and retention of urine in another; the conjunctivae were injected in the last two cases. A specimen of blood from two of the patients was very dark and fluid; in fact, I had difficulty in stopping the oozing in one case. The blood gave a positive Widal reaction in three cases and a partial agglutination in two other cases.

The early dry and dirty tongue and throat, together with the early prostration and cardiac failure, made me suspect typhus fever even when the rash was not typical. The cases had no distinct odour. In all the onset was abrupt; constipation was present during the whole illness, which terminated in a crisis about the twelfth or fourteenth day. The patient who developed bronchopneumonia and typical flushed face died.

JOSEPH STARK, L.R.C.P., L.R.C.S.Edin.

Winchburgh, West Lothian.

PENETRATING GUNSHOT WOUND OF THE ABDOMEN IN CIVILIAN PRACTICE.

A PARTY of boy scouts were practising rifle shooting at a miniature range on November 18th, 1917. When E. M., aged 15, who was in charge of the party, was changing the targets at about 1 p.m., another scout fired and hit E. M. in the abdomen. He was admitted to the Reigate and Redhill Hospital at 2.45 p.m. His condition on admission was fair, though he was blanched and somewhat collapsed. The pulse was 130. There was a bullet wound $1\frac{1}{2}$ in. to the left of the upper border of the umbilicus.

He was immediately taken to the theatre and the abdomen opened. The peritoneum was found to be full of blood; two mesenteric vessels were seen to be bleeding, and there were two perforations of the small intestine. The mesenteric vessels were tied. The perforations, which were in the coil of intestine immediately above the coil in which the mesenteric vessels were divided, were side by side, $\frac{1}{4}$ in. from one another. This coil of intestine was plated to enclose both perforations with two layers of Lembert sutures. A small slit in the mesocolon was stitched up. The bullet was not seen. A big tube was

put into the pelvis, the original wound excised, and the abdomen stitched up. Some subcutaneous transfusion was required during the operation. With the exception of paralytic diarrhoea lasting for three days there were no complications, and the case has now been discharged as cured.

I am greatly indebted to Mr. Pegg and Dr. Crichton (late R.A.M.C.) for their kind assistance, and to Dr. Chave, who subsequently localized the bullet by *x* rays, lying against the body of the left ilium.

Reigate.

A. R. WALTERS, M.R.C.S., L.R.C.P.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

GENERAL MILITARY HOSPITAL, EDMONTON.

A CASE OF INTESTINAL OBSTRUCTION DUE TO BURIED SWABS.

(By D. M. HUGHES, M.B.Lond., F.R.C.S.Eng., Major R.A.M.C., Officer-in-Charge, Surgical Division.)

PRIVATE M., aged 21, was admitted to hospital with the following notes on his field card: "Wounded November 14th, 1917, right side of back. Laparotomy November 15th, foreign body extracted from the liver to the right of the gall bladder, having passed through the upper pole of right kidney. No intestinal injury found." On admission to Edmonton, on November 30th, the patient was quite convalescent, and taking ordinary diet.

On December 15th he was seen by me on account of vomiting and pain which had come on suddenly the previous night. The abdomen was flaccid except in the middle portion of the abdominal scar—a very long and beautifully healed incision extending nearly from the ensiform to the pubes. Behind the umbilicus, however, there was a rigid area too tender to permit of deep palpation. Elsewhere free manipulation was possible, and nothing abnormal found. The vomit was faeculent, and the pain spasmodic, rising to a climax and suddenly ceasing, though the intervals between the spasms were clearly becoming shorter. Temperature 97° F., pulse 112. The symptoms were so unequivocally those of intestinal obstruction that immediate operation was decided upon.

Ether was administered by Lieutenant Simon, and with the assistance of Dr. F. W. Carter an incision six inches long was made through the old scar; the intestine and omentum, the latter especially, were found adherent to the abdominal wall in the line of the incision; they were readily separable. A collapsed coil of intestine rapidly passed through the fingers ended in a globular mass of agglutinated intestine and mesentery the size of a large orange. Coils of dilated and injected intestine obscured the mass, but the dilated bowel was easily traced into it. The unravelling of the mass was difficult, as it had to be done in the depths of the abdomen among dilated coils. Moreover, the adhesions between the coils were completely organized, had to be separated with the knife, and hence bled freely. Two perforations were thus encountered (probably caused) and were treated with purse-string sutures, slight faecal soiling inevitably occurring. As the mass was unravelled the core was seen to be formed by two grey-green swabs smelling strongly of faecal matter. The intestine set free from its adhesions measured about 12 in. in length, and was brought out of the abdomen and examined, bare areas being covered by cross stitching. A stab wound in the middle line above the pubes liberated a quantity of blood-stained fluid, and a large cigarette drain was passed into the pelvis; the patient was immediately placed in the Fowler position; he left the operating table with a pulse of 144, but rapidly improved, and his further recovery was uneventful.

The case is of interest from the effort made by nature to encapsule the swabs. Usually this devolves upon the omentum, but presumably the omentum being small and denied access to the offending swabs by reason of adhesions to the line of the previous abdominal incision, the encapsulation of the foreign body was carried out by the coiling of the intestine about it.

Reports of Societies.

THE MENTAL FACTOR IN SPA TREATMENT.

To a meeting of the Section of Balneology and Climatology of the Royal Society of Medicine on January 31st, when Dr. PRESTON KING, the President, was in the chair, Dr. PERCY LEWIS, of Folkestone, contributed a paper on this subject, in the course of which he pointed out that in all chronic illness increased attention was consciously or unconsciously given to the diseased part, and must be again diverted into normal channels. Thus was explained the better results from foreign than from British spas, owing to the increased interest in novel surroundings. British health resorts were urged to copy in this respect. It was only by diverting attention from inside (introspection) to outside that the mental abnormality could be cured. The personality of the spa physician as a most important element in the cure was considered, and it was maintained that the success of a physician showed that he understood how to deal with the mental factor. The effect of religion as a means of cure was held to depend on its power of exciting the necessary great expectation of cure, aided by the element of mystery. Finally a plea was made for the claims of all forms of suggestion, hypnotic, hypnoidal, or waking persuasion, and for a systematic study of the cures which have taken place by most diverse means through all ages, thus fixed principles might be elucidated allowing of scientific application. The PRESIDENT was glad to hear the introspective habit discouraged; it could be avoided by occupation, and on this account he disapproved of the typical rest cure. Dr. CAMPBELL McCURE said that the music and theatres, even at our largest spas, compared very unfavourably with similar entertainments at Continental spas. At our English resorts there was little to take a patient's mind off himself and his ailments, whereas the mental factor was well catered for on the Continent. Dr. F. HERNIMAN-JOHNSON expressed strong disapproval of the use of electrical treatment for its mental effect.

THE VAGINAL DOUCHE.

At the annual meeting of the North of England Obstetrical and Gynaecological Society, held in Manchester on January 18th, Dr. FLETCHER SHAW (Manchester) described three cases: (1) *B. coli* cystitis producing intestino-vesical fistula; (2) a case of thrombosis of the mesenteric veins with symptoms simulating a twisted ovarian cyst; and (3) a case of strangulated intestine with symptoms simulating an ovarian cyst with twisted pedicle in a patient aged 42. Dr. W. E. FOTHERGILL (Manchester) introduced a discussion on the use and abuse of the vaginal douche. He took up the position that it was a curse rather than a blessing. The antiseptic douche was inferior to the methods of dry cleaning now in use when the object was to destroy pathogenic organisms; and when used without discrimination it was pernicious in several ways. The so-called hot douche, intended to reduce pelvic hyperaemia, was not used, in practice, hot enough to cause the desired effect. As used it was really a warm douche, and increased pelvic hyperaemia. This was useful under certain circumstances—namely, when the absorption of inflammatory exudates had to be aided. This indeed was the only useful purpose for which, in his opinion, the douche could be used. Drs. DONALD, GEMMELL, WILLET, and others took part in the discussion, and the opinion generally expressed was that the habit of indiscriminate douching by women is bad, that the antiseptic douche is of questionable value, and that the warm douche, used with the same objects as a poultice or hot fomentation in inflammatory conditions, is useful.

THE address on nursing ethics, first published by Dr. Kirkpatrick, Registrar of the Royal College of Physicians of Ireland in 1915, has been reprinted. Copies can be obtained on application to him at 6, Kildare Street, Dublin, price 1s. net. The lecture, of which we gave some account in the JOURNAL of February 13th, 1915, p. 302, is dedicated to the nurses of Dr. Steevens's Hospital, past and present. It contains much advice which will be valuable to all nurses.

Reviews.

LEISHMANIOSES.

A NEW work on leishmanioses,¹ by Professor LAVERAN, resembles in style and appearance his well-known book on malaria, and as he has already dealt with trypanosomiasis in conjunction with Professor Mesnil he has now provided treatises on three of the main tropical diseases. The new work contains 521 pages and is illustrated by a few coloured plates and by photographs and diagrams. Since 1903, when the specific parasite of kala-azar was first discovered, enormous strides have been made in the elucidation of some of the problems raised by this class of diseases, and at the same time an extensive literature has come into existence. Professor Laveran therefore has rendered a great service in making all these details available in an easily accessible form. The book is written in his usual lucid style; it is accurate and contains everything that is required to be known about the subject to-day. It contains five main sections: (1) Leishmania and leishmanioses in general. (2) Human visceral leishmaniosis or kala-azar, of which the agent is the Leishman-Donovan body. Infantile kala-azar, which was at one time considered a separate disease, is now included under this heading, as the author considers it to be identical with the adult form. (3) Natural visceral leishmaniosis of the dog, probably of the same nature as kala-azar. (4) Cutaneous leishmaniosis or *bouton d'Orient* (oriental sore), due to the *Leishmania tropica*; and (5) American leishmaniosis of the skin and mucous membranes, which is described as a variety of the common variety of cutaneous leishmaniosis (oriental sore). These divisions are then described in detail, references to the literature mentioned being placed at the foot of each page. These references are very full and seem as far as we can judge to be complete. The use of the termination -osis is open to the objection that -asis is used for other diseases of tropical origin (ankylostomiasis, bilharziasis, distomiasis, trichocephalasis). A rather serious defect, common in French works, is the absence of an index. In a book such as this, which the practitioner and laboratory worker in the tropics will wish to use as a work of reference, this is most inconvenient and considerably militates against its use for this purpose. It is difficult enough to find the main headings, but the search for smaller details calls for the expenditure of so much time that few will have the patience to make habitual use of the book. As the text is so valuable it would repay translation into English and if a table of contents (also missing in the French text) were added, as well as a good index, the value of the volume would be greatly enhanced. The parts of the book dealing with treatment are most interesting, for here great progress has been made. Machado and Vianna in South America first tried intravenous injections of antimony in cutaneous cases of leishmaniosis, and the success obtained was so great that the method has been applied by many workers in different parts of the world, both in the cutaneous forms of the disease in Asia, and in the form known as kala-azar. Results, better than by any other method of treatment, have been obtained, and thus the disease has been robbed of many of its terrors. There are still, however, many points requiring elucidation; there is, for example, scope for much original investigation into the way in which the disease is spread from person to person. To any one wishing to tackle these problems, Professor Laveran's book will prove invaluable.

The volume by Dr. BRAHMACHARI of Calcutta, entitled *Kala-azar and its Treatment*,² gives a full account of his clinical experience in the use of various antimonial preparations in the treatment of this disorder, which is a chronic infectious form of leishmaniosis occurring in India. Before doing so he passes in review the various methods of treatment which have not proved satisfactory in the past, including French and Italian attempts to produce a

¹ *Leishmanioses: Kala-azar, Bouton d'Orient, Leishmaniose Américaine*. By A. Laveran, Professeur à l'Institut Pasteur. Paris: Masson et Cie. 1917. (Roy. 8vo, pp. 521; 40 figures, 6 plates. Fr. 15.)

² *Kala-azar: Its Treatment*. By U. Brahmachari, M.A., M.D., Ph.D., Rai Bahadur. Calcutta and London: Butterworth and Co. 1917. (Demy 8vo, pp. v + 121; 6 plates, 17 charts. 8s. 6d. net.)

vaccine. He describes promising results from the use of organic arsenic preparations and from intravenous injections of antiseptics, such as iodine, quinosol, formaldehyde, and ammonia picrate, but he had his most striking successes in the treatment of Indian kala-azar with antimonial preparations. These preparations, of which a considerable number is enumerated, have been variously administered by the mouth or rectum, by intravenous or intramuscular injection, and by innunction. Each method has its advantages and disadvantages. Speaking generally the intravenous method is best, but Dr. Brahmachari hopes that before long some mode of injecting antimonial salts into the muscles without causing pain may be discovered. After an extended trial of these various methods and preparations he comes to the definite conclusion that "antimony is specific for kala-azar, and of all its known preparations metallic antimony is the best," here including both colloidal and very finely divided antimony. The number of injections of metallic antimony required he finds to be much smaller than that of the various soluble antimonial salts he has tried. His latest observations go to show that alternating injections of antimony and one of the antimony salts (sodium or potassium emetic, for example) give excellent results. Among the troublesome symptoms that may follow intravenous injections of tartar emetic (up to perhaps 10 c.c. of a 2 per cent. solution?) he mentions pyrexia, rigors, intense headache, pain in the gums, cough, vomiting, and diarrhoea, pain in the abdomen and loins, oedema of the extremities, cardiac depression, and transient jaundice. But it must be remembered that this alarming list refers to the exceptions. His book contains records of a large number of cases treated with antimony and other drugs, and gives evidence of a very wide experience in the treatment of kala-azar.

THE CONTINUITY OF SOCIAL LIFE.

THE title of Mr. COULTON's volume, *Social Life in Britain from the Conquest to the Reformation*,³ is rather deceptive. It might suggest a historical essay which would be rather dry reading, but his compilation is as diverting as it is informing. It may perhaps best be described as a commonplace book of extracts from contemporary writers, chosen and classified with a well defined object—that of supplying the "background of social history which is necessary to a sympathetic comprehension of our own literature in the Middle Ages"; but he has done more than this, whether he set out to do so or not, for he is able to claim with truth that in his extracts our forefathers are found speaking for themselves on the main questions which interest people to-day. It is a fascinating book; not one to read through, but to take up at odd times, so that gradually the point of view of the English in the thirteenth and fourteenth centuries, the period for which it is richest, is borne in upon the mind. There is, for instance, the Act of 1388 for "the punishment of them which cause corruption near a city or great town to corrupt the air." There had been local ordinances of different boroughs earlier, but this is believed to be the first urban sanitary Act for the whole of England. It was a short Act, as easy to be understood as it was probably difficult to enforce. Those who did not obey it were liable to the smart fine of £20, equivalent to, perhaps, £300 or £400 in modern currency, and this liability applied not only to the actual defaulter, but also to the mayor and bailiffs who failed to put the law in force. It also empowered any person aggrieved, whether a citizen or merely a person who frequented the town, or any traveller, to set the law in motion. In the local ordinances which preceded the general law we have an early illustration of the fact, evident to-day, that advances always come from the local authorities. The London ordinance was made in 1281, over a century before the Act was passed. With the more rapid progress of modern thought the interval has been reduced to half a century, or even less.

Coming to the early fifteenth century (1410) we find the record of how the wife of Hiky, the poulterer, who charged 20 pence for four woodcock, and the wife of John Mede who refused 12 pence for two partridges, contrary to the food tariff, were committed to prison. Four years ago the

incident would have seemed wholly mediaeval; but like causes continue to produce like effects.

As to the sixteenth century, is there not something very modern about the following passage from a memorandum (1530) on the management of his school made by the master of Eton for the information of the master of Saffron Walden Grammar School: "When any dothe come newe, the master doth inquire fro whens he cometh, what frendys he hath, whether there be any plague." By the last word is probably to be understood any epidemic disorder.

Perhaps the most lasting impression left by an hour or two with the book is of the similarity and continuity of the life of Britain to-day and in the thirteenth and fourteenth centuries. At first the changes may strike the reader most, but as he reads on, foregoes laughing at the spelling, and grows into the spirit of the age, he sees that the essential fundamental qualities of the race, its habits and methods, have not changed.

NOTES ON BOOKS.

CAPTAINS C. G. MOOR and E. A. COOPER, R.A.M.C.(T.), in collaboration with officers and men of the 1st London Sanitary Company, have compiled an excellent little handbook on *Field Sanitation*,⁴ written in a practical spirit, and covering the ground very thoroughly. We cordially endorse the hope expressed in the author's introduction "that combatant officers will use this book, which is written quite as much for them as for those whose whole time is occupied in sanitary work." Major H. S. Fremlin, the commanding officer of the unit, points out, in a short preface, that the instructions contained in this volume are the outcome of many changes in sanitary work and appliances that have developed during the war, and that for this reason it should be considered in the light of an appendix to existing works. He draws particular attention to the chapters on baths and laundries in the field, on the disposal of excreta and refuse, and on the methods for economizing public money. Throughout the book directions are given for improvising sanitary appliances out of simple and handy materials, and working sketches show clearly how the apparatus described may be constructed. The authors are to be congratulated on producing a lucid, well arranged, and interesting guide to the means for keeping men healthy and comfortable on active service.

Captain W. H. BROAD, M.D., R.A.M.C., medical officer in charge of the Massage and Gymnastic Departments and Curative Workshops, Alder Hey Military Orthopaedic Hospital, Liverpool, has issued, with the approval of Colonel Sir Robert Jones, Inspector of Military Orthopaedics, a leaflet, entitled *Rules for Massage*. In the rules for muscle cases Captain Broad points out that it is essential that a paralysed limb should not be allowed to lie in a position in which the affected muscles are stretched, so as to permit the undisputed antagonism and possible contraction of the opposing healthy muscles. The condition of slight contraction, constant in a normal muscle in order that it may respond instantly to an impulse, commonly spoken of as "tone," is absent in a paralysed muscle; it must therefore be kept from being stretched and elongated by the use of a suitable support. The necessary massage can, he says, often be done in these cases without removing the supporting splint, but, when its removal is essential, the limb must instantly be passively supported by a pillow or sandbag as the splint is withdrawn, to prevent any stretching of the affected muscles. The leaflet has a separate paragraph on joint, bone cases, and tendon transplantation. Instructions are given on note-making. Altogether the leaflet will be found a most valuable guide by the conscientious worker.

The scope of the book *Fifty Thousand Miles on a Hospital Ship*,⁵ by "The Padre," is well expressed in its title. It consists of budgets of letters, arranged in diary form, which the author, a chaplain on a hospital ship, sent home. Most of his service was spent in the Mediterranean in connexion with the Dardanelles expedition. The volume is well illustrated by reproductions of photographs, and gives a good picture of life on a hospital ship, often under trying circumstances.

³ *Social Life in Britain from the Conquest to the Reformation*. By G. G. Coulton, M.A. Cambridge: At the University Press. 1918. (Med. 8vo, pp. xvi+540. 15s. net.)

⁴ *Field Sanitation*. By C. G. Moor, Captain R.A.M.C.(T.), M.A., F.I.C., F.C.S., and E. A. Cooper, Captain R.A.M.C.(T.), D.Sc. London: Baillière, Tindall, and Cox. 1918. (Demy 8vo, pp. 230; 83 figures. 2s. 6d. net.)

⁵ London: The Religious Tract Society. 1917. (Crown 8vo, pp. 284. 3s. 6d. net.)

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

A MEETING of the General Committee of the Belgian Doctors' and Pharmacists' Relief Fund was held at the house of the Royal Society of Medicine on January 31st. Sir RICKMAN GODLEE, who presided, gave an outline of the history of the Fund, and stated the procedure governing the dispatch of money and also, in the early days, of drugs and appliances to doctors and pharmacists in Belgium, and the granting of material or monetary relief to refugees in the United Kingdom. The funds available were now almost exhausted, but the executive felt that it was hardly possible to retire from the work at this stage, and it was for that meeting to consider what further appeal should be made.

Dr. H. A. DES VŒUX, the honorary treasurer, stated that since the opening of the Fund in November, 1914, the sum of close upon £20,000 had been received. Of this amount, £2,248 had come from Canada, £2,423 from Australia, and £1,638 from New Zealand, as well as smaller sums from South Africa and India, and from Denmark and Italy. The administrative expenses had amounted to £90 only, thanks chiefly to the ungrudging labour of his own secretary and to the help which had been given in the offices of the *Lancet*. With interest, nearly £21,000 had been available for distribution. The amount spent on the refugees in the United Kingdom was £611; part of this amount had been applied to paying the registration fees of Belgian doctors who wished to practise in this country. In March, 1915, £800 was sent to the Belgian committee—Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés—and similar amounts in June and July of that year; from April, 1916, the sum of £800 had been sent each month until December, 1917, when only £700 was sent; and January, 1918, when the donation was reduced to £400; only £400 was now left of the original fund. Dr. Des Vœux reminded the meeting in moving terms of what Britain owed to Belgium. Had it not been for Belgium's rejection of the biggest bribe in history and her heroic resistance to the invader, the Germans would have occupied the Channel ports, with disastrous consequences for the British empire. For his own part he felt it was their bounden duty to go on with such a fund as this.

Dr. S. SQUIRE SPRIGGE, one of the honorary secretaries, said that it was the unanimous feeling of the executive that a fund which had done so much for the credit of the profession should be continued. The minimum to be aimed at was £10,000. It was a question whether an appeal should be made to the general public, or first a more systematic appeal to the medical and pharmaceutical professions. He acknowledged the help of the British Medical Association in placing its machinery at the disposal of the Committee; this alone had made it possible to reach the more distant parts of the country and empire. But he felt that it might be advantageous to have a number of local secretaries who would distribute appeals and collect subscriptions in their own districts. It might also be possible to appeal to public bodies other than the medical and pharmaceutical corporations, which had already been addressed. There need be no misgiving as to whether the money sent to Belgium reached its objective; receipts were regularly received from the Belgian Committee sitting in Brussels, though since the rupture between America and Germany and the closing of the American channel of communication the analysed *comptes rendus* showing how the money had been applied were no longer available.

Sir A. PEARCE GOULD supported the appeal for the continuance of the fund, and suggested a system of monthly subscriptions.

Dr. DES VŒUX said that personally he was rather against an indiscriminate public appeal, for he would like, if it were possible, that this work should remain to the end within the two professions. It would be an additional honour if they could carry it through themselves as an act of sympathy with their Belgian colleagues.

Dr. ALFRED COX, Medical Secretary of the British Medical Association, proposed that a postal appeal should be issued to every member of the two professions; this was seconded by Mr. THOMAS MABEN, F.C.S., for the pharmacists, and was agreed to.

A vote of thanks was accorded to the ladies who had superintended the clothes bureau, which work was now merged into that of the War Refugees Committee; and an interim vote of thanks to the officers of the Fund and their clerical assistants.

SUBSCRIPTIONS.

Subscriptions received in response to the second appeal for the Fund up to January 30th:

	£	s.	d.		£	s.	d.
<i>The Lancet</i> ...	50	0	0	"Anon."	2	2	0
Medical Insurance Agency (Chairman: Dr. G. E. Haslip)...	50	0	0	Dr. W. J. Dewar	2	2	0
Lochiel Sheep Farming Co., Ltd. (per Meredith Townsend, Esq.)...	50	0	0	Dr. H. Simmons	2	2	0
Sir Rickman J. Godlee	34	8	0	Dr. R. J. Wilson	2	2	0
Dr. Herbert Spencer	25	0	0	Dr. T. Berry	2	2	0
Sir Thomas Barclay	20	0	0	Lieut.-Col. E. Le Cronier	2	2	0
Sir St. Clair Thomson	10	10	0	Lancaster, R.A.M.C.	2	2	0
Dr. John Matthews	10	10	0	Dr. Edwin Jackson	2	2	0
Dr. Lawrence Franklin	10	10	0	Dr. John Thomson	2	2	0
Mr. W. C. Bull	10	10	0	Dr. J. Hepworth Shaw	2	2	0
Mr. J. P. Ellerington	10	0	0	Dr. E. L. Bunting	2	2	0
A Friend	10	0	0	Dr. Elsie M. Chubb	2	2	0
Per Sir R. J. Godlee	7	7	0	Dr. J. Quinton Bown	2	2	0
Dr. J. Auriol Armitage	5	5	0	Dr. F. de Havilland Hall	2	2	0
Dr. J. Tremlett Wills	5	5	0	Dr. Vincent Tighe	2	2	0
Dr. S.QUIRE SPRIGGE	5	5	0	Mr. A. Jefferis Turner	2	2	0
Dr. Dawson Williams	5	5	0	Mr. E. Edwards	2	0	0
Dr. C. D. Muspratt	5	5	0	Dr. R. L. Legate	2	0	0
Dr. F. W. Collinson	5	5	0	Dr. F. D. Bennett	2	0	0
Dr. H. Russell Andrews	5	5	0	Dr. George Hunter	1	1	0
Professor T. K. Monro	5	5	0	Dr. J. B. Hurry	1	1	0
Dr. Middleton	5	5	0	Dr. F. J. Baidon	1	1	0
Sir Henry Burdett	5	5	0	Dr. D. R. Moir	1	1	0
Dr. W. Collier	5	5	0	Dr. R. Hingston Fox	1	1	0
Dr. C. O. Hawthorne	5	5	0	Dr. D. Fogarty	1	1	0
Sir Clifford Allbutt	5	0	0	Mr. C. S. Ashton	1	1	0
Sir Thomas Barlow	5	0	0	Dr. A. Court	1	1	0
Mr. J. B. Lawford	5	0	0	Prof. Robert Saundby	1	1	0
"Clandius Civilis"	5	0	0	Mr. T. R. Cook (Ed. Cook and Co., Ltd.)	1	1	0
"Anonymous"	5	0	0	Dr. H. A. Latimer	1	1	0
Mr. J. Elliot Square	5	0	0	Dr. F. M. Blumer	1	1	0
Dr. J. W. Carr	5	0	0	Dr. J. H. W. Laing	1	1	0
Dr. F. E. Batten	5	0	0	Dr. N. J. McKie	1	1	0
Captain H. H. Taylor	5	0	0	Dr. A. Gordon Watson	1	1	0
Dr. G. H. Dawes	5	0	0	Dr. E. T. McDonnell	1	1	0
Dr. Percy Kidd	5	0	0	Dr. A. H. Peniston	1	1	0
Per Sir R. J. Godlee	3	10	0	Dr. John Dunlop	1	1	0
Mr. Walter Hills	3	3	0	Dr. A. Bowe	1	1	0
Mr. G. M. Arrowsmith	3	0	0	Dr. W. Adams Clark	1	1	0
Major Charlesworth	2	2	0	Dr. J. A. Small	1	1	0
Lieut.-Col. J. G. Adami	2	2	0	Mr. Meredith Townsend	1	1	0
A.D.M.S.	2	2	0	Dr. A. S. Hedley	1	1	0
Jersey Medical Society (per Dr. O. C. Powell)	2	2	0	Dr. Allan	1	1	0
Dr. Florence Stoney	2	2	0	Dr. T. P. Keenan	1	0	0
Dr. A. E. Nicholls	2	2	0	Dr. S. M. Salaman	1	0	0
Dr. Alfred Cox	2	2	0	Miss Pym	1	0	0
Dr. T. Jenner Verrall	2	2	0	Dr. Chas. F. D. Hammond	0	10	6
Dr. Frederic Durham	2	2	0	Mr. W. J. Shepperd	0	10	6
Dr. Annie E. Clark	2	2	0	Mr. F. Neal	0	10	0
				Dr. W. B. Russell	0	7	6
				Dr. T. P. Greenwood	0	6	0
				Mr. Alfred Wright	0	5	0

The following subscriptions to the Fund were received during the week ending February 4th:

	£	s.	d.		£	s.	d.
Dr. Miller	2	2	0	Mr. J. Rutherford	10	0	0
Dr. Russell Atkinson	1	1	0	Morison, F.R.C.S.	1	1	0
Dr. Greenfield	2	2	0	Dr. F. W. Edwards	2	2	0
Lieut.-Colonel D. G. Crawford	5	0	0	Dr. R. J. Pye-Smith	0	10	6
Per Sir Rickman J. Godlee	10	10	0	Dr. J. W. Martin	3	3	0
Mr. Hodsdon, F.R.C.S.	4	4	0	Dr. J. W. Russell	100	0	0
				Messrs. Parke, Davis, and Co.			

Subscriptions to the Fund should be sent to the treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE MILITARY MEDICAL SERVICES IN 1917.

IN THE BRITISH MEDICAL JOURNAL of January 2nd, 1915, of January 15th, 1916, and of January 27th, 1917 (p. 124), were published articles on the military medical services in 1914, 1915, and 1916 respectively, dealing with their strength and their losses during these years. The present article continues the series for the year 1917.

The first two articles began with notes on the strength of these services, and their expansion to meet the demands of war. As no new *Army List* has been available to the public for the past two years and a half, the last issued for general use having been that of June, 1915, any consideration of strength must now be chiefly guesswork. A certain amount of information, however, has been given in two speeches by the Leader of the House of Lords and by the Viceroy of India, which are noted below in their place.

The mortality in the medical services during nearly three and a half years of war is briefly shown in Table I below. Medical officers of all services, and also medical

men serving as combatants, are included in this table. In both this and the following table officers who died of wounds or who were lost at sea by enemy action are included among the killed.

TABLE I.

	Killed.	Died.	Total.
1914 (five months)	46	?	46
1915	97	45	142
1916	162	98	260
1917	200	93	293
Total	505	236	741

In Table II are shown the numbers killed (including died of wounds and lost at sea), died while serving, wounded, missing, and prisoners in each of the medical services during the year 1917. The numbers shown as killed are believed to be correct, except that they comprise a few killed in 1916, and not included in the table for that year, and probably omit a few, not yet reported, who lost their lives towards the end of 1917. They are at least very near the truth. The numbers shown as wounded have been compiled from the daily casualty lists, as summarized weekly in the *BRITISH MEDICAL JOURNAL*. The figures are doubtless not quite exact, but they are approximately correct. Most of those reported as having died of wounds had been previously reported as wounded, and most of those shown as missing have been subsequently accounted for, either as killed or as prisoners, so that a certain number, small compared to the total, have been shown twice over.

In the absence of exact information as to the total numbers in each of the medical services, the proportion of killed and wounded in each can only be guessed at. In actual numbers the temporary officers of the R.A.M.C. are an easy first. But the total number of these officers is far greater than that of any other class. The proportion of killed to the total number of officers is probably higher in the Australian Army Medical Corps than in any of the others.

Throughout the year the seat of war in which casualties have occurred has not been officially stated, except in a few cases from Africa. The greatest number by far must undoubtedly have happened in France, though the Balkans, Mesopotamia, Palestine, and East Africa have all contributed a share.

TABLE II.—Casualties and Honours, 1917.

	Killed.	Died.	Wounded.	Missing.	Prisoners.	Honours.
R.N.	15	6	9	1	2	63
R.A.M.C.	13*	8	19	1	1	236
R.A.M.C.(S.R.)	13	2	28	2	1	91
R.A.M.C.(T.F.)	20	9	79	2	1	136
R.A.M.C. (temporary)	92	36	386	11	5	419
Australians	18	5	59	—	—	95
New Zealanders	—	2	11	—	—	22
Canadians	4	7	28	—	—	58
South Africans	3	—	1	—	—	13
I.M.S.	3	9	6	2	2	74
I.S.M.D.	—	7	—	—	—	18
Combatants	12	2	—	—	—	—
Miscellaneous	7	—	—	—	—	—
Total	200	93	626†	19	12	1231

* Including 3 lost at sea.

† In 1915 the number of medical officers returned as wounded was 224, in 1916 it had risen to 395, while in 1917 this figure was again greatly exceeded, with a total of 626. These figures are doubtless not exactly correct, but they are approximately so. Several officers first returned as wounded subsequently died of their wounds, and in a few cases the same officer has been wounded more than once during the year.

ROYAL NAVY MEDICAL SERVICE.

The number of medical officers on the active list of the Royal Navy is probably much the same as it was a year ago. The casualties and the number of new appointments have both been few. The number of temporary surgeons has probably slightly increased.

The number of naval medical officers killed has been fifteen, and of these eight, or ever one-half, have been surgeon probationers of the R.N.V.R. Three medical officers were killed when H.M.S. *Vanguard* blew up on July 9th.

ROYAL ARMY MEDICAL CORPS.

When proposing the vote of thanks to the Navy, the Army, the Colonial Troops, and the Mercantile Marine, in the House of Lords on October 29th, Lord Curzon, the Leader of the House, stated that, at the beginning of the war, the strength of the R.A.M.C. was 3,168 officers and 16,330 of other ranks; while, by the date of his speech, it had expanded to nearly 14,000 officers and 125,000 of other ranks. These figures give some clue to the present strength of the service. The figure of 3,168 in 1914 evidently includes Territorial officers, for the strength of the regular R.A.M.C. has never been much over a thousand. In the present total of nearly fourteen thousand the medical officers of the Royal Navy are evidently not included, and it is probable that the I.M.S. and the medical corps of the Dominion troops are also not counted.

The strength of the regular R.A.M.C. has somewhat increased during the year. In the *London Gazette* of January 10th, 1917, was notified the appointment of 104 Special Reserve, Territorial, and temporary medical officers to permanent commissions in the army. On the other hand, in the *Gazette* of December 25th, forty-eight senior officers were placed on retired pay on attaining the age limit. Adding thirteen killed, eight died, and five or six retirements on account of ill health, leaves a net increase of about thirty. The numbers of the Special Reserve, Territorial, and temporary officers have probably also somewhat increased, but this is mere guesswork. As regards the numbers of the Dominion medical corps no information is available.

Not knowing the total number, little can be said as regards the proportion of fatal casualties among the different medical corps. It appears, however, that the proportion of medical officers killed has been highest in the Australian forces. Still more remarkable is the number of Australian medical officers of the higher ranks killed. The number of medical officers of field rank killed during the year appears to have been eighteen, namely, regular R.A.M.C., four (of whom two were lost at sea); R.A.M.C. (T.F.), four; Australians, eight; Canadians and South Africans, one each; R.A.M.C. Special Reserve and temporary officers, I.M.S., and New Zealanders, none.

Of the medical men killed serving as combatants, two were lieutenant-colonels, and two were majors. One lieutenant-colonel was an Australian, the other three were in the Royal Artillery.

It was, of course, only to be expected that the casualties should fall chiefly on the junior ranks. Their numbers are immensely greater than those of the seniors. Also the medical officers most exposed to danger, serving with regiments and in the advanced dressing stations, are mostly officers of the rank of captain and lieutenant.

Sons of Medical Men.—The number of sons of medical men reported in the *BRITISH MEDICAL JOURNAL* as killed, while serving as combatants, in 1916 was 385. In 1917 the number reported was somewhat less, 338. In each case a few are included who were not killed, but died. The figures are doubtless very imperfect, especially as regards men serving in the ranks and in the Dominion troops.

Medical Students.—The number of medical students reported as killed in 1916 was 57, and in 1917 somewhat less, 35. Those who were sons of medical men are not included, having been shown under that head. Here also the figures are very imperfect.

Combatants.—At least six medical men and six dental surgeons were killed serving as combatant officers. One or two of these lost their lives in 1916, but were not reported in the *BRITISH MEDICAL JOURNAL* till 1917.

THE INDIAN MEDICAL SERVICE.

This service has been maintained at about its normal strength of rather under 800, the number of appointments

by nomination having just about balanced the wastage by death and by retirements for ill health.

The number of temporary officers at the beginning of 1916 was about 130, and by the end of that year had probably been doubled. In a speech delivered at Simla on September 5th Lord Chelmsford, the Viceroy, stated that the number of temporary appointments made had reached a total of nearly 500. This is nearly two-thirds of the strength of the permanent service. Probably, however, the figure of 500 includes all appointments made up to date. The wastage among temporary officers caused by resignations, by deaths, and by a few nominations to permanent commissions has probably by this time, after three and a half years of war, reached nearly a hundred.

One officer of the permanent service has been killed in action during 1917, and two temporary lieutenants were killed in Mesopotamia early in the year. Two other officers, Captains Arthur and Mukerji, who were among the prisoners taken at Kut, died in captivity during the year. No retired officer died while actually serving during 1917.

The service suffered a great loss during 1917 by the death, on October 21st, of its Director-General, Sir Charles Pardey Lukis. Originally appointed for five years on January 1st, 1910, he had received repeated extensions of service during the war; the last intended to run till the end of 1918.

The Indian Subordinate Medical Department.

In this service the names of commissioned officers only have been reported in the casualty lists, and these form a comparatively small proportion of the total. None of them have been reported as killed, seven have died, including two retired officers re-employed. The total casualties in the whole service must have been much larger. The number of honours is eighteen, including one Military Cross.

THE AFRICAN MEDICAL SERVICES.

Members of the different African Medical Services have taken part in the long-drawn-out campaigns in German East Africa. The only casualty among them reported has been the death of Captain W. J. Anderson, East African Medical Service, accidentally killed. Many of the younger members of these services are at present serving in the R.A.M.C., with temporary commissions. Any casualties among these officers would be shown among those of the temporary officers of the R.A.M.C.

Three members of the West African Medical Staff were lost at sea in torpedoed ships towards the close of the year.

THE MERCANTILE MARINE.

A large number of liners have been sunk by enemy submarines during the year, and one would have expected that many medical officers of the mercantile marine would have lost their lives in these vessels. But we have only seen two such deaths reported, Dr. J. T. E. Parker, of the *Ivernia*, on January 1st, and Dr. W. F. Alges, of the *California*, on February 7th. Dr. A. R. Steel, of the Admiralty Transport Service, was also lost at sea in the transport *Mendi* on February 28th.

WOMEN DOCTORS.

We should also mention here the deaths of several women doctors on service: Dr. Elsie Inglis, after her return from Serbia; Dr. Isabel Tate, at Malta; Dr. Laura Forster, in Galicia; Dr. Marion Wilson, in France; also Mrs. Harley, killed by a shell at Monastir, in Serbia.

NURSES.

In 1915 no nurses were reported as killed or wounded, but eleven lost their lives in torpedoed hospital ships. None were reported lost in this way in 1916, and none were killed, but five were returned as wounded. In 1917 the casualty returns of the nursing services have been much larger—eight killed, probably in most cases by enemy aircraft; fifteen lost at sea, and sixteen wounded.

HONOURS.

The various honours bestowed on members of the different medical services are shown in Table III. Honours gazetted on January 1st, 1917, are included, but not those of January 1st, 1918. The small number of British honours which has gone to the medical department of the Royal Navy cannot fail to be observed, but we may note

that something has been done to repair this apparent neglect in the New Year Honours List of 1918. On the other hand, a considerable proportion—nearly one-fourth—of the honours granted by foreign governments to medical officers have been received by naval medical officers. These include French, Italian, Belgian, Russian, Serbian, and Japanese decorations. The column headed "miscellaneous" includes a number of orders, of which only a few of each have gone to the medical services—the Royal Victorian Order, the Star of India, the Indian Empire, the Kaisar-i-Hind, the British Empire, etc.; also the Order of British India, and the Indian Order of Merit, bestowed upon Indians only. Honours conferred upon retired officers of the R.A.M.C. and I.M.S. are included along with those on the active list.

TABLE III.—Honours, 1917.

	V.C.	G.C.B.	R.C.B.	C.B.	K.C.M.G.	C.M.G.	D.S. Cross.	Bar to D.S.O.	D.S.O.	Bar to M.C.	Military Cross.	Miscell.	Foreign.	Total.
R.N.	Pern. ...	—	—	—	3	1	2	—	3	—	—	—	33	42
	Temp. ...	—	—	2	—	—	5	—	2	—	7	1	4	21
R.A.M.C.	...	—	1	2	24	6	36	—	1	106	1	16	6	236
R.A.M.C.(S.R.)	...	—	—	—	—	—	—	—	6	6	73	—	6	91
R.A.M.C.(T.F.)	...	1	—	—	4	—	5	2	31	5	65	12	11	136
R.A.M.C.(temp.)	...	1	—	—	9	—	5	2	29	36	308	—	29	419
Australian A.M.C.	...	—	—	1	—	—	7	—	34	3	46	—	4	95
New Zealand M.C.	...	—	—	—	—	—	4	—	4	—	13	—	1	22
Canadian A.M.C.	...	—	—	—	2	—	1	—	10	—	39	—	6	58
S. African M.C.	...	—	—	—	—	—	—	—	9	1	9	—	—	19
I.M.S.	...	—	—	1	4	1	11	—	13	1	11	13	19	74
I.S.M.D.	...	—	—	—	—	—	—	—	—	—	1	11	6	18
Total	...	2	1	4	48	7	70	7	5	247	53	588	43	1231

The most coveted honour of all, the Victoria Cross, has been granted to only two medical officers during the year, both posthumously. The Cross was conferred on temporary Captain H. Ackroyd and a clasp on Captain N. G. Chavasse, T.F. We believe that a clasp to the V.C. has been given only some four times. It had only once before been bestowed during this war, when temporary Captain Martin-Leake received a clasp to the Cross which he gained in South Africa. Captain Chavasse has been the first and so far the only officer to gain both Cross and clasp during the present war.

Up to the end of 1917, in nearly three and a half years of war, eight Victoria Crosses and two clasps have been bestowed on medical officers. Four of the recipients have fallen in action, the rewards being posthumous. Two were earned in Gallipoli, one in Mesopotamia, the other seven in France. Their distribution among the services has been:

R.A.M.C.—one, Captain H. S. Ranken (killed), November 16th, 1914.

R.A.M.C.(T.F.)—three Crosses and one clasp: Captain J. L. Green (killed), August 5th, 1916; Captain W. B. Allen, October 26th, 1916; Captain N. G. Chavasse, October 26th, 1916, and clasp (killed), September 14th, 1917.

R.A.M.C.(temporary)—two Crosses and a clasp: Captain Martin-Leake, clasp, February 18th, 1915; Lieutenant G. A. Maling, December 18th, 1915, and Captain H. Ackroyd killed, September 6th, 1917.

Canadians—one, Captain F. A. C. Scrimger, June 23rd, 1915.

I.M.S.—one, Captain J. A. Sinton, June, 1915.*

G.C.B.

Another noteworthy honour of the year was the G.C.B. conferred upon Sir Alfred Keogh, Director-General of the Army Medical Service. This is the first occasion on which the Military G.C.B. has ever been given to a medical officer. Sir John McNeill, of the Bombay Medical Service, received the Civil G.C.B. in 1835, but that honour was conferred for services as Minister Plenipotentiary in Persia, long after he had retired from the I.M.S.

* Since the above was written another V.C. has been conferred on a medical officer. Among a number of Crosses gazetted on January 11th, 1918, was one posthumously bestowed upon Captain J. Fox Russell, R.A.M.C.(T.F.), of the Welsh Fusiliers, who was killed on November 6th, 1917.

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SATURDAY, FEBRUARY 9TH, 1918.

THE HOME COMMANDS TO-DAY.

IF we take the Army List of July, 1914—and there has not, we believe, been any change in this respect since—we find that there were eight army commands in the United Kingdom. The Scottish and Irish Commands embraced the whole of those countries. One of the English Commands (Aldershot) was a special case, covering a small area, and the London District was confined to the county of London, with certain outlying dépôts. The whole of the rest of England and Wales was divided into four commands—Northern, Western, Eastern, and Southern. The Northern comprised the eastern part of the country from the Tweed to the Wash; the Western consisted of the west of England from the Solway to the Bristol Channel and the whole of Wales; the Eastern Command comprised the eastern part of the country from the Wash to the English Channel. The Southern extended from Warwickshire to the Channel and from Hampshire to the Land's End. In each of these large districts we find a general officer in command, and at his head quarters a deputy director of medical services, with a small medical staff. The head quarters of the Northern Command were at York, of the Western at Chester, of the Eastern in London, and of the Southern at Salisbury; of the Scottish in Edinburgh, and of the Irish in Dublin. It will be seen that the responsibilities of the Deputy Director of Medical Services in all these cases extend over very wide areas. In response to the growing demands for the care, treatment, and restoration of the wounded and sick the medical organization of a command has now attained very large dimensions. In each command is a number of first line general hospitals. There are, in the first place, the Territorial general hospitals; the scheme for these had been carefully laid down by Sir Alfred Keogh in 1907, and he had readily obtained the assistance of the medical profession in working it out. They were all mobilized on the outbreak of the war and they have since been much enlarged, so that in place of the 520 beds they were originally planned to furnish each now provides several thousand. In addition, to meet the need for more first line beds, other large general hospitals have been established in the commands. In the second line we have many auxiliary hospitals, each providing a relatively small number of beds but collectively a very large total. There may be as many as three or four hundred such hospitals scattered through the command. Orthopaedic centres constitute a new element in medical organization; they have already attained large proportions and must continue to grow in importance. These centres also have their dependent auxiliary hospitals. Next may be mentioned the convalescent camps, and lastly the command dépôts, to which recruits or convalescents may be sent for hardening, and military camps of training. In addition, provision must be made for the ordinary medical work in connexion with troops in the command.

The large general military hospitals are officered by practitioners engaged before the war in civil practice. In some cases, however, the commandant of

the hospital is a regular R.A.M.C.—probably a retired officer re-employed; these officers, we regret to say, have not in all cases shown the necessary tact and discretion. Territorial general hospitals, according to the original conception, were to be staffed by civilian practitioners, usually surgeons and physicians of the big civil hospitals in the centre. Before the war there was a skeleton organization, which was to be completed, if and when necessity arose, by civilian physicians and surgeons who received commissions in various ranks *à la suite*—that is to say, their services were available on mobilization. These surgeons and physicians were duly mobilized in and after August, 1914. While they owe a first duty to the military hospitals, they have to carry on also the work of the civilian hospitals and in other ways meet the demands of the civil population. This was the keystone of the original plan. Their numbers have in some areas been greatly reduced owing to the seconding of many members of the staff for service abroad, especially the younger members and those most physically fit. In this way the staffs not only of the military general hospitals but also of the civil hospitals have been depleted, and the amount of work falling upon those who remain, generally senior members of the profession, that is to say, men no longer possessing the resiliency of youth, has been correspondingly increased. Further, it must be noted that the responsibility for inspection of the second line or auxiliary hospitals rests upon the commanding officer and other members of the staff of the general hospital to which they are affiliated. The auxiliary hospitals, as is well known, are staffed usually by practitioners in the district, who give part of their time to this military work, carrying on during the rest of the day the ordinary work for the civilian population.

The custom of the War Office has been to place at the head of this large organization in each command a surgeon-general of the regular A.M.S. It requires no argument to establish that the duties of the officers holding these appointments are of an exceedingly important nature, calling for organizing ability, tact, and a knowledge of civilian medical affairs which can be possessed by few medical officers who have grown grey in the army. It might have been anticipated that if these appointments were to be reserved for regular officers, men of tried capacity, in the full vigour of life, and with minds open to new impressions, ready to receive sympathetically suggestions for handling conditions as to which they must necessarily have had little previous experience, would have been selected. Whether it can be said that this is what has happened we do not propose to discuss, for we desire to avoid any flavour of personal criticism; but the question naturally arises whether, in some instances at least, civilian practitioners who have worked as commissioned officers in war areas for several years and there gained experience not only of army administration, but also of the special circumstances of the immense military forces now on foot, might not wisely have been selected for the office of D.D.M.S. in some of the Home Commands.

This policy has not been pursued. Not only have appointments open to senior officers A.M.S. with the armies abroad, which have been multiplied many times, been kept a close preserve for them, but also those at home. We believe that this policy is mistaken, and that it should be abandoned. We are confident that there are a sufficient number of medical officers not belonging to the regular R.A.M.C., among the senior Territorial medical officers especially many of whom have served for twenty years or more, who

would make highly efficient Deputy Directors of Medical Services, and would carry on the duties of the office to the satisfaction of the War Office and of the civilian practitioners under their jurisdiction.

There is in each command at home at least one consulting surgeon and in some a consulting physician also. When they were appointed, the conception of their duties was that these were purely clinical. They were to visit the first line and second line military hospitals on request and to consult with the staffs of these hospitals on difficult cases. The conception was quite sound so far, but it ignored the fact that it is not possible to divorce clinical medicine and surgery from administration. The consultants soon realized that a large proportion of the cases brought to their notice in consultation assembled themselves into categories, and that for each category there must be a settled policy and often a special organization. Orthopaedic cases afford one instance. The need for a special organization was recognized early, and by accepting civilian guidance and personnel the War Office has been able to organize a system which, though not yet complete, contains all the elements of success, and will confer incalculable benefits on the individual and on the nation, if the Pensions Ministry can be aroused from its lethargy. The numerous cases of neurasthenia and shell shock afford another instance of a class of war patients calling for a special organization. This is now in its infancy and its friends are standing by its cradle watching that the wrong kind of milk may not be put into its bottle, and, indeed, to make sure that it has a cradle of any kind. Fractures, especially of the joints and of the femur, afford another instance; it was only last week that the Army Council summoned up sufficient resolution to direct that these orthopaedic cases should be sent to orthopaedic centres or to hospitals with special departments, where they can be treated by efficient modern methods.

The reason for this digression is that we feel compelled to say that in these matters the civilian profession, including the consultant officers in the commands, have not in all cases received the support they had a right to expect from the Directors of Medical Services. This is in fact to put the matter in the mildest form, for too often, we fear, they have been met by indifference or by perceptible, though perhaps unconscious, obstruction. We do not wish to inculcate individuals who are the victims of a system which seems to have no justification in army regulations or common sense—two terms which no doubt are at bottom synonymous. They have been, by the fortune of war and the customs of the service, placed in positions for which their previous experience has not prepared them.

It may be said that the consultant physicians and surgeons in the commands have been remiss in allowing things to drift, and that thereby other civilian practitioners have been handicapped and their work in caring for the wounded and sick rendered less effective than they would have desired. But on behalf of the consultant officers it may be replied that their duties were not at first very precisely set out; that their authority in administrative matters was uncertain; that their relation to the supreme authority in military matters in the command—the Deputy Director of Medical Services—was ill-determined; and that they had no machinery for collective action. This last deficiency has been made good by the constitution of the consultants council, which must necessarily deal with general problems raising administrative questions, and is in the way to increase its influence on the decisions taken. It would

get along better and faster if in the Deputy Directors of Medical Services of the Home Commands it had to deal with men of its own kidney, men broken to the hard give-and-take of clinical practice, who understand the civilian mind.

VERONAL.

Two cases in which the effects of veronal came under consideration have been heard recently in courts of law. In one the inquiry was as to the cause of the sudden death of General Sir Beauchamp Duff, who, it was stated at the inquest, had suffered from insomnia, which had been aggravated by anxiety due to the references to him in the report of the Mesopotamia Commission. It appeared that he had recently been in the habit of purchasing a bottle containing twenty-five tablets of veronal about once a month. The jury returned a verdict that death resulted from narcotic poison, self-administered for the purpose of procuring sleep, and was due to misadventure. In the other case an insurance company, in resisting a claim under a life policy, asserted that the insured person was in the habit of taking veronal and that this should have been disclosed when the policy was effected.

The points of chief medical interest in these two cases are the dose and the matter of the establishment of a veronal habit. Dr. W. H. Willcox, in a paper he contributed to this JOURNAL in September, 1913 (p. 663), gave 15 grains as the smallest dose of veronal which had proved fatal. A medical witness at the inquest said that he had known a case in which 5 grains had produced a fatal result. This statement, we gather, applied to a particular case of a class probably best included among those mentioned by Dr. Willcox in which the veronal may be regarded as a contributory cause of the death of a patient in a bad state of health, rather than the actual cause. The same witness stated that veronal produced a certain amount of tolerance, but not so much as morphine or other drugs. In the insurance case Sir James Mackenzie, in the course of his evidence, said that there was no such thing as a veronal habit; people did not crave for it as they did for morphine or bromides, but took it only to meet the particular necessity. After recording this view, which, however, is not accepted by all medical authorities, we come to the point that a person may become addicted to the use of veronal, and that in certain conditions of health a dose of 15 grains—that is to say, three of the tablets ordinarily sold—may produce a fatal result. By an Order in Council made some time ago, diethyl barbituric acid and other alkyl, aryl, or metallic derivatives of barbituric acid, whether described as veronal, proponal, medinal, or by any other trade name, and all poisonous urethanes and urcides, were included in Part I of the schedule of poisons under the Pharmacy Act. The effect of the order is that veronal and the other allied substances may now be sold only to persons who are either known to the chemist, or are introduced by some one known to him, and that on the occasion of each sale the vendor must at the time of sale and before delivery make the prescribed entry of the sale in his poisons book, to which the signature of the purchaser, and of the person, if any, who introduces him, must be affixed.

The Home Office has issued an official notice to the public in the following terms: "There have been many cases of veronal poisoning in this country, and it is desirable that it should be known that the drug

cannot safely be used except upon the advice of a medical practitioner on each occasion. Many persons are specially susceptible to its action, and fatal poisoning may occur even from small doses of the drug, especially if repeated. The danger is still greater when doses are progressively increased. It is most important, therefore, that veronal and its derivatives and allied substances should only be taken with the knowledge and consent of a medical practitioner, and on his written prescription, and it is advisable that the dispensing of such prescriptions should not be repeated without the written sanction of the medical man."

AN EIGHTEENTH CENTURY "BRITISH MEDICAL JOURNAL."

WE have received from Dr. Selje Bennett a most curious document in connexion with the history of the medical press in this country, and one of peculiar interest to the readers of this journal. The document in question is a prospectus of a medical journal entitled the *British Medical Journal*, to be published by R. Phillips of St. Paul's Churchyard, on February 1st, 1799. The price of the periodical was fixed at two shillings; it was to be continued monthly, in octavo size, containing at least six sheets, and its objects were to give the "earliest information on subjects of Medicine, Surgery, Chemistry, Pharmacy, Botany, and Natural History." Amongst other items of interest, all of them set out in an attractive form in the prospectus, there was to appear in the first number "an accurate description of the real plant and Balm of Gilead; its growth and remarkable properties, for which it has long been celebrated, both as a cosmetic and internal medicine among oriental ladies." It is certainly strange that the name of this journal should have anticipated ours, for there is, of course, no connexion between the two, but stranger is the fact that no trace of this eighteenth century *British Medical Journal* can be discovered. After a search in the British Museum, the Library of the Royal Society of Medicine, the Library of the College of Physicians, and other libraries, we are unable to find a journal corresponding to the prospectus of the *British Medical Journal*, now in the possession of Dr. Selje Bennett. It would appear, therefore, that this journal never went beyond the prospectus stage. It was at least possible that the *London Medical Review and Magazine* or the *Medical and Physical Journal* (both of which appeared in 1799, the date of the prospectus of the *British Medical Journal*) might have been launched under that title, but on reference to those journals no support is given to the supposition. So far as is known, therefore, Dr. Selje Bennett is the happy possessor of a rare and perhaps unique document in connexion with the history of the medical press. Modern editors of medical journals may be well acquainted with the methods by which their journals are made popular, but we think, after reading the prospectus, that the most skilful of them would bow down to this unknown writer, and would admit that medical editors in the eighteenth century were fully equal to those of the twentieth in the art of drawing up an attractive prospectus. R. Phillips, of St. Paul's Churchyard, was a well-known publisher in his day, and made somewhat of a speciality of medical and educational publications.

VITAMINES IN WAR-TIME DIETS.

THE third of the series of public lectures at University College on biological problems was delivered on February 4th by Miss Margaret Hume, Assistant in the Director's Department at the Lister Institute of Preventive Medicine, who dealt with the subject of accessory food factors or vitamins. Antirachitic vitamins were present in butter and cod-liver oil, and therefore in a time of fat shortage like the present it seemed desirable that

milk, butter, and cream should be reserved for children as far as possible, and vegetable margarine of much less certain virtue used by adults. Experiments at the Lister Institute had shown that the embryo of the grain of cereals was much richer in anti-beriberi vitamins even than the cortex; modern processes of overmilling, therefore, left a deficiency to be made up from other sources. The most concentrated depositaries of anti-beriberi vitamins were unmilled cereals, pulses (in which, apparently, the vitamins were uniformly distributed, and not limited largely to the germ, as in cereals), and eggs, including such dried preparations as contained pure egg. Another highly concentrated source was yeast flour. Meat and vegetables contained a moderate amount but not in a concentrated form, while the pulpy parts of fruits were poor in vitamins. They were present in milk in small but sufficient quantity. The keeping power of anti-beriberi vitamins was good, and they withstood cooking at 100°C.; at higher temperatures they were destroyed, and therefore tinned foodstuffs which had undergone a process of superheating were deficient. The antiscorbutic vitamins were much more delicate and elusive. They were most abundant in fresh citrous foods such as oranges and lemons, but commercial lime juice, so far as had been ascertained, had no such value. Cabbage leaves were rich in this factor, and tubers less so. Antiscorbutic vitamins disappeared from kept food. At room temperature they disappeared from foodstuffs within a few weeks or days; with food in cold storage they could be preserved for some months; they disappeared rapidly in the higher temperatures of cooking and sterilization, and diminished even in the pasteurization of milk at temperatures below boiling point. Indian soldiers in the Eastern campaign whose ration was atta (coarsely ground wheat flour) and dhal (any kind of pulse) were perfectly safe against beriberi but not against scurvy, unless the rations were supplemented by fresh vegetables or meat. It was an important fact, however, that these vitamins developed on the germination of seeds, and at the Lister Institute the dhal of the Indian soldier's ration had been germinated until its value in respect of antiscorbutic vitamins after twenty-four hours' soaking and twenty-four hours' germination was almost as good as that of fresh cabbage. Sufficient vitamins to protect against scurvy would be forthcoming, in the absence of other vitamin-containing food, from about 1 lb. of potatoes a day, or a smaller amount of cabbage, or perhaps a single orange.

CEREALS AND FATS.

WE have so frequently criticized the contempt of science displayed by many lay writers upon food problems that our readers are perhaps weary of the subject. The *Times* has, however, just provided a remarkable illustration of our argument. Our contemporary published on February 2nd a letter from Mr. Charles Fisher, who wrote as an authority on agriculture, criticizing the policy of the Food Controller with respect to stock raising. *Inter alia* Mr. Fisher endeavoured to controvert the conclusion of the Royal Society's Food Committee that a pig must consume 7 lb. of barley to produce 1 lb. of pork. Mr. Fisher's argument appears to us invalid. The Committee did not, as we understand them, contend that a pig weighing x pounds must have consumed $7x$ lb. of meal, but that in the ripening of stores into bacon or pork pigs the yield was somewhere in the neighbourhood of 1 lb. for 7 lb.—a very different proposition. This, however, is a matter with which we are not primarily concerned; the really important issue is the attitude of the *Times*. In a leading article commenting on Mr. Fisher's letter, after quietly assuming that Mr. Fisher's arguments are irrefutable, the following proposition is put forward: "Scientific calculations about food are a very untrustworthy guide to practice, because the data on which they are based are quite inadequate to justify the

conclusions drawn from them." The confidence with which this assertion is made goes far to explain much that has been amiss during the past three years, and will, we are afraid, explain much still to be endured. Scientific calculations, it seems, are untrustworthy guides; no doubt we shall in the future, as in the past, substitute for them rhetoric, "stunts," and again rhetoric. The *Times*, with commendable fairness, gave prominence in an early subsequent issue to a closely reasoned letter from Professor Starling, who, after pointing out that the leader writer's aphorism involved a contradiction in terms, asked the question, to which it is to be feared no one can give a satisfactory answer, "When are we in England to learn that science is nothing but practical experience accurately noted, recorded, and classified?" Passing to the particular topic of food supplies, Professor Starling made the following points: When we are faced by an acute food shortage it is idle to discuss large ideals of agricultural policy. The basal foods necessary to maintain the health and efficiency of our population are cereals and fats. Measures tending to increase the availability of the former for human needs must reduce the supplies capable of being appropriated to stock. Since vegetable oils cannot be produced in large amount at home, we must have recourse to animals to manufacture the necessary fat for us. But, since it is evidently more economical of tonnage to import maize-fed bacon from America than feeding stuffs for home-raised pigs, the appropriate course is not, as Mr. Fisher and the *Times* contend, to increase our home production of pork. We do not think that any serious objection to this can be advanced. Whatever may be said of other parts of the Food Controller's policy, his expressed intentions with regard to stock raising seem to us well considered.

TREATMENT OF SYPHILIS.

WITH the introduction of the dispensary system for the treatment of venereal disease in Germany has come a growing demand for uniformity and the use of the procedure which gives the best results. In the pre-salvarsan period the treatment of syphilis with mercury had become more or less standardized. This cannot yet be said of the present day combined treatment with salvarsan and mercury, which gives, apparently, widely different results according to the systems of dosage employed. Thus Hübner,¹ in a survey of the experience gained in the Elberfeld dispensaries and hospitals, concludes that, with the combined treatment, as practised by himself, one course was totally inadequate, and that only by its repetition at certain intervals could permanent results be secured. He re-examined 243 cases of syphilis treated in 1915 and 1916 in the Elberfeld hospital, and found that of the patients who had neglected to seek medical aid after leaving hospital only 10 per cent. were free from symptoms and gave a negative Wassermann reaction. The percentage rose to 33 among those who had undergone at least one supplementary course of treatment after leaving hospital, and was as high as 66 among the patients who had had the benefit of several supplementary courses. Professor Scholtz² of Königsberg has made an emphatic protest against the supplementary treatment as a matter of routine. He regards the above results as exceptionally bad and indicative of faulty dosage, and claims that by his method of combining these drugs he has effected 100 per cent. of cures among his private patients treated for primary syphilis. The results were almost as good among his hospital patients. Among patients treated for secondary syphilis within two years of infection a single course of salvarsan and mercury effected a cure in at least 85 per cent. Scholtz regards as cured patients who for at least two years have shown no clinical or serological sign of syphilis on half-yearly or quarterly examination. Only when his patients showed signs of relapse after the first course did he prescribe a

supplementary course eight to ten weeks after the completion of the first; it was found that half of these relapsing patients required a third course. He states that while he never experienced any serious accident with old salvarsan, although he and his assistants have given over 30,000 injections, several cases of fatal haemorrhagic encephalitis followed the administration of neo-salvarsan, of which more than 20,000 injections had been given. To judge from these two publications German practitioners are still far from unanimous in their views on the salvarsan-mercury treatment of syphilis.

LOCALIZED PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

IN contrast to the prominence of laboratory methods in clinical medicine, it is a change to find a paper such as that by M. Fishberg,¹ dealing mainly with old-established physical signs. A localized or interlobar pneumothorax frequently occurs in the course of pulmonary tuberculosis and is often overlooked or regarded as a large vomica. The distinction between the two is difficult, but x-ray examination, especially by screening, has made the diagnosis easier, though skiagraphy is not infallible, and may even be misleading. In fact, Fishberg remarks that he has often been confused by skiagraphic reports when they conflicted with the physical signs, and if one method only was available would prefer physical signs. A bright circumscribed area without lung markings and without a surrounding thick, dark shadow, is strongly in favour of a localized pneumothorax; but, if the local pneumothorax is in front with much adherent lung tissue behind, there may be no bright area; and, on the other hand, the walls of a vomica may not cast a shadow, and so what is really a cavity appears like a localized pneumothorax. A vomica may appear as a clear area when empty, and when full of secretion cast a shadow, whereas a localized pneumothorax does not show these changes. Multiple clear areas necessarily point to the presence of cavities in the lung. Fishberg describes with illustrative cases (1) localized pneumothorax running a rapid and fatal course with symptoms of a complete pneumothorax, and (2) latent localized pneumothorax, with sudden onset of more or less severe symptoms which soon abate, so that the patient feels well and the lesion is not recognized. The sudden onset of pain, cyanosis, and dyspnoea of course suggests pneumothorax, and the sudden appearance of signs of a cavity points in the same direction. A localized pneumothorax is as a rule dry and without the adventitious sounds commonly heard over a large cavity. The presence of a large dry cavity, especially when extending into the axilla, should arouse suspicion. Metallic breathing is common in a localized pneumothorax, rare in a cavity. Whispered pectoriloquy is common in localized pneumothorax, rare in vomicae. The percussion note over vomicae is rarely tympanitic, whereas the cracked-pot sound is more frequent over vomicae. The coin sound is exceedingly rare over vomicae, but sometimes present over a localized pneumothorax. Bulging and widening of the intercostal spaces may be noted over local pneumothorax. Displacement of the heart need not occur in association with a localized pneumothorax. Although a consideration of all these points will clear up most of the doubtful cases, there are some in which the diagnosis fails.

THE FATE OF THE CYST DUCT AFTER CHOLECYSTECTOMY.

EISENDRATH AND DUNLAVY² refer to three cases, including one previously published by Floercken, in which after removal of the gall bladder recurrence of the symptoms has been due to dilatation of the cystic duct so as to form a new gall bladder with or without the formation of

¹ *Muench. med. Woch.*, July 10th, 1917.

² *Ibid.*, September 11th, 1917.

¹ *Arch. Int. Med.*, Chicago, 1917, xx, 739-760.

² *Surgery, Gynaec., and Obstet.*, 1918, xxvi, 110-112.

calculi; they therefore urge that in cholecystectomy the entire cystic duct should be removed. The experiments of von Haberer and Clairmont were repeated and the results confirmed, namely, dilatation of the cystic duct after removal of the gall bladder with ligature of the cystic duct close to the gall bladder. It may be pointed out that in congenital absence of the gall bladder the common bile duct has been known to show a compensatory dilatation in part of its course, and that in one such case, recorded by Stone, the common bile and hepatic ducts contained calculi. Mayc-Robson also reported dilatation of part of the common bile duct after cholecystectomy. It would therefore appear that the adoption of Eisendrath and Dunlavy's advice to remove the cystic duct as close as possible to the common duct would be likely to be followed by dilatation of part of the common duct. But probably this would be less prone than dilatation of the cul-de-sac of the cystic duct to be attended by calculus formation and recurrence of symptoms.

THE GUILLOTINE AMPUTATION.

THE so-called guillotine amputation has found a defender in Professor Kausch, who would seem to be consulting surgeon to the Prussian Guards.¹ His argument is that the guillotine operation, or amputation in one plane at the site of injury, is conservative, inasmuch as it results when successful in the preservation of a longer stump than with other methods. He admits that sometimes life may thus be sacrificed, but he holds that it is a greater misfortune that young men should lose a limb unnecessarily than that sometimes one should die from attempts to save it (or a part of it). He does not recommend, nor practise, re-amputation in these cases, but claims to be able to cover the protruding bone and exposed soft parts by vigorous weight extension. By this is to be understood the use of a weight of 10 to 15 kilos (22 to 33 lb.) attached to the skin by strips of twill and mastisol. He gives details of one of his best cases, in which the patient refused reamputation by other surgeons. After four months of Kausch's treatment an excellent result was obtained, judging from the illustrations; but the patient suffered very severely before this happy consummation was reached. Many British surgeons think that a large number of lives have been sacrificed by low guillotine amputations, and we believe that in our armies the operation is not now often done. In considering the pros and cons for amputations at various levels Kausch formulates his conclusions by describing "Wertzonen" or sections of relative values in the several bones of the extremities, and elucidates them by a figure. Unlike most British authorities, and contrary to the experience of limb makers, he estimates the articular ends of the long bones as of the greatest value, but his arguments are unsound, and his conclusions invalid. In the same paper he recommends bone transplantations for prolongation of short stumps of fingers, and also arms and forearms. These, we think, however, are of doubtful practical value, even when aseptic conditions can be obtained. Kausch himself states that at the front he did not see one primarily healed amputation.

THE NEW DIRECTOR-GENERAL I.M.S.

THE post of Director-General of the Indian Medical Service, which has been vacant since the death of Surgeon-General Sir Charles Pardey Lukis, K.C.S.I., on October 21st, 1917, has been filled by the appointment of Surgeon-General William Rice Edwards, C.B., C.M.G. Surgeon-General Edwards was born in 1862 and educated at Clifton and the London Hospital, where he was house-surgeon and house-physician. He graduated M.B.Durh. with honours in 1884, and took the diploma of M.R.C.S. in the same year. He entered the Bengal Medical Service as surgeon on April 1st, 1886, became surgeon-major on April 1st, 1898, lieutenant-colonel on April 1st, 1906, colonel

on May 25th, 1914, and surgeon-general on April 1st, 1915. After two years in military employ and a short spell of civil employ in Bengal he became, in 1890, surgeon on the staff of Lord Roberts when Commander-in-Chief in India. Afterwards he entered the political department, and in April, 1892, was appointed civil surgeon of Quetta, Baluchistan. His services were lent to the War Office in 1900, and when Lord Roberts took the supreme command in South Africa in December, 1899, he chose Major Edwards, as he then was, as his personal surgeon. In South Africa he served in the Cape Colony, the Orange River Colony, and the Transvaal; was present in the actions at Johannesburg (May 29th, 1900), Diamond Hill (June 11th and 12th, 1900), and Belfast (August 26th and 27th, 1900); was mentioned in dispatches, in the *London Gazette* on April 2nd, 1901, and received the Queen's medal with five clasps, and the C.M.G. on November 29th, 1900. After his return to India, in November, 1902, he was appointed residency surgeon of Kashmir, and in December, 1910, chief medical officer of the North-West Frontier Province. On promotion to the administrative grade on May 25th, 1914, he was posted as A.D.M.S. of the Derajat and Bannu Brigades, and on April 1st, 1915, succeeded Surgeon-General G. F. A. Harris as inspector-general of civil hospitals in Bengal. He was made a C.B. on June 22nd, 1914, and appointed an honorary physician to the King on February 18th, 1917.

BRITISH ORTHOPAEDIC ASSOCIATION.

THE inaugural meeting of the newly constituted British Orthopaedic Association was held on February 2nd at Queen Mary's Convalescent Auxiliary Hospital, Roehampton House, London, S.W. The association has been founded on much the same lines as the important American Orthopaedic Association, and, indeed, partly owes its inception to the stimulus given by certain distinguished American orthopaedic surgeons now in Europe. It is confidently expected that the new body, which has a membership composed of working orthopaedic surgeons, and has determined to require a severe test for the admission of future members, will play the leading part in maintaining the dignity of orthopaedic surgery in the British Isles, and in promoting organized scientific and clinical research in this subject. The new association was formally constituted at an executive session on the date mentioned, a constitution and by-laws adopted, and the following officers elected, namely: President, E. Muirhead Little, F.R.C.S., London; Vice-President, Sir Robert Jones, C.B., F.R.C.S., Liverpool; Treasurer, W. E. Bennett, F.R.C.S., Birmingham; Secretary, H. Platt, M.S., F.R.C.S., Manchester. Demonstrations were given by the staff of the Roehampton Limbless Hospital, including one on types of stumps by Mr. Muirhead Little, and a visit was paid to the workshops. Captain T. P. McMurray, R.A.M.C.(T.), demonstrated an artificial leg and temporary peg legs. Mr. E. M. Corner read a paper on nerve bulbs in amputation stumps, which was discussed by Colonel T. H. Openshaw and Messrs. D. M. Aitken, A. S. B. Bankart, W. E. Bennett, W. R. Bristow, R. C. Elmslie, and T. P. McMurray.

REDUCED NUMBER OF PAGES.

THE damage done to machines and paper by the fire at the works in which the BRITISH MEDICAL JOURNAL is printed, to which reference was made last week, again makes it impossible to print the usual number of pages. We must ask all correspondents to bear in mind the difficulties under which the JOURNAL is being produced. It should be added that it will be necessary almost at once, owing to the restrictions about to be enforced by the Paper Commission, permanently to reduce the number of pages in each issue of the JOURNAL, but a full statement on this point will be made shortly.

¹ Bruns's *Kriegschirurgische Hefte der Beiträge zur klinische Chirurgie*. Heft 42. Tübingen: H. Laupp. 1917.

Medical Notes in Parliament.

Army Medical Service: Committee of Inquiry's Report.—We published last week the answer returned by Mr. Macpherson to a question by Major David Davies on January 28th, but were unable to report the result of a further question on the following day, when Major Davies asked (1) whether the Committee appointed to inquire into the organization of the Army Medical Services had concluded its work; (2) whether it had included in its report any recommendations for the more efficient conduct of Royal Army Medical Corps administration in this country as well as in France; and, if not, (3) whether it was proposed to set up another committee to inquire into the condition of affairs and the state of organization of the Army Medical Services in Great Britain. Mr. Macpherson, in reply to the first two parts of the question, referred Major Davies to his answer of the previous day, and said that the answer to the third part of the question was in the negative. Major Davies then asked whether it was not the fact that the Committee was appointed to deal with the whole subject of the reorganization of the Royal Army Medical Corps in this country as well as in France. Mr. Macpherson: No. My hon. and gallant friend will realize, and my hon. friend (Mr. Pringle) to whom I gave the pledge will corroborate me, that it did not refer to that subject at all.

Ministry of Pensions: Director of Medical Services.—In answer to Sir G. Thomas, on January 29th, Sir A. Griffith-Boscawen, Parliamentary Secretary to the Ministry of Pensions, said that the Director of Medical Services to the Ministry of Pensions was entrusted with the administrative control of the Chelsea Medical Board, of the Special Medical Boards in London and the provinces, and of the other medical services of the Ministry, and also acted as adviser in matters of treatment and in the establishment and supervision of institutions for this purpose. The appointment (which was for no specified period) was a whole-time one, carrying a non-pensionable salary of £1,200 a year, the amount to be subject to reconsideration after the war. In the case, however, of the present holder, Sir John Collie, the Treasury had sanctioned the payment of a salary, personal to himself, of £1,500 a year.

Military Rations at Home.—In reply to Major Lane Fox, Mr. Forster said that the scale of rations for all troops serving at home, except those in training or otherwise in preparation for service overseas, and in mobile formation for home defence, had been reduced by about one-third.

INSURANCE AMENDMENT BILL.

Newly Married Women.—The National Health Insurance Bill was taken in Committee and on Report in the House of Lords last week. A matter of interest was Lord Knutsford's amendment to Clause 22, which proposed that an insured woman should be given a benefit of £2 on notifying her approved society of her marriage and going out of insurance through ceasing work. Lord Knutsford's objection was that this would apply insurance money wrongly, and would diminish the advantages of insurance. It had been intimated that one reason why the change was proposed was the difficulty of getting insured women to notify upon marriage. Viscount Sandhurst, for the Government, agreed to fall in with the general wish to abandon the grant on marriage and to rearrange women's insurance on marriage for a limited period after marriage. The proposal was that a married woman ceasing work within one year after marriage is to be considered as having been employed when she has been actually away from work for eight consecutive weeks not due to illness. She is to be insured for sickness benefit at the rate of 5s. per week for one year following employment, subject to the condition that not more than six weeks' benefit in all is to be received during the year. She was also to be insured for a maternity benefit of 30s. for one confinement within two years of the date of marriage. Further, she was to be entitled to medical benefits and sanatorium benefits to the end of the calendar year next after that following marriage. The new clause was accepted by Lord Knutsford and agreed to without division. Lord Knutsford said it was a very good solution that every woman who married and ceased employment should have five shillings a week, limited to six weeks, and that she should have 30s. maternity benefit for her first child born within the first two years of her marriage.

Illness due to Misconduct.—Lord Sydenham moved a new subsection, the object of which was to lay down that, notwithstanding any provision to the contrary in any rule of an approved society, an insured person suffering from venereal disease should not, on the ground that this disease might have been due to misconduct, be deprived of any sickness or disablement benefit to which otherwise he or she would have been entitled. Lord Sydenham said that the effect of the misconduct rule had been to cause concealment of disease, thereby preventing treatment being given at the proper time, and increasing the danger to the public afterwards. The economical effect upon the insurance societies had been that they were burdened in later years with the later effects of these diseases. Viscount Sandhurst, for the Government, said that it was thought that the object of the amendment was more likely to be gained, and without friction, not by a clause in the Acts, but by leaving it to be done in the rules of the societies; but he had agreed to submit an amendment which would absolve societies from holding certain meetings before making the rules. The Commissioners proposed to issue a circular to the societies, many of which acknowledged the need for the change, indicating the views put forward by Lord Sydenham. The amendment was then withdrawn, and the clause was amended as Lord Sandhurst had suggested.

Venereal Disease in the Army.—Mr. Peto asked Mr. Macpherson whether his attention had been called to the War Office letter to general officers commanding, dated March 18th, 1916, which stated that the Army Council could not accept suggestions made with regard to prevention which would imply the adoption of any system of prophylaxis which might be said to afford opportunities for unrestrained vice; whether this deterred army medical officers from taking steps to prevent the spread of venereal disease in the army; and whether the Army Council would now withdraw any restriction which prevented effective measures from being taken to avoid the waste of man power in the army from this cause. Mr. Macpherson regretted that he could add nothing at present to the answers he had given on January 22nd last. Mr. Peto asked Mr. Macpherson to give some idea, if not accurate figures, of the number of men who passed through hospital suffering from venereal disease in a single year, and who were at any one time incapacitated from this cause. Mr. Macpherson replied that he could not give definite figures. He did not think that the effect of the letter was to prevent medical officers from taking every possible step to prevent venereal diseases.

Representation of the University of Wales.—During consideration in the House of Commons of the Lords' amendment to the Franchise Bill, Mr. Ellis Griffith carried an amendment to give the University of Wales a separate representative. Under the original proposal it was one of a group of universities to return two members.

Committee on the Blind.—Sir Watson Cheyne asked whether the President of the Local Government Board had considered the question of adding one or more ophthalmic surgeons to his Committee on the Care of the Blind. Mr. Hayes Fisher replied that in view of the great demand upon the time of ophthalmic surgeons it appeared that their advice and assistance could be most conveniently secured otherwise than by nomination of a representative upon the Advisory Committee, much of the time of which would be occupied with purely administrative problems. He was, however, willing to invite an ophthalmic surgeon to serve on the Committee if it were desired, and was communicating with the Royal Society of Medicine on the matter.

Report on Army Medical Service in France.—In reply to Major David Davies, Mr. Macpherson said that a copy of the report of the inquiry into the Army Medical Services in France had been forwarded to the Ministry of National Service to assist the Ministry in its function of co-ordinating military and civilian demands upon the medical man power of the country.

Air Force Medical Service.—Major Baird has stated in reply to questions that the arrangements for the medical care of the air force are still under consideration. He anticipated, however, that the matter would be settled at a very early date.

THE specialists in children's diseases in Bogotá have formed a paediatric society.

PROFESSOR VITTORIO ASCOLI, the successor of the late Guido Baccelli, in taking possession of his chair, delivered an inaugural address in the great hall of the Institute of Clinical Medicine, Rome.

THE Edward L. Trudeau Tuberculosis Sanatorium, which was formally opened in Paris on Christmas day, is the first tuberculosis hospital in France created wholly by the American Red Cross. It has only 8 beds at present, but it is hoped to increase the number to 1,200 within the next year.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

LIEUTENANT P. A. WEDGWOOD, R.A.M.C.

Lieutenant Percy Ashworth Wedgwood, R.A.M.C., was reported as having died on service, in the casualty list published on February 5th. He was educated in Edinburgh, at the University and Royal College of Surgeons School, and took the Scottish triple qualification in 1898. After serving as surgeon of the ss. *Derbyshire*, he went into practice at Kirby Underdale, Yorkshire. He had only recently joined the R.A.M.C., and was attached to the Yeomanry.

Wounded.

Captain H. A. Cochrane, Canadian A.M.C.

DEATHS AMONG SONS OF MEDICAL MEN.

Buss, Hilary, Second Lieutenant Royal Flying Corps, son of the late Dr. Laurence Buss, killed in an aeroplane accident in Lincolnshire on January 21st.

Collier, Martin Huntley, Lieutenant R.N., lost at sea on January 19th, aged 25, younger son of Lieut.-Colonel William Collier, R.A.M.C., of Oxford, President of the British Medical Association in 1904. He entered the navy in 1904, and became lieutenant in 1913. He was a fine athlete, and made a reputation in Rugby football and in boxing both at Osborne and at Dartmouth. He played Rugby for the navy, the United Services, and the South, and won the officers' championship in the light-heavy class in 1914.

Scott, James Garnett, Lieutenant R.N.V.R., attached Royal Air Service, only son of the late Dr. W. M. Scott, died suddenly on January 25th. His commission as lieutenant was dated January, 1916.)

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SUPPLEMENT to the *London Gazette*, issued on February 4th, contains a further list of rewards for gallantry and distinguished service in the field. The acts of gallantry for which the decorations have been awarded will be announced in the *London Gazette* as early as practicable. The list includes the following medical officers, all of whom belong to the R.A.M.C. unless otherwise indicated:

Bar to the Distinguished Service Order.

Major (temporary Lieut.-Colonel) A. C. Osburn (D.S.O. gazetted June 3rd, 1916).

Distinguished Service Order.

Major (temporary Lieut.-Colonel) C. A. A. Stidson.
Temporary Captain F. F. Carr-Harris.

Bar to the Military Cross.

Captains: C. D. S. Agassiz (M.C. gazetted September 26th, 1917); E. A. C. Fazan (M.C. gazetted January 14th, 1916); S. McCausland (M.C. gazetted July 26th, 1917); J. S. Wallace (M.C. gazetted July 26th, 1917).

Temporary Captains: A. J. Blake (M.C. gazetted September 22nd, 1916); J. W. Macfarlane (M.C. gazetted July 26th, 1917).

Military Cross.

Captain (temporary Major) J. D. Piddes.

Captains: R. V. C. Ash, A. J. Beveridge (S.R.), J. H. Blackburn, R. C. Brewster, N.Z.M.C., E. Douglas, C.A.M.C., J. H. P. Fraser, P. J. Gaffikin (S.R.), A. D. Irvine, C.A.M.C., G. L. Jepson, C.A.M.C., J. G. MacNeill, C.A.M.C., G. Morris (S.R.), H. D. Pickles, J. A. Pridham (S.R.), W. Robertson, W. H. Secord, C.A.M.C., W. E. Sinclair, C.A.M.C., A. P. Thomson, D. L. Wall, J. A. Young, J. C. Young (S.R.).

Temporary Captains: J. V. Cope, D. McD. Dickson, H. B. German, F. A. Grange, E. A. T. Green, J. P. Jones, F. B. Julian, A. G. Maitland-Jones, J. Mannel, D. J. McAfee, F. B. McCarter, J. A. Montgomery, L. M. Rowlette, D.S.O., C. Russell, R. Rutherford, B. H. Swift, G. D. K. Waldron.

Lieutenant (temporary Captain) W. W. MacNaught.

Lieutenants: S. Dutt, I.M.S., J. Marshall (S.R.).

Temporary Lieutenants: A. C. Hallows, E. E. Owens, D. A. H. Moses.

The Military Cross is also awarded to one sergeant-major of the R.A.M.C., while the Military Medal is bestowed upon 31 N.C.O.'s and 76 privates of the R.A.M.C., A.A.M.C., and C.A.M.C.

NOTES.

COLONEL T. H. J. C. GOODWIN, C.M.G., D.S.O., A.M.S., who is about to succeed Sir Alfred Keogh as acting director-general of the Army Medical Service, has been gazetted Surgeon-General.

The silver medal for saving life at sea has been awarded to Captain William L. Cockcroft, R.A.M.C., in recognition of his services on the occasion of the loss of H.M. transport *Royal Edward* in the Aegean Sea on August 13th, 1915.

A special Supplement to the *London Gazette* issued on January 29th announces that the Royal Red Cross decoration had been conferred upon forty-one ladies in recognition of their valuable nursing services.

AMERICA IN THE WAR.

In August, 1917, a board was established to collect materials for a medical and surgical history of the American participation in the war. The members are Colonel Champe C. McCulloch, librarian of the Surgeon-General's library; Major Fielding H. Garrison, formerly assistant librarian, and Major John S. Fulton, professor of State Medicine in the University of Maryland. In addition to an introductory narrative of the events of the war in their bearing upon military medicine, the individual reports of division surgeons, directors of base hospitals, and other medical officers at the front, will be published and lists of all medical officers on active duty in the war. The rest of the work will consist of four sections—statistical, in which all data will be interpreted by modern mathematical methods (Major Fylton); clinical medicine, including neurological cases; surgery, including analysis of cases, treatment of wounds, etc.; and sanitation, prophylaxis, food, water supply, etc.

England and Wales.

NOTIFICATION OF INFECTIOUS DISEASE.

THE Local Government Board has issued an order prescribing a uniform form of certificate or notification by medical practitioners for all notifiable infectious diseases. A separate form is prescribed for use in the metropolis, in view of the specific additional information required under the provisions of the Public Health (London) Act, 1891. In both forms provision is made for the additional particulars required in the case of tuberculosis, ophthalmia neonatorum, and measles or German measles, under the regulations relating to those diseases. The order authorizes the transmission of all certificates or notifications to medical officers of health by halfpenny post instead of letter post. The order relates exclusively to certificates of notification by medical practitioners, and does not affect the duties of certified midwives in suspected cases of ophthalmia neonatorum. The schedules to the order indicate that the Local Government Board is bent on getting value for its shilling.

THE LOCAL GOVERNMENT BOARD AND THE MINISTRY OF HEALTH.

On January 23rd, at the Royal Institute of Public Health, Dr. E. W. Hope, of Liverpool, opened a discussion on the proposed Ministry of Health. Sir Horace Munro, K.C.B., Permanent Secretary to the Local Government Board, who was in the chair, said that fifty years ago the whole question of public health was considered by a Sanitary Commission, and one of its recommendations was that the administration of the laws relating to public health should be presided over by one Minister acting as a central authority. It was in pursuance of that recommendation and of certain other proposals that the Local Government Board was set up to be the ministry of health. The country could look back with very great satisfaction on the progress in health matters since then. The total death-rate had declined by more than one-third, and infantile mortality by more than one-fourth. The present demand for a Ministry of Health had arisen because the State now took a wider view of its responsibilities in relation not only to environment, but to the health of the individual, and this had led to a fresh demand for co-ordination and centralization. The Local Government Board looked forward keenly to the prospect thus opened up. Dr. E. W. Hope said that civil sanitary administrators had been able to render services of the first importance to the naval and military forces, and what had been done in this direction had awakened the public to the need for an improvement in the public health service of the country. Each Government department had had its own independent health branch, and municipalities had worked under

legislative provisions intended to have only a local application, although in many instances, after the measures had been tested in the localities, they had been applied over a wider area. He mentioned in this connexion regulations dealing with housing, town planning, milk supply, assistance to midwives, treatment of ophthalmia neonatorum, and the provision of food for infants. Most of the great sanitary measures from which the country had benefited in the past had originated from the health committees and sanitary authorities of the great centres of population, whose functions dealt with the whole of large units of population and were not sectional in the same sense as those of the various Government departments. Some at least of the Government departments, including the Board of Education, and most conspicuously the Local Government Board, had made independent developments in prevention, not only amplifying the best results of local effort, but initiating useful legislation on preventive lines. The essential thing at present was unification of control at the centre, and the Local Government Board was clearly the body from which the Ministry of Health should emerge. A co-ordination of the health activities of all the other Government departments concerned could be assured by the establishment of an advisory committee upon which representatives of each department would sit, while discharging the same functions as to their respective boards as they discharged now. Dr. Hope concluded by saying that it might be thought he had laid undue stress upon the prevention of sickness and disease, and not enough upon the treatment of it. The curative aspects did undoubtedly link up at some points with the preventive aspects, but, broadly speaking, the former involved a different set of considerations, and an immense amount of work had to be done on the preventive side pure and simple, enough to engage the first energies of a Health Ministry. Sir Francis Champneys expressed the hope that under any arrangement which was made by the Ministry of Health it would be remembered that private midwives were a necessity. The mothers of the poorer class insisted on them, and, while a system of municipal midwifery might perform useful functions, it would not displace the private midwife, who was valued by the mother or prospective mother as a confidant. Sir Robert Morant said that he often found it necessary to remind people that the establishment of a Ministry of Health as such meant the setting up of a central department, and therefore need not involve a large measure, nor of necessity touch local services at all from the legislative point of view. The Maternity Bill might be regarded as supplementary.

Ireland.

POOR LAW MEDICAL OFFICERS' SALARIES.

ARISING out of recent letters in the daily press by the Irish Medical Secretary and other medical correspondents regarding the position of the profession in Ireland, the *Irish Independent* in an editorial says: It may seem strange that some of the boards of guardians most eager to vote increases of salary to their workhouse officials are the most reluctant to grant any increase to the medical officers in their service. During the year ending September 30th, 1916, the salaries and rations of Poor Law officers were increased by £10,270, and, as the ratepayers will have reason to know, by a much larger sum last year. The increases of salaries granted to dispensary medical officers during the year ended March 31st, 1917, was £911. There are 812 dispensary doctors in Ireland, so that the increase in salary given them averaged the munificent sum of £1 2s. 6d. per head. And all this probably was accounted for by some unious adopting the approved scales of remuneration for medical officers sanctioned by the Local Government Board several years ago. Thus it may safely be said that while the workhouse officials, as a rule, have received very substantial increases of salary or war bonuses to enable them to meet the increased cost of living, the dispensary doctors are left as they were before the war. Some, at least, of these pre-war salaries cannot be regarded as adequate when one finds one dispensary doctor paid £80, several others £90, and a good many £100 to £120 a year. This is scarcely fair treatment

for men who have had to spend five or six years qualifying for their profession and are now entrusted with the medical care of the sick poor, whom they have to attend at any hour of the day or night.

THE IRISH LOCAL GOVERNMENT BOARD.

The report of the Local Government Board for the year ended March last states in connexion with the distribution of the sanatorium grant: The total issues out of the Irish portion of the sanatorium grant to March 31st, 1917, amounted to £54,206 19s. 2d. The suspension by the Treasury of further capital expenditure from the sanatorium grant in respect of building new sanatoriums, and, save in special circumstances, of dispensaries, still remains in force. The considerable progress made by the county and county borough councils with the arrangements for the detection and treatment of persons suffering from tuberculosis in their areas is noted with satisfaction but it is pointed out that the more important question of prevention has not received the full attention it deserves. During the past year the Board has been called upon to deal with a larger number of soldiers suffering from tuberculosis than at any similar period since the beginning of the war.

Correspondence.

EMETINE BISMUTH IODIDE IN THE TREATMENT OF AMOEBIC DYSENTERY.

SIR,—Captain A. C. Lambert, in his paper on "Amoebic dysentery and its treatment by emetine bismuth iodide," published in the *JOURNAL*, January 26th, 1918, states in his conclusions that this drug "cannot be considered in the light of a substitute for emetine (by the needle), as attempts to treat acute cases with it alone ended in failure, until emetine was used in addition." Though granting that emetine bismuth iodide does not appear to act so beneficially in acute cases as in the chronic carrier type of case, yet it can cure acute cases completely in some instances. I have just written a paper—which will appear in the *Transactions* of the Society of Tropical Medicine and Hygiene for February, 1918—on the treatment of acute and subacute cases of amoebic dysentery by emetine bismuth iodide. Out of a series of three acute cases two were completely cured. I have used the double method described by Captain Lambert, and succeeded in curing by it a subacute case which had resisted emetine bismuth iodide alone, and it is quite possible that it will eventually turn out to be the best method of dealing with acute cases. For carrier cases (in white people) emetine bismuth iodide is far in advance of emetine by the needle, and Captain Lambert's paper now brings out the interesting fact that this applies equally to natives of India. One rather unfortunate point in the paper under discussion is that 2 grain doses were, as a rule, given, either once or twice daily. As 3 grains daily (generally in one dose) has been, more or less, considered the standard in the work done in England, it would certainly have rendered accurate comparisons more easy if a similar dosage had been adopted in Mesopotamia.—I am, etc.,

London, W., Jan. 26th.

GEORGE C. LOW, M.D.,
Temp. Capt. I.M.S.

THE PULSE PRESSURE TEST BEFORE OPERATIONS.

SIR,—Sir James Mackenzie's observation, "Beyond supplying the force that causes the blood pressure, the heart takes little part in the variations that occur," is perfectly sound and most important, and it is sad that Sir James Barr cannot grasp its truth.

One of the greatest stumbling-blocks in the way of progress is the imperfect investigation of primary causes. Sir James Mackenzie rightly remarks: "The factors concerned in regulating the changes in blood pressure are so obscure that observations drawn from them are little better than guesswork," and it is our business to remove this obscurity, and then perhaps we may in time upset the tradition that the heart is responsible for variations in blood pressure instead of being simply the mechanical

pump which is under the control of various determining forces. We may then, perhaps, see fewer cases of vascular disturbance which have been diagnosed as heart disease, but in which the heart is in reality merely the long-suffering, unwilling agent.—I am, etc.,

London, W., Jan. 29th.

ALEXANDER FRANCIS.

SIR.—I suppose every anaesthetist will join in Dr. Blomfield's welcome (BRITISH MEDICAL JOURNAL, February 2nd, p. 161) to Sir James Mackenzie's reference (BRITISH MEDICAL JOURNAL, January 19th, p. 101) to the "bogey so often raised about the heart being unable to stand anaesthetics," and will agree that the greater number of those about whom one is warned beforehand as having "a weak heart" are found to have valvular lesions well compensated, or more often some unimportant "functional" disorder.

I would, however, make this reservation, that it by no means follows that a heart which "can stand anaesthetics" (of course properly selected and properly given) can stand the reflex disturbances of its action, and the variations in blood pressure, which accompany an operation under an anaesthetic. These are often ignored, or assumed to be included in the statement.

During recent years it has been conclusively shown, both by observation of patients and by experiments in laboratories, that general anaesthetics do not altogether block nervous currents from the site of operation (being in this respect inferior to spinal and local analgesics) and that disturbances of the respiration and circulation (perhaps of other functions) continually occur during every operation. They vary in extent and importance with the nature of the operation, and the condition of the patient, but as a possible danger should always be taken into account. As an instance:

I was asked to anaesthetize for suprapubic prostatectomy a man aged 65, but looking much older, of sedentary habits, feeble, edentulous, and dyspeptic, with lateral curvature of the spine and tachycardia, his pulse being uncountable by the usual method. I was told by the operator that an eminent physician had advised that his tachycardia was "neurotic," and that he could "take an anaesthetic quite well." Knowing that enucleation of the prostate is attended by reflex disturbances which as a rule include a sudden and considerable rise in blood pressure, I came to the conclusion that, supposing the nerves and muscles of his heart to be as sensitive and weak as the rest of him, if I were to rely upon general anaesthesia alone, he (requiring a deep degree) might die of overdose on the one hand or of shock on the other, and that if I relied upon spinal analgesia alone he might (like many a one in pre-anaesthetic days) die of sheer fright. So I gave him just enough anaesthetic to make him unconscious, and then an intrathecal injection. He needed no anaesthetic during the operation, which was done without any appreciable disturbance of pulse or breathing, and at the close he was regaining consciousness, and his pulse was much better than before.

Fortunately, in this instance it was possible to protect effectively the vital centres (and consequently the heart) from disturbance, but it need hardly be said that during some operations this would be difficult or impossible—and I doubt whether the physician who saw him was aware that such a problem must be faced.

I have told the story, because it seems to bear upon what some of us have been urging for years, namely, that when there is doubt, an anaesthetist should be consulted beforehand, as well as a physician, or even in preference to the latter.—I am, etc.,

London, N.W., Feb. 2nd.

J. D. MORTIMER.

THE VALUE OF THE SANATORIUM.

SIR,—I have followed with great interest the letters in the JOURNAL as to the value of sanatorium treatment. There seems to be almost a consensus of opinion as to the importance to be ascribed to environmental factors in deciding the success or failure of this method after the patient leaves the institution. They chiefly determine the event of a fresh attack. They are equally important in bringing about the first illness.

May I be allowed to call attention to a point which seems to me to be the foundation of any logical study of these questions? It is this—that we must draw a strict line between the consideration of treatment and of prevention in this disease. Sir Arthur Newsholme hinted at the essential differences between tuberculosis and the acute infections in his recent report.

All treatment is in a sense preventive. Fractures are

treated to prevent further disasters. By treatment (therapy) in infectious diseases we attempt to restore vital resistance, relative immunity, what you will so long as we all mean the same thing. By prevention we mean its maintenance. We cannot treat a case till we have failed to prevent. We are to a certain extent, I fear, still limited in our conceptions by the first flush of our knowledge of the tubercle bacillus, and not sufficiently alive to such work as Sanarelli's paper at the Rome Congress nor to the importance of such demographical studies as have been made from the material given to us by our Government departments. Sanarelli has, I think, shown that tubercularization is our chief safeguard, and the cause of the fall in the death-rate. I need not go into parallels. In prevention our object must be to secure that tubercularization, which seems to be unavoidable, and is probably better so, is accompanied by the maintenance of vital resistance.

As I have written in various places since 1903, the sanatorium is only an object lesson and a school of hygienic living specially adapted, and demonstrates how we may restore resistance when it is temporarily damaged, and, incidentally, how we fail to do so when it is absent or destroyed.

As showing the value of early diagnosis I attach little importance to those sanatorium statistics proving that more favourable results occur as a consequence of early selection, nor to the demands for earlier diagnosis, whether by laboratory, radiographic, or physical examination, to secure still better results. We must view this question from all sides, and the statements made by Brouardel at the London Congress in 1901 as to the universality of the infection and the disease have been abundantly corroborated since, on the living and the dead. But we still do not know the recovery rates of the various so-called stages or groups of cases except of such as have been diagnosed, and treated in institutions. Admittedly the best results will be obtained among "early" cases.

It is more important and more difficult to form an opinion as to the probable effect of the declared infection, in any stage, on the human organism before us than to make an early diagnosis. This is not to be easily ascertained by "expert" examination before treatment, but only by prolonged observation under treatment, which should be accompanied by all the hygienic rules of the game. That these are best seen at the sanatorium goes without saying.

I venture to ask permission to call attention to the enormous importance of the duties of tuberculosis officers other than their merely clinical functions, especially in studying the factors of loss of resistance, and every factor other than infection which causes a high morbidity from tuberculosis in the populations committed to their charge. The potential value of the work of the general practitioner clinically is often overlooked, or sometimes even disparaged, and valuable time is lost while his work is being done for him.—I am, etc.,

London, W., Jan. 19th.

THOMAS D. LISTER.

ACUTE YELLOW ATROPHY IN SYPHILIS.

SIR,—In your issue of January 19th, p. 76, Dr. Stuart McDonald has brought forward a subject which requires the earnest attention of all syphilologists. Between the years 1906 and 1914 I saw only five cases of jaundice and one of yellow atrophy in syphilitics who had not been treated. These six cases occurred early in the generalization stage, before the rash had even fully developed. The case of acute yellow atrophy was preceded for some weeks by jaundice. Since 1914, instead of seeing no further cases in untreated subjects, I have come across 21 cases of jaundice and 8 of acute yellow atrophy in patients who had been treated with salvarsan. In the 29 cases the hepatic trouble for the most part occurred within eight weeks after the last injection of salvarsan. All the cases of acute yellow atrophy started as such, and terminated fatally within five days.

I cannot help thinking that these are cases of arsenical poisoning, for the following reasons: The commonest symptom of arsenical intoxication is dermatitis, which not infrequently ends fatally with signs and symptoms of bronchopneumonia. *Post-mortem* sections of the liver and kidneys often showed commencing parenchymatous degeneration. Arsenic may attack the kidneys primarily, and the patient dies of uraemia. *Post-mortem* necrosis

and profound fatty degeneration of the parenchymatous cells are evident, akin to the necrosis and degeneration of the parenchymatous liver cells in acute yellow atrophy. In the primary hepatic and renal involvement the spleen is usually enlarged and soft, and there may also be degeneration of the cardiac muscle fibres. All these cases usually occur before the eighth week if the injections have been given intravenously, and sometimes as late as the eighteenth month if the salvarsan has been injected intramuscularly. I have been able to group the large number of cases of arsenical poisoning I have come across since the war started into four classes:

1. Those in which the skin is primarily involved; death from bronchopneumonia. *Post mortem*—slight parenchymatous degeneration of the liver and kidney cells.

2. Those in which the liver is primarily involved; death from acute yellow atrophy. *Post mortem*—necrosis and profound degeneration of the liver cells with a lesser degree of the kidney cells.

3. Those in which the kidney is primarily involved; death from uraemia. *Post mortem*—necrosis and profound degeneration of the renal cells, with a much lesser degree of the liver cells.

4. Those in which the brain is primarily involved; death from acute encephalitis. *Post mortem*—profound degeneration of the cortical brain cells, with a lesser degree especially of the kidney cells.

In my opinion arsenic acts as a toxic agent by increasing the hydrogen ion concentration of the blood, a statement supported by the fact that chloroform, which has a similar action, may precipitate symptoms of acute arsenical intoxication.¹ If this view be correct, then arsenic should be able to be prevented from causing toxic symptoms by the introduction of a drug which increases the hydroxyl ion concentration of the blood. Sulphur has this action, and this is the reason why I have so strongly advocated the use of intramine (di-ortho-amino-thio-benzene) in all cases in which arsenic, and even mercury, was being used.

Since I have used intramine I have given up to date over 6,000 injections, and in none of my cases has arsenical poisoning occurred. Moreover, intramine is the only drug capable of curing arsenical dermatitis, and in three cases of jaundice I have seen it do good.

Dr. McDonald's finding of organisms of the coli-typhoid group can, I think, be easily explained. In many cases of arsenical dermatitis a staphylococcal infection in the form of boils may develop two or three weeks after the onset of the rash. Doubtless this infection is of a secondary nature due to a lowered resistance, and can in no wise be regarded as an etiological factor. As staphylococci complicate a skin case, it is only reasonable to suppose that it would be coli organisms which would complicate a liver case, therefore the incidence of the above finding is rather to be interpreted as a result than a cause. There is so much disparity between the number of cases of hepatic trouble which occur in untreated and treated cases, that I am led to the view that the great increase is directly due to the toxic action of arsenic. It is doubtless due to a reason of fear that many other cases have not seen their way into print, because every possible excuse is made to avoid labelling deaths after salvarsan as being due to arsenic, therefore Professor McDonald should be congratulated on opening up such an important subject. I cannot agree with him that there is no evidence that the salvarsan has materially altered in the last three years, because in my experience the alteration has been most marked, a point to which I have repeatedly drawn attention since the outbreak of the war.—I am, etc.,

London, W., Jan. 20th.

J. E. R. McDONAGH.

THE CAUSATION OF SEX IN MAN.

SIR,—The following case may be of interest: Mrs. —, aged 25, was delivered of twins, one being male and the other female, on January 12th, 1918. In April, 1916, Dr. Hellier of Leeds had performed a left salpingo-oophorectomy and ventral fixation. It might be of interest also to state that the ventral fixation caused such a doubling over of the uterus as to form a separate pouch, in which the second fetus was tightly held. This pouch lay in front of the lower segment of the uterus, which had held the first-born fetus. Delivery required considerable manipulation.—I am, etc.,

Normanton, Jan. 1st.

N. STUART TWIST.

¹ Practitioner, January, 1918.

THE INCREASE OF CAPITATION AND PRIVATE FEES.

SIR,—These two points are now being discussed, and in my opinion, so far as rural practitioners are concerned, should be considered together. Have we any right to expect private patients to pay higher fees if we are still willing to receive the totally inadequate remuneration under the Insurance Act?

I have on several occasions quoted figures based on my own personal experience. During the past year records have not been insisted upon, so I cannot make any exact calculation, but I have little hesitation in saying that, under the Insurance Act, my own remuneration for dispensing barely covers the cost of drugs, bottles, etc., and that, after allowing for cost of locomotion, etc., the fee for a consultation or visit must be reckoned in coppers and not shillings. My experience may be exceptional, but can scarcely be unique.

Can any one point to any other body of men who have not been compensated by war bonus or other means for necessarily increased expenses in carrying out a contract owing to the war?

When we have demanded and received extra remuneration under the Insurance Act to cover the extra cost, and when we have been paid on the full number on our lists, then let us consider the raising of fees all round.—I am, etc.,

West End, Hants, Feb. 4th.

C. H. POWERS.

Obituary.

JOHN McCRAE, M.D. TORONTO.

LIEUT.-COLONEL C.A.M.C.; CONSULTING PHYSICIAN, B.E.F., FRANCE; LATE SECOND IN COMMAND (McGILL UNIVERSITY), CANADIAN GENERAL HOSPITAL.

LIEUT.-COLONEL JOHN McCRAE, the distinguished Canadian physician and author, died with painful suddenness on January 28th, of pneumonia. On January 23rd, the day upon which his illness first showed itself, the order came through for him to join one of the armies as consulting physician.

He was the second son of Lieut.-Colonel David McCrae, and was born at Guelph, Ontario, in November, 1872. He was educated at Guelph and at the University of Toronto, where he graduated B.A. in 1894, M.B. in 1898, and M.D. in 1910. In 1899 he was appointed Governors' Fellow in Pathology, McGill University, Montreal, becoming later lecturer in pathology, and then in clinical medicine, at the same university. He studied abroad under Marchand and others. He was assistant physician at the Royal Victoria Hospital, Montreal, and physician to the Alexandra Hospital for Infectious Diseases.

An active and rapid worker, he was co-author with Professor Adami of a well-known textbook of pathology, of the article "Oesophagus" and yet other articles in the *System of Medicine* by Sir William Osler and Dr. Thomas McCrae, his elder brother, and contributed many articles on pathology and clinical medicine to the medical journals. He was on active service as a combatant officer in South Africa during the Boer war, and went overseas with the first Canadian contingent in October, 1914, as medical officer to the 1st Brigade, Canadian Field Artillery. When the McGill University Hospital unit was formed, in the spring of 1915, he was appointed lieutenant-colonel in charge of the medical division, joining that unit when it reached France in the summer of that year. With it he remained until his death, serving with the utmost efficiency and loyalty. The paragraphs which follow, by Colonel Elder, O.C. McGill University Canadian General Hospital, and by Lieut.-Colonel J. G. Adami, with whom he was so long associated, will indicate the position he held and the influence he wielded. He was unmarried.

Lieut.-Colonel ADAMI writes:

There have been few finer characters, or men of richer and more varied endowment in the Imperial Medical Service than John McCrae. First and foremost he was a soldier, sprung from old Galloway fighting stock. Seven out of the eight McCraes who find mention in the last issue of "Who's Who" are soldiers. His father, Colonel David McCrae, who had been a noted breeder of Galloway cattle,

when he had passed seventy came again to the colours, raised and brought a battery to England, and bore it hardly that he was not permitted to take it to Flanders. When the Boer war opened John McCrae himself, a junior militia officer in the 16th (Howitzer) Battery of his native town, Guelph, although by now a graduate of medicine and just embarked upon his career in Montreal, found the call too strong for him, and at the first opportunity went to South Africa as a lieutenant in the Canadian Artillery. There he was present at Belfast, Lydenburg, and several other engagements, and gained the Queen's medal with three clasps. In 1902 he gained his majority and was given command of his original battery. But for the fact that he was on his way to England when the great war opened, he would have served under his old chief in South Africa, Colonel (now Brigadier-General) E. W. B. Morrison, D.S.O., C.M.G., as a combatant officer in the First Canadian Field Artillery. Rather than be left behind he had to satisfy himself by accompanying the brigade as medical officer, in the hope that, should a vacancy occur, he might be given a battery. In this position his partiality for observation posts caused some little trouble. He was with the brigade all through that critical day in April, 1915, when, along the Yser Canal, north of Ypres, the scant line of Canadian guns, with not too abundant ammunition, alone intervened between the German hosts and Calais and Boulogne.

The straining at the leash to take an active part when compelled to be merely an onlooker told upon him, and when the call came to join No. — (McGill University) Canadian General Hospital as head of the medical service, he recognized, although with a heavy heart, that his duty lay with his colleagues who formed the unit.

For if he was a soldier by birth, medicine has been his life's work, and for sixteen years he had been associated with the staff of McGill Medical Faculty, first as pathologist, later as lecturer in clinical medicine. In his chosen profession the place he had gained is indicated by the fact that he was one of the eight or so Canadian members out of the six score who constitute that most select body, the Association of American Physicians. Apart from his great personal charm he was admirably equipped to become a leader in the profession. Although belonging to the rival university I willingly admit that in the late eighties and early nineties, for those capable of taking advantage thereof and electing to pursue further studies elsewhere after graduation, the University of Toronto afforded the finest medical education in North America. The clinical opportunities at that time were not of the very first order, but the preliminary training in science was singularly full and thorough. The combination of Ramsay Wright's stimulating and thought-compelling lectures in general biology, with A. B. MacCallum's practical course in physiology, developed a set of men who to-day are leaders in American medicine: Llewellys Barker of Baltimore, Thomas McCrae of Philadelphia (John's elder brother, who also for a time was Lieut.-Colonel C.A.M.C. and head of the medical service of a Canadian general hospital), W. G. MacCallum of Columbia and now again of Johns Hopkins, T. Fletcher of Johns Hopkins (also Lieut.-Colonel C.A.M.C.), Oskar Klotz of McGill and Pittsburgh, and John McCrae. No school of this generation in North America can claim quite so brilliant a band of physicians and pathologists as original alumni. John McCrae had been Fellow in Biology at Toronto at the conclusion of his course in arts before coming to me as Fellow in Pathology at McGill after graduation in medicine.

It was this long-continued and thorough training in medical science that made John McCrae the sound and capable diagnostician and the inspiring teacher. His military habit of mind made that teaching precise; men had to be given definite instruction. To quote from a letter of Captain A. Malloch, C.A.M.C., author of that curiously interesting by-product of the war, the story of Finch and Baines, those two old physicians and friends who lie side by side in the chapel at Christ's in Cambridge: "Where other clinics have failed I am able to look back at some of his clear-cut pictures of disease. Dogmatism certainly has its place."

It came as no surprise to those of us who know his sterling qualities when we heard the news a few days before the all too sudden end, that he, who for two and a half years had been head of the medical service at "No. —

Canadian General," had been appointed consultant physician to the Imperial troops overseas. He was the first Canadian to whom the like position had been offered. We knew that the honour had been as well won as it had been unsolicited, that it was an honour to Canada, and that he would do Canada credit.

He felt the war intensely, and it had changed him. Loyal and straightforward as ever, he was no longer the cheery, light-hearted companion full of good sayings. In old times he was as apt with a story as was Abraham Lincoln. His memory was extraordinary. There was a notable journey which the late Earl Grey, when Governor-General, took with a chosen few, in canoes manned by Indians, from Lake Winnipeg down the Nelson River to York Factory, and thence by the Government steam yacht across Hudson Bay and around Labrador to Prince Edward's Island and the St. Lawrence. McCrae was of the elect. Lord Grey used to recount that during the expedition he estimated that each working day Dr. McCrae poured out anecdotes and *bons mots* at the average rate of eight an hour, or, in all, something over three thousand, and, notwithstanding, he never once heard him repeat himself! Now, the war was with him night and day, and, while kindly and devoted to those under him, he expected from them the same military spirit and sense of high responsibility, and was impatient when he thought either wanting. Not all at first understood the change or could rise to his level of service.

It is not, however, as soldier, pathologist, or physician, for his work upon agglutinins, mycotic aneurysms, and the oesophagus, or for his clinical studies upon the exanthemata, nor again as the most delightful and truest of friends that John McCrae will most surely go down to posterity. He was a master of English undefiled, and as a master of English and a poet his memory will be preserved. It is a commonplace that this war has brought with it an outpouring of verse such as England has not seen since the Elizabethan days. I have no hesitation in stating my belief that amongst the three or four imperishable poems owed to the war, poems which must become the heritage of the race—along, let us say, with Rupert Brooke's best sonnet and Julian Grenfell's noble lines—Jack McCrae's exquisite rondeau, "In Flanders Fields" must have place. Equally beautiful, though less generally known, is his "Brecon Town," which appeared some few years ago in the *University Magazine*, that magazine which, under the editorship of another Montreal physician and soldier, Sir Andrew Macphail, has brought to light so much that is best in Canadian thought, whether in prose or poetry. He had a singularly fine taste, and only gave forth that which was of the best. Thus, to my knowledge, but a dozen or so of his poems have been printed, one and all of high merit. Reading these two, his highest achievements, it is as though, with Brooke and Grenfell, he foresaw the inevitable end.

Colonel J. M. ELDER writes:

The funeral, which was held from No. — General Hospital (to which he had been removed to be under his friend Sir Bertrand Dawson) . . . was by far the largest and most impressive I have seen here; indeed, it was the most impressive military funeral I have ever seen anywhere. . . . All the officials here, especially Brigadier-General Wilberforce, were very kind to me, had sympathy for us in our trouble, and regret at the loss of our friend was universal. General Currie, General Morrison of course, General Dodds, and many others from the head quarters staff, came down specially for the funeral and marched in the procession, which was headed by Sir Bertrand Dawson and myself as chief mourners. Sir Arthur Sloggett was present to meet us at the grave, with his staff. I do not think there was a commanding officer in this area who was not there. The Base Commandant and D.D.M.S. were present, as was a large deputation from the Harvard Hospital and our dear old friend Sir Ahuroth Wright. Seventy-five of our personnel, headed by six staff sergeants and sergeants who carried the body from the gate of the cemetery to the grave, acted as an escort. . . . The firing party preceded the coffin. "Bonfire" (the Colonel's horse, to whom he was greatly attached), decked with the regulation white ribbon, followed the coffin, then the chief mourners and our rank and file, followed by our officers, who were nearly all present, and the rank and file party from No. — General Hospital, then

the officers from the base, followed by General Wilberforce and the D.D.M.S. About seventy-five of our Sisters, in their caps and white veils, lined up at No.—General, then they took their ambulances, met us at the grave-side, and again lined up. They were there at the special request of the commandant, and added much to the impressiveness of the ceremony. Colonel Adams made at the open grave the finest prayer to which I have ever listened. We watched the grave being rapidly filled in, and it was perfectly covered with the floral contributions which came from everywhere.

The day of the funeral was a beautiful spring-like day; none of us wore overcoats. You know the haze that comes over those hills at W—. I felt so thankful that the poet of "Flanders Fields" was lying out there in the bright sunshine in the open space he loved so well, instead of being cramped in that miserable city graveyard which he hated so much. I know this is only sentiment, but sentiment counts after all in this world-war.

JAMES SPOTTISWOODE CAMERON, M.D. Edin.,

FORMERLY M.O.H., LEEDS.

We regret to record the death, at the age of 73, of Dr. J. Spottiswoode Cameron, late M.O.H. for Leeds, which occurred on January 30th after a long illness. He received his medical education at the University of Edinburgh and graduated M.B. in 1868 and M.D. in 1870. His first appointment seems to have been that of resident dispensary medical officer at the Bradford Infirmary. In 1877 he became M.O.H. for Huddersfield; it was one of the first towns to adopt the compulsory notification of infectious diseases, and the system was introduced during Dr. Cameron's term of office; he was also physician to the Huddersfield Infirmary. In 1889 he was appointed M.O.H. for Leeds, a position which he retained until his health failed three years ago. He thus held this important appointment for twenty-six years and during that time did much to transform Leeds from one of the most backward towns, in a sanitary sense, to one of the most advanced; the main problem was created by the existence of a large area of slum property. He was a steadfast opponent of the evil principle of building industrial houses back to back, but local opinion was too strong and he had to give way on this point in many parts of the area. Nevertheless, he was able to accomplish a great deal, and the progress which has been made may be dated from 1895, when an area of 56 acres comprising 555 properties was scheduled under an improvement scheme undertaken by the municipality. During his administration the water carriage system of sewage was made general and infectious disease hospitals were erected. The efficiency of his work may perhaps be judged by the single fact that the death-rate of Leeds fell from an average of 22 per 1,000 to 15 per 1,000.

Dr. Spottiswoode Cameron was a member of the British Medical Association, and at one time took an active share in its work. He served on the old Parliamentary Bills Committee and also on the central Council; he was, in addition, vice-president of the Section of Public Medicine at the annual meeting in London in 1895. His published writings include books on the working of the Infectious Diseases (Notification) Act, on cholera and on nuisances and insanitary conditions, as well as a popular work on healthy houses; but his most important writings are contained in his annual health reports for Leeds. He was for many years a frequent contributor to our columns, and his wide knowledge of public health law and administration and his breadth of view and public spirit were much appreciated.

Dr. Cameron leaves a widow, a daughter, and two sons, one of whom is serving in the army, and the other in the Sudan Government service.

We regret to record the death on January 25th, at the age of 54, of Dr. THOMAS FRANK RICKETTS, medical superintendent of the Park Hospital, Hither Green, and the leading authority on small-pox. He was educated at Cheltenham College and Guy's Hospital. He obtained the diplomas M.R.C.S., L.R.C.P. in 1889, the D.P.H. in 1892, and M.R.C.P. Lond. in 1899; the B.Sc. degree of the University of London in 1886, the M.B. and B.S. in 1890, and the M.D. (qualifying for gold medal) in 1891. Entering the service of the Metropolitan Asylums Board he was

appointed in 1892 medical superintendent of the hospital ships for small-pox, on the Thames, near Dartford; and later of the small-pox hospital at Joyce Green near the same place, and of the River Ambulance Service. In 1915 he became medical superintendent of the Park Hospital. As this long period (twenty-three years) in charge of small-pox hospitals included the epidemic of 1893 with about 2,500 cases, and that of 1901-1902 with about 10,000 cases, and also much diagnosis work at the receiving stations in London, it is obvious that the experience of Dr. Ricketts on this subject was enormous. What made his diagnosis unchallengeable was that he brought to his work a scientific mind of the finest calibre which made difficult work look easy. The extreme difficulty of making a correct diagnosis of every one of many thousands of cases presented as small-pox, in all varieties of place and time, is a commonplace. Dr. Ricketts's skill was almost uncanny. His work in this field was brilliant, and conducted with gentle decision and modesty. His scientific fame rests on the fact that he brought the varied points which bear on the diagnosis of small-pox into their true proportion and within the comprehension and power of the ordinary man. In his classical monograph, *The Diagnosis of Small-pox*, to which Lieut.-Colonel J. B. Byles, R.A.M.C., contributed the photographs, Ricketts displays much acute observation and reasoning, and shows that the key to the diagnosis is the distribution of the rash, this phenomenon being nearly always reliable for yielding a correct interpretation. Dr. Ricketts's great services to the public of London and indeed to the whole country, have never been generally known. He predicted with accuracy the heavy London epidemic of 1901-1902, and to him more than to any other single individual is due the prevention of a real disaster for London, and the saving of many thousands of lives. He it was who indicated the correct measures to be taken and the men to be employed to cope with a very ugly outbreak. He was admired as a master-mind, respected for his courage and common sense, attractive by reason of his sense of humour and correct opinions, and loved as a friend.

DR. DOROTHY EILEEN PRATT, assistant county medical officer for Hampshire, who died suddenly on January 10th, was the eldest daughter of Mr. Henry Pratt, V.D., of Exeter. She received her medical education at the School of Medicine for Women, Edinburgh, and graduated M.B., C.M. Edin. in 1898, taking the M.D. and M.Ch. degrees in 1912. She had served as superintendent of the State Hospital for Women and Children, Srinagar, assistant medical officer to the Plaistow Fever Hospital, medical inspector of schools under the Kent County Council, and assistant tuberculosis officer for Lambeth. She took a great interest in surgery and was the author of a report on two unusual cases of abdominal tumours published in the *Indian Medical Gazette* of 1912. She was a member of the British Medical Association.

Universities and Colleges.

UNIVERSITY OF ST. ANDREWS.

THE following degrees were conferred on January 19th:

M.B., Ch.B.—Kathleen I. David, W. A. Fraser, Dora M. Walker.

UNIVERSITY OF LIVERPOOL.

THE Diploma in Public Health has been awarded to G. W. Procter.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

At an ordinary meeting on January 31st, when the President, Sir Frederick Taylor, was in the chair, Drs. Stanley Arthur Bull (New Zealand), Oliver Horsley Gotch (London), W. Hillgrove Leslie McCarthy (London), and W. Marshall Macdonald (New Zealand) were admitted Members. Licences to practise were granted to eighty-one candidates and diplomas in public health to two.

Drs. W. H. Hamer, A. F. Voelcker, F. F. Caiger, and Raymond Crawford were elected councillors.

The President was asked to nominate a committee to report upon the question of a Ministry of Public Health, and a memorandum upon the subject from the Royal College of Physicians of Edinburgh was received.

The President announced that the Harveian Oration will be delivered by Dr. Percy Kidd, the Bradshaw Lecture by Dr. Aldren Turner, and the Milroy Lectures by Dr. H. Kenwood during the present year, and that Dr. J. C. McVail had been appointed Milroy Lecturer for 1919.

Medical News.

THE Midwives (Ireland) Bill passed through its final stages last week.

DR. J. R. MASON has been elected an alderman of Newcastle-upon-Tyne. He has represented All Saints' Ward on the council for nearly twenty years.

THE London County Council has determined that the London lunatic asylums shall in future be designated mental hospitals, except in legal documents, where an alteration in the name would require an Act of Parliament.

THE London Insurance Committee has adopted a resolution welcoming the efforts of the Minister of Reconstruction to formulate a scheme for the immediate establishment of a Ministry of Health which would possess full maternity and infant welfare powers.

DR. MOND undertook to pay £62,000 as an endowment fund for the David Faraday Research Laboratory of the Royal Institution before 1926. His trustees have now anticipated the obligation, and have transferred £66,500 in 5 per cent. War Stock to the trustees of the laboratory.

A COURSE of four lectures on the electrical examination of the nervous system by Professor A. D. Waller, F.R.S., and Miss Mary D. Waller, B.Sc., lecturer on physics at the London School of Medicine for Women, began on February 6th at 5 p.m. in the Physiological Laboratory of the University of London, and will be continued on February 13th, 20th, and 27th, at the same hour.

THE Minister of Pensions has appointed an Advisory Council, consisting of thirteen surgeons, two engineers, and two limb makers, to advise on matters which may be referred to it with regard to the manufacture and supply of artificial limbs and appliances. Sir Charles Kenderdine, the new Director of artificial limbs supply to the Ministry, is the chairman of the Advisory Council, which held its first meeting on February 7th.

ACCORDING to a report of the results of the campaign against ankylostomiasis carried on in Costa Rica in 1916 by Dr. L. Schapiro under the auspices of the Rockefeller Foundation, the number of persons examined down to the end of the year was 83,921; of these 49,884 were found to be infected, of whom, 42,000 were cured.

THE twelfth award of the triennial Reuben Harvey memorial prize will be made on July 1st. The competition is open to all students of the various schools of medicine in Dublin and to graduates or licentiates of medical licensing bodies in Ireland of not more than three years' standing. Full particulars will be found in our advertisement columns.

GENERAL LEONARD WOOD, of the United States army, is not the only man who, beginning as a doctor, has become the head of an army. General Boriani, who commanded the Italian troops on the Asiago plateau, where in the face of heavy odds they successfully checked the advance of the enemy, was educated for the medical profession and for many years practised gynaecology.

NOTWITHSTANDING frequent bombardments the life of the University of Nancy has not been suspended. At the opening of the present academic year the French Minister of Public Instruction delivered an eloquent address in praise of the courage and public spirit of the teaching staff and the students. He then decorated the University with the Military Cross.

THE French Food Controller informed the Chamber of Deputies on January 28th that the uniform ration of 300 grams of bread by ticket which came into force in Paris and its suburbs on the following day was only a temporary expedient enforced at once to prevent food hoarding. It was intended by subsequent orders to supplement the allowance to persons who really needed a larger quantity.

AT the annual meeting of the Scottish Western Asylums' Research Institute in Glasgow, on January 29th, Dr. Oswald, physician-superintendent of the Glasgow Royal Infirmary, announced that with the help of an anonymous donor arrangements had been made for the endowment of a research scholarship in mental affections, of the annual value of £250, to be held at the Western Asylums' Research Institute. No appointment will be made during the continuation of the war.

M. GODART, Parliamentary Under Secretary for War in charge of the medical department of the French army, resigned unexpectedly last week because the Chamber refused to postpone the consideration of an interpellation with regard to an impostor who had succeeded in obtaining a medical commission. This person had contrived to get a certificate of competence as a surgeon from the Faculty of Lyons, for which city M. Godart is deputy. During a

brief but heated discussion certain deputies alleged that the war ministry was being imposed upon in a similar manner in other instances.

A MEETING of the West London Medico-Chirurgical Society was held at the West London Hospital on February 1st, Dr. A. J. Rice-Oxley being in the chair. Dr. Knyvett Gordon read a paper on the cancer problem and its clinical significance, illustrated by microscopic slides and coloured plates. Following the reading of the paper there was an interesting discussion, in which Dr. F. J. McCann, Major Jocelyn Swan, Mr. Aslett Baldwin, and others took part. Earlier in the evening Mr. P. Mackay from New Zealand exhibited an artificial hand and arm, which he had made for himself and since patented.

THE disease which causes what is called "contagious abortion" in cows is due to a bacillus which may infect cows which are not pregnant and also bulls, although the latter are not frequent disseminators. According to statements made by Dr. John McCall, Assistant Veterinary Officer of the Board of Agriculture, in a recent address to the Scottish Chamber of Agriculture, the disease is generally spread in the field by a cow which has aborted and has been allowed too soon to run with the others; it is spread also by the exposure at public auction of an animal known to have aborted. The disease is not serious in non-pregnant animals, and vaccination of the non-pregnant animal with living cultures of the bacillus renders it immune. Among between 2,000 and 3,000 animals so vaccinated in a single county during the last year or two less than 1 per cent. had aborted.

PLAGUE has never been endemic in Malta, but from time to time it has been imported, often with serious consequences. Dr. Bernard, M.O.H. of the island, has written a short report on the epidemiological investigation of certain cases of plague that occurred there in 1917. The disease broke out in March, but was localized quickly and rapidly suppressed. All the cases except one were males, their ages varying between 18 and 54 years. Four men died, and in three of them the nature of the disease was not recognized during life; one died at the Contagious Diseases Hospital at Gozo. The mortality rate was 50 per cent., well below the average. Most of the cases were bubonic in type. The ordinary sanitary precautions were adopted, and the disease was limited and prevented from spreading. Dr. Bernard is to be congratulated on the success he obtained in dealing with the outbreak.

IN a recent number of a Neapolitan medical journal (*La Medicina Pratica*, Naples, 1917, ii, 329) Professor A. Romano draws attention to a forgotten method of arresting epileptic convulsions described by the late Professor Baccelli as long ago as 1862. This consists in pressing the left thumb and index as an arch against the patient's temporal regions, while the right thumb makes counter-pressure in the hollow between the two complexus muscles over the cruciform tuberosity of the occipital bone. The method was improved by Solivetti, who directed that the left hand should make pressure in the frontal rather than the temporal region of the head, while the thumb and index of the right hand make counter-pressure beneath the occipital bosses. According to Professor Romano, this improved method of treatment will arrest the convulsions in 40 per cent. of cases of true idiopathic epilepsy; it is of no value in the case of other forms of epileptiform convulsions. The rationale of the method is obscure; Professor Romano thinks that it may act by cutting short the congestion of the base of the brain and of the medulla that has been supposed to be the immediate cause of the convulsions in true epilepsy.

LAST summer the Berlin Society for Race Hygiene presented a memorandum to the Reichstag in favour of making medical examination before marriage compulsory. The society urged that even before the war the process of the survival of the fittest had been seriously interfered with and that the war had destroyed a considerable portion of the most able-bodied males. Medical examination would lead to the early diagnosis, and possibly the cure, of conditions leading to sterility. The medical examiner would be bound by the rule of professional secrecy and would be authorized to communicate the result of his examination to the other party only when silence would mean concealment of evils. The society suggested that the certificates of fitness for marriage should be issued only by medical officers belonging to the applicant's place of residence. The certificate should deal only with the presence of diseases, or tendency to disease, notably mental and nervous disease and infectious disorders likely to be transmitted by marriage. The certificate should state whether the medical examination indicated the inadvisability of marriage.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology*, Westrand, London; telephone, 2631, Gerrard.
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 3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

LETTERS, NOTES, ETC.

A PAMPHLET, entitled *A Searchlight on Germany*, has been written by Dr. William T. Hornaday for the American Defence Society, and is published in this country by Messrs. Bale, Sons, and Danielsson (London, price 3d.). It consists of three parts, dealing respectively with the blunders, crimes, and punishment of Germany. It is the sort of pamphlet which the people who want peace at the German price should be given to read.

MR. LEIGHTON KESTIVEN writes to correct an error in his article on ionic medication published in the JOURNAL of September 29th, 1917 (p. 423). In the last line of the first column the strength of the zinc iodide solution to be used in cases of middle-ear catarrh is given as 30 per cent. The correct strength is 3 per cent.

INCREASED EXPENSES OF PRACTICE.

COLLIERY SURGEON writes: Some weeks back it was stated in the BRITISH MEDICAL JOURNAL that expenses of doctors had increased from 10 to 35 per cent. My expenses, as allowed by the income tax officials, were in 1913 £280, in 1914 £276, in 1915 £400, and in 1916 £461. In 1917 my expenses (calculated) were £498.

THE FUTURE OF THE POOR LAW.

DR. A. WITHERS GREEN (Honorary Secretary, Poor Law Medical Officers' Association, Wardrobe Place, London, E.C.4) writes: All Poor Law medical officers should order through their booksellers from H.M. Stationery Office the "Report of transfer of functions of Poor Law authorities in England and Wales, 1918," Ministry of Reconstruction, Local Government Committee. Price 3d. net. It should be carefully studied as a first instalment of coming changes. This document coming first in a series of proposable changes would seem to save Poor Law medical officers from the clutches of the Insurance Act. At all events very definite promises are made which should conserve our interests provided we beforehand are prepared for action. It is surely the duty of each medical man to set aside some definite time weekly for reading and meditating on State intraprofessional subjects. To neglect this may be to fall into self ruin and collective disintegration, for we always are apt to be behindhand. I would suggest that each county should collect its Poor Law members and put their opinions together into one document, so that each individual and all unitedly would have a consensus of views before them. I would be pleased to receive such a statement. Montgomery and West Derby, for example, have thus acted and appointed a local secretary.

FINGER CRACKS.

DR. LEONARD J. KIDD (London) writes: I find that the most troublesome cracks occur within one-eighth of an inch from the border of the nails. They appear invariably soon after cutting the nails moderately short, provided the weather be damp and the temperature below 50° F. Dry, cold, frosty weather heals them rapidly, without local applications. Gloves worn all night after free rubbing in of vaseline, cold cream, or the "mel rose tablet," always relieve them. If I keep my nails long, I seldom have cracks. They are said to be specially frequent in that very common condition, mild hypothyroidism.

BOLISME.

BULIMY, or boulimy, or bulimia, or boulimia, still maintain a precarious existence in medical terminology. The derivation is from the Greek word *βουλιμία*, signifying an ox-like hunger. During the Middle Ages, however, the form *bolisme* came into use, apparently owing to an accidental error. We learn from Coulton's *Social Life in Britain from the Conquest to the Reformation* that John of Trevisa (1326-1412), in his translation of the book of Bartholomew de Glanville on the nature of things (Lib. xviii, cc. 25-8), after much in praise of the dog's character, wrote: "Houndes have other proprietes that ben not ful good, for houndes have contynnalle Bolisme, that is, immoderate appetyte." The recent introduction of the term "Boloism" is a curious example of two words of almost identical sound and spelling being derived from totally different sources.

LISTER AND THE BEGINNINGS OF THE ANTISEPTIC SYSTEM.

MR. H. NELSON HARDY (Thornton Heath, Croydon) writes: In Colonel Mayo-Robson's most interesting article on surgical dressings, etc., there is a sentence which seems to me of more than doubtful accuracy as to dates—"My first experience," he writes, "of an antiseptic operation, long before Lister introduced his system, was in 1875," the words italicized being those to which I desire to draw attention.

Now some eight years before the date mentioned, that is, in the year 1867, the year in which I became M.R.C.S., I was for six months a resident in the Liverpool Royal Infirmary, where Mr. E. R. Bickersteth, one of Liverpool's leading surgeons at the time, was a firm believer in Listerism, and had it carried out in his wards.

The system was then, I remember, in its transitory stage of carbolic oil, 1 to 5, which proved, of course, far too strong, and gave rise to much adverse criticism among us residents; but my point is that it had not only been introduced by Lister, but adopted by Bickersteth, eight years before the date mentioned by Colonel Mayo-Robson.

* * Mr. Nelson Hardy is no doubt right as to dates. The first paper in which Lister described the antiseptic method in its then early stage was published in the *Lancet* in parts at various dates during 1867. The first case there recorded was one of compound fracture of the left leg admitted into Glasgow Royal Infirmary on August 12th, 1865. His first general discussion of the system was contained in a paper read before the British Medical Association in Dublin on August 9th, 1867, published shortly afterwards in the BRITISH MEDICAL JOURNAL (1867, vol. ii, p. 246). The whole story is told in Sir Rickman Godlee's recent *Life*, where is quoted a letter from Bickersteth dated April 20th, 1869, in which he speaks of himself as "a firm disciple in the antiseptic theories and practice."

We may take this opportunity of referring to a point as to which another correspondent appears to be under some misapprehension. In the *Life* (p. 21) it is said that Lister while at University College became one of the champions trusted to maintain the reputation of that college, and that he fully justified the confidence of his fellow students; a quotation is made from a letter by Sampson Gamgee of August 30th, 1850, in which he thanked Lister "for having sustained the honour of the school after such a critical session as that of 1849-50. Had it not been for you University College would have been a nonentity at the examination for honours at the University." A reference to the *Calendar* of the university at that time shows that at the honours examination in 1850 Lister was second in anatomy and physiology (gold medal) bracketed third in chemistry, the late Dr. Pavy being second, and was first (gold medal) in structural and physiological botany. In 1852 he was first in surgery, taking the University scholarship and gold medal, and took honours also in physiology and comparative anatomy. Only one other student from University College appears to have taken honours at the M.B. examination of the University of London in that year.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *posto restante* letters addressed either in initials or numbers.

PYROGENIC THERAPY.

WITH REMARKS ON COLLOIDAL METALS.

By A. G. AULD, M.D., M.R.C.P.,

SENIOR HONORARY PHYSICIAN, ST. MARTYLBONE GENERAL DISPENSARY;
SENIOR ASSISTANT PHYSICIAN, PRINCE OF WALES GENERAL
HOSPITAL; LECTURER ON MEDICAL DIAGNOSIS IN THE
NORTH EAST LONDON POST-GRADUATE COLLEGE.

The term "pyrogen" was first used by Burdon-Sanderson in 1875 to signify a fever-producing substance which he had prepared. Such substances, both protein and non-protein, have since then received ample recognition, though not from the therapeutic side. The subject, however, is one of high practical importance, and in many cases brilliant results may be obtained.

Early in 1915 I began the clinical investigation of various colloidal metals parenterally introduced. They were received from different sources and included those produced by both chemical and electrical methods. The first attempts were limited to subcutaneous injections, gold, platinum, silver, and copper being chiefly used. The results were meagre and uncertain. Sometimes slight elevations of temperature followed the injections. The next attempts were instigated by a consideration of the catalytic action of certain metals in relation to the oxidative processes in the peroxide-peroxidase system. It seemed conceivable that under local conditions of defective oxidation the introduction, if possible, of a new peroxidase might be beneficial, especially if there was some bar to the effective action of the natural peroxidase, which may be regarded as the iron in the haemoglobin and in the tissues. To this end I employed colloidal manganous hydroxide intravenously. The results were distinctly encouraging, and the matter is still under investigation. I also made a third series of trials in view of the well-known catalytic action of platinum, with the design of causing adsorption of toxin-antitoxin on the platinum particle introduced into the blood. If the antigen was not a soluble toxin, it might vice versa be neutralized by adsorbing the platinum. Numerous trials were made in diverse conditions, gold, silver, and copper colloids being also employed, the dosage (intravenous) varying from 2 to 10 c.cm. Favourable results were obtained, more particularly where the injection was succeeded by a rise of temperature, which, however, rarely exceeded 2° F. Cases of pneumococcal and streptococcal infections were influenced in this way, but as to the *modus operandi* it is difficult to conclude, as, except in the case of gases, the interaction of bodies adsorbed on the same surface is not characterized by evolution of heat, at least not to any very appreciable extent. There is, however, another consideration in that the metallic particles might adsorb both active (quadrivalent) oxygen and toxin, leading to combustion of the latter. The infective organism itself might also be destroyed by the active oxygen provided it adsorbed the particle so charged. It is to be remembered also that in a reducing system, as in the case of the liver, the metal would act as a reducing agent.

In the course of these investigations a bottle of colloidal platinum was opened which had been obtained from the manufacturers a year previously (May, 1915). It was perfectly transparent, of a very dark olive colour, and slightly acid to litmus. It was odourless and free from any trace of deposit. When given intravenously in the usual doses (3 to 7 c.cm.) it produced a new and severe reaction. In half an hour there was rigor, lasting for twenty minutes or longer, followed by rise of temperature to 104° or 105° F., with, in the next few hours, perspiration, sickness with vomiting (occasionally) and headache. The temperature then fell usually to subnormal. This reaction occurred alike in normal subjects and in those suffering from diseases characterized by moderate pyrexia, namely, subacute pleuritic and pneumonic conditions, and protracted paratyphoid fever. In these the fall of temperature coincided with a great improvement in the general condition. The entire syndrome exactly resembled the ague fit.

The following cases and charts are given in illustration:

CASE I.—Young woman, aged 20, admitted under me, April 14th, 1916, at the Prince of Wales Hospital, suffering from acute pneumonia and signs of plenry in the right side. Temperature 103°, pulse 140, respira-

tions 60. The pneumonia cleared up, but after a week, pus containing streptococci was aspirated from the side. A portion of rib was resected on April 24th and a tube inserted. The temperature then fell to 99°-100°; after five days it rose again to 103°. On May 2nd, when the temperature had temporarily fallen to 99.8°, 4 c.cm. of the colloidal

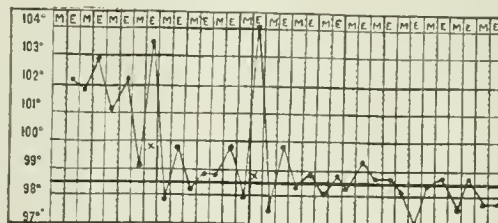


CHART 1.

platinum was given intravenously (marked by ×). This was followed by shivering and rise of temperature to 103.6°, perspiration, headache, and sickness. After six to eight hours, fall of temperature which reached 97.8° next morning, with great amelioration of the symptoms. After four days a second injection of 5 c.cm. was given, followed by rise of temperature to 104.4°, fall to 97.4° with rapid recovery.

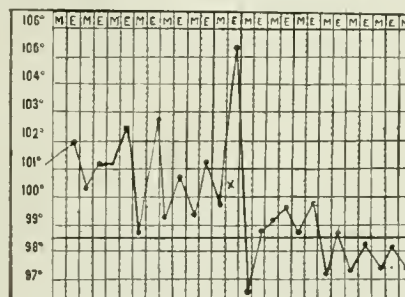


CHART 2.

CASE II.—Man, aged 31. Admitted October 7th, 1916, with subacute pleurisy, right side, and pulmonary congestion over lower half of left lung. Temperature on admission 102°, pulse 116, respirations 32. Sputum contained pneumococci, also the fluid withdrawn from the pleural cavity. Temperature remittent. Rapid recovery after the injection (Chart 2, ×).

CASE III.—Man, aged 40, seen September 30th, 1916, suffering from left-sided pleurisy with effusion, of a subacute type, with signs of consolidation. Sputum abundant, containing pneumococci. Effusion diminished, but patient continued ill, temperature 99° to 101° F. After

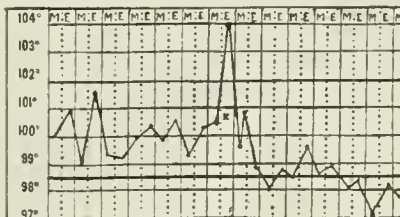


CHART 3.

about three weeks (on October 18th) he received an injection of 5 c.cm. The temperature rose to 104° F., but instead of falling to subnormal in the usual time, fell to 99.8°, with a secondary rise to 101° F. on the following day. On the third day it became subnormal, and a speedy recovery ensued.

During the cold stage the blood pressure rises from 10 to 20 mm., and thereafter during the hot stage it falls to about the same extent below its normal level. The temperature reaches its height in two to four hours. Leucocytosis sets in during the rise, and may continue for forty-eight hours. After the critical fall in temperature the pulse-rate and respirations may show a sharp drop in frequency, but sometimes the decline is gradual. Facial herpes may follow the treatment. These reactions were not obtained in the acute stage of pneumonia or pleurisy, nor was benefit derived. Instead of a rise, a fall in temperature of several degrees may take place (negative phase), with subsequent return to the original level, or nearly so.

At the same time as these results were obtained, Jobling and Petersen,¹ and some others in the United States were employing the method of intravenous injection of typhoid vaccine which had been introduced in 1914 by Kraus and Ichikama in the treatment of typhoid fever. To Kraus, however, belongs the credit of showing

that precisely similar effects were obtainable by the use of *B. coli* vaccine, and that therefore there was nothing specific about the treatment. Miller and Lusk² reported striking results in arthritis, and Engman and McGarry³ in certain skin diseases by means of the vaccine, the reaction being in every respect identical with that which I had obtained with the colloidal platinum. "Non-specific vaccine therapy" and "protein shock therapy" were applied to the procedure. I can certainly add my testimony to the remarkable effects of the treatment in cases of recent arthritis.

When the supply of active colloidal platinum I had been using was nearly exhausted I was unable to obtain any colloidal metallic preparation capable of producing the reaction. It was not until September, 1917, I obtained a specimen of colloidal silver, which, in doses of 3 to 5 c.c.m., acted with particular intensity, even more so than the platinum colloid. Being informed by the manufacturers that this silver was protected in a special manner, I requested them to send me the protective suspension exactly as used, which they willingly did. On trying it clinically, I was somewhat surprised to find that it reproduced very faithfully the effects of the colloidal silver itself, bulk for bulk. The protective used was given as veal peptone 0.4 per cent., with 1 per cent. glucose. It gave a violet biuret reaction. The veal "peptone," of course, was the active agent, as the effect of the glucose alone was nil. The result was surprising also in view of the fact that I had frequently given larger doses of peptone intravenously without reaction. Such a discovery naturally led me to suspect all the colloidal metals supplied, as they all contain some albuminous substance as protective. Most of those I had used, including the very active platinum, were protected by gelatin. The gelatin protective was also prepared for me and on injection it certainly produced symptoms such as headache and malaise, but without the rise of temperature found in the active platinum. Whether this latter preparation owed its properties to an unusual state of dispersion of the platinum particles, or to some accidental impurity such as hydrazin, or to some toxic body formed by hydrolysis of the gelatin after prolonged keeping, is difficult at present to decide. Examined under the ultra-microscope, the platinum was certainly in a very fine state of division, and showed active Brownian movements. Although doubt is thus thrown on the colloidal metals, it cannot be affirmed that they are clinically inactive, as they may certainly produce results which are not accompanied by high temperature reactions. It is, however, very desirable that they be issued in a purer and more standardized form.

If the pyrogen which produced the reactions was not colloidal platinum it matters little therapeutically, as all pyrogenic substances in appropriate doses produce the same effects, whether killed bacteria, proteoses, nucleic acid, or protected colloidal metals, to mention only a few.

How is the reaction brought about? This is a disputed point. The minute quantity of certain of the pyrogenic substances necessary, and the apparent possibility of producing in experimental animals similar symptoms by such inert (non-protein) substances as kaolin and agar, would seem to favour the view which has recently been elaborated from a large number of experiments by Novy and De Kruif,⁴ that the matrix of the pyrogen is in the plasma, that it is always one and the same substance, namely, anaphylatoxin, and the antigen merely serves to evolve it. This is the reverse of the split protein theory of Friedberger and Vaughan.

The favourable effects (which in a considerable percentage of the cases means the termination of the disease by crisis) have been variously ascribed to leucocytosis, to rapid mobilization of antibodies, to stimulation of the non-specific ferments of the serum (protease and lipase), and alteration in the ferment-antiferment titre. Teague and McWilliams⁵ in an experimental investigation have not been able to confirm these as causal agents. They suggest an active passage of bacteriolytic substances from the blood into the lymph spaces which traverse the local area or areas of infection. Doubtless various factors are at work, but without the pyrexia there is no benefit.

Under present conditions, typhoid vaccine is probably the best pyrogen to use. Nucleic acid (2 per cent.) is not always available in a reliable form, and the same applies to albumose. From fifty to two hundred and fifty million

of killed typhoid bacilli are injected intravenously, — ~~500~~ ing to the strength of the patient and the existing state of the temperature. In apyrexial cases, as in many of the arthritides, the dosage should be greater than in cases of pyrexia. The treatment is specially adapted to sluggish cases of localized infective diseases, with low or moderate pyrexia. Little benefit results unless the full reaction is induced, and rarely more than one injection is necessary. An overdose is indicated by dyspnoea, cyanosis and diarrhoea. The injection should not be given while the temperature is high. Heart disease, high blood pressure, and rigid arteries are contraindications. With care in the selection of cases, the treatment is not dangerous and it is not necessary to produce "shock," nor is the expression "shock" therapy in my view desirable. As an antidote to this, I have used the prefix "pyrogenic."

It is a pleasant duty to acknowledge my indebtedness to Professors Bayliss and Donnan of University College, who have kindly granted me opportunities of consulting them in respect of certain problems presented by colloids and electrolytes.

REFERENCES.

- ¹ *Journ. Amer. Med. Assoc.*, June 3rd and August 7th, 1916, pp. 1753 and 515. ² *Ibid.*, June, 1916, p. 1756. ³ *Ibid.*, December 9th, 1916, p. 1741. ⁴ *Journ. Infect. Diseases*, May and June, 1917. ⁵ *Journ. of Immunology*, February, 1917, p. 167.

TREATMENT OF WOUNDS OF THE CHEST,

WITH SPECIAL REFERENCE TO INFECTED
HAEMOTHORAX.

BY

MAJOR WILLIAM HUTCHINSON, C.A.M.C.

At the beginning of the war we were interested merely in the question of diagnosis of a haemothorax and whether or not aspiration of the blood was worth while. Fortunately it did not take very long to settle this latter point, and aspiration very quickly became a routine procedure. Simple aspiration was very soon followed by replacing the aspirated blood with oxygen in order to do away with the disagreeable symptoms sometimes produced by the rapid removal of a large quantity of blood from the pleural cavity. Thus, as far as the treatment of a simple haemothorax was concerned, perfection was reached; but there were other and more serious problems to be solved, and it was in the solving of those the most striking advance was made during the past year.

The problems with which we were confronted were three in number: how to deal with an open pneumothorax; how to deal with an infected haemothorax; how to deal with a foreign body in the lung. During the three years of the war a great deal of work has been done on these problems, and I am glad to say they have been solved.

In the treatment of wounds of the chest four classes must be distinguished.

I. A Non-infected Haemothorax or Pneumo-haemothorax.

The treatment of a simple non-infected haemothorax or a pneumo-haemothorax consists in merely aspirating the blood from the pleural cavity. This should be carried out in all cases in which more than two fingerbreadths of dullness can be made out. In my series of 450 cases 368 were aspirated; in the remainder there was not sufficient fluid to warrant it. The aspiration is done by means of the ordinary aspirating apparatus, but there are one or two practical points which, if carried out, make the procedure easier both for the patient and the surgeon. A local anaesthetic should be injected into the skin, muscles, and pleura in order to make the aspiration as painless as possible. After the injection of the anaesthetic a tiny incision should be made through the skin so that the round cannula will not be gripped by it. In the next place it is important to use a fair-sized trocar, as small needles are very easily blocked; another advantage in using a trocar is that when the sharp obturator is removed the blunt cannula can be moved about the pleural cavity without damaging the lung. If during the aspiration the patient begins to suffer pain in the chest and shortness of breath, the trocar can be disconnected

in the bottle and a little air allowed to enter the pleural cavity, and it will then be found that more blood can be withdrawn before the pain and distress return. In commencing to aspirate a chest, especially in cases in which a quantity of air is present in the pleural cavity, the bottle should not be exhausted before the trocar is connected, but should be exhausted gradually during the whole aspiration, as the sudden evacuation of air when the tap is opened might cause alarming symptoms.

The treatment of non-infected haemothorax in which there is a large amount of blood clot requires special mention, as there is a difference of opinion as to the course to be pursued. Personally, I believe the chest should be opened, all the blood and clot removed, the pleural cavity closed and the air aspirated. I would also recommend that this be done as early as the patient's condition will permit, as then the lung will get a chance to expand before adhesions form. There are two reasons for this: first, the removal of blood and clot by aspiration is impossible, and therefore we must depend upon absorption to remove them, and as this is necessarily a slow process the lung remains compressed for a long time and adhesions between the compressed lung and the chest wall become very firm; secondly, these cases in my experience formed the great bulk of the infected ones, and I am sure had they been treated by operation in the first place they would have escaped infection.

II. Open Pneumothorax.

The treatment of an open pneumothorax has been greatly improved during the past year and the results obtained at the casualty clearing hospitals are very encouraging. In this condition it is important to clean the wound thoroughly, to wash out the pleural cavity with saline, and to close the chest completely. This should be done early, as the condition of shock will be relieved by the closure and the danger of infection also decreased. If the patient's condition will stand it and the foreign body is fairly accessible it should be removed. If there seems a likelihood of infection having taken place, then 3 oz. of 1 in 5,000 flavine solution should be left in the pleural cavity and the usual after-treatment of an infected haemothorax carried out.

III. Infected Haemothorax.

We now come to the treatment of the most serious complication of chest wounds with which we have to deal at the base in France—that is, a haemothorax which has become infected. While doing surgical work in France during 1915-16 I was impressed by the great improvement in the results obtained by the cleaning out and closing of knee-joints which had become infected over the results obtained by the old method of drainage. In reviewing the good results obtained by closing the peritoneum in cases of general peritonitis, I came to the conclusion that if the lining membrane of the knee-joint and the peritoneal lining of the abdominal cavity could look after a considerable amount of infection, the pleura ought to be able to do the same. I therefore decided to apply this principle to the treatment of an infected haemothorax, and in the beginning of 1917 I initiated the line of treatment which I shall describe below. Before describing operative technique, I wish to say one word against palliative measures in these cases. Simple aspiration in infected cases is of no avail, as in the first place it is impossible to remove all the blood from the chest by this means, and in the second place the clot, in which lies the focus of infection, cannot possibly be removed through a trocar. Again, it is impossible to sterilize the clot by any known antiseptic which can be used in the pleural cavity, and therefore the only possible means of treating these infected cases is by operation.

The method to be applied in these cases is as follows: As soon as a haemothorax is found to be infected—by that I mean clinically and bacteriologically (not merely bacteriologically)—the patient is taken to the operating room and nitrous oxide and oxygen administered. A portion of rib, long enough to allow the hand to be passed through the opening, should be removed and the blood allowed to flow out. The clot is then removed by the hand, all parts of the cavity explored, and light adhesions broken down. Then by means of large pieces of gauze on dressing forceps the remainder of blood and clot is removed. After this the cavity should be washed out with saline and again mopped out and a running suture inserted in such a way

as to include the pleura and intercostal muscles. This suture should be left quite loose, so that a small quantity of some antiseptic can be poured into the pleural cavity. This antiseptic should be spread all over the walls of the cavity by means of a small piece of gauze on long dressing forceps. As soon as this has been done the running suture is drawn tight, thus closing the pleural cavity completely. The muscles and skin are then closed and a dry dressing applied.

Forty-eight hours after the operation the chest should be aspirated, thus removing a quantity of serum and air. This is done for two reasons—first, the serum by that time has lost its bactericidal properties, and then only becomes a menace; and secondly, by removing a good deal of the air from the pleural cavity a negative pressure is obtained which helps to re-expand the lung. It will be found that three or four aspirations are necessary during the course of convalescence.

The antiseptics which I have used in these cases include eusol solution, 1 in 2; a suspension of bipp in liquid paraffin in the following proportions, bipp $\frac{1}{2}$ oz., liquid paraffin 6 oz.; flavine solution 1 in 5,000, and normal saline, the amount left in the chest being 3 oz. The results from 29 cases treated in this manner are as follows:

			Remained Closed.		Reopened.
Eusol ...	...	...	2	...	5
Bipp ...	...	...	11	...	4
Flavine ...	...	...	2	...	3
Saline ...	...	...	1	...	1
Total ...	...	...	16	...	13

When considering this method of treatment the question naturally arises as to what cases should be treated in this way. In answer to this, I may say that at present I am inclined to close every case, and if the patient shows signs of becoming worse after the first post-operative aspiration, then it will be time enough to drain.

There are, however, certain types of infection which lend themselves to this form of treatment better than others, as the following table will show:

			Remained Closed.		Reopened.
<i>B. aerogenes capsulatus</i> ...	...	...	11	...	3
<i>Streptococcus</i> ...	...	...	1	...	6
<i>Staphylococcus</i> ...	...	...	1	...	0
<i>Pneumococcus</i> ...	...	...	1	...	2
<i>Diplobacillus</i> ...	...	...	1	...	0
Mixed infection ...	...	...	1	...	2

There is one point in the technique of the treatment by drainage which I wish to point out, and that is that the constant washing of the pleural cavity in early cases is harmful. In place of this washing the occasional filling of the cavity with a eusol solution 1 in 3 and good drainage should be substituted. In this way the body is stimulated to pour out serum into the cavity, which washes the pyogenic membrane from within outwards instead of merely washing its outer surface. In order to do this the patient is placed on his good side, so that the opening of the chest wall will be the highest point: a 1 in 3 solution of eusol is then allowed to flow gently into the cavity until it is filled, and then the patient is turned over and the fluid allowed to run out. This is repeated every second or third day, depending on the condition of the patient.

IV. Foreign Body in the Lung or Pleural Cavity.

A great deal of controversy has taken place during the past three years as to the treatment of a foreign body retained in the lung. I have had the opportunity of treating a large number of cases and have talked to a number of surgeons and physicians, and as the result of my own experience and that of others I have come to the conclusion that the question must be decided separately in three types of hospitals: the casualty clearing hospital, the base hospital in France, and the base hospital in England; and that a surgeon in one area is not in a position to dictate to a surgeon in any other area. As all my work has been done in a base hospital in France, I am only in a position to discuss the treatment which should be carried out in cases with retained foreign bodies in the lung during the interval from the time they leave the casualty clearing hospital to the time they arrive in England.

As a result of experience with 450 cases, and from reports received from other surgeons similarly situated, I

am convinced that no attempt should be made to remove the foreign body from the lung while the patient is in a base hospital in France.

RESULTS.

In my series of 450 cases there were 27 deaths, the causes of which when examined will show the hopelessness of certain cases and will also point to one problem in surgery which has not been solved—that is, cases in which the infected haemothorax is pocketed. In these 27 cases the causes of death were as follows:

1. Septicaemia, due to pocketing	Drained.
2. Septicaemia " " " " " " " " " "	Drained.
3. Septicaemia " " " " " " " " " "	Drained.
4. Abscess of lung " " " " " " " " " "	Drained.
5. Pneumonia and empyema (opposite side), haemothorax " " " " " " " " " "	Drained.
5. Gangrene of lung " " " " " " " " " "	Drained.
7. Septicaemia " " " " " " " " " "	Drained.
8. Septicaemia " " " " " " " " " "	Drained.
9. Moribund, time of operation " " " " " " " " " "	Drained.
10. Septicaemia, due to pocketing " " " " " " " " " "	Closed and reopened.
11. Septicaemia, due to pocketing " " " " " " " " " "	Closed and reopened.
12. Septicaemia, due to pocketing " " " " " " " " " "	Closed and reopened.
13. Pyaemic abscesses (both lungs) " " " " " " " " " "	Closed and reopened.
14. Pneumonia and empyema (opposite side), haemothorax " " " " " " " " " "	Closed and reopened.
15. Acute gas gangrene of chest wall " " " " " " " " " "	Closed and reopened.
16. Septicaemia " " " " " " " " " "	Closed and reopened.
17. Septicaemia " " " " " " " " " "	Closed and reopened.
18. Gas gangrene of chest wall " " " " " " " " " "	Closed and reopened.
19. Double pneumonia " " " " " " " " " "	No operation.
20. Bronchopneumonia and tuberculosis " " " " " " " " " "	No operation.
21. Septicaemia " " " " " " " " " "	No operation.
22. Gas gangrene (one side), pneumonia and empyema (opposite side) " " " " " " " " " "	No operation.
23. Streptococcus (arm), mediastinitis, abscess of lung " " " " " " " " " "	No operation.
24. Pneumonia (opposite side) " " " " " " " " " "	No operation.
25. Double bronchopneumonia " " " " " " " " " "	No operation.
26. Secondary pulmonary haemorrhage, infected haemothorax " " " " " " " " " "	Drained.
27. Died on table, before operation.	

CONCLUSIONS.

1. All cases of wounds of the chest should be treated in special wards or special hospitals.
2. Careful charts should be kept which record temperature, pulse, and respirations four times a day.
3. Early diagnosis of infection is important.
4. Every case in which there is more than two finger-breadths of dullness should be aspirated.
5. Cases of open pneumothorax should be closed as early as possible.
6. Cases in which there is a large amount of clot in the chest should be opened, blood and clot evacuated, and the chest closed. This should be done as early as possible.
7. Cases in which the haemothorax is found to be infected should be opened, washed out, and closed, some antiseptic being left in, preferably an emulsion of bipp in liquid paraffin.
8. Post-operative aspirations must be done in all closed cases the first forty-eight hours after operation.
9. No attempt should be made at the base in France to remove a foreign body from the lung.

THE MODERN TREATMENT OF EMPYEMA BY ANTISEPTICS.

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For all practical purposes cases of empyema may be divided into two classes—(a) those easily cured by simple surgical methods, and (b) those difficult or impossible to cure even by such extensive surgical operations as Estlander's or Schede's thoracoplasty or pulmonary decortication.

This difference is chiefly due to the fact that in the latter cases the condition has become chronic, either through neglect or inefficient surgical treatment in the early stages, with the result that the lung and diaphragm have become covered by granulation tissue, which by its further development into fibrous tissue renders the walls of the pus-producing cavity rigid so that they cannot collapse and so obliterate the cavity. Down to quite recently it has generally been believed that an empyema could be cured only when the cavity of the pleura was obliterated either by distension of the lung to meet the chest wall, or collapse of the chest wall to meet the

lung; the first process occurring in those cases that were easily cured, and the latter being brought about by Estlander's or Schede's operation in the cases which resisted ordinary treatment.

That this idea was wrong is, I think, proved by the histories of the following three cases treated in France last year:

CASE I.

Arab, aged 17, found during the inspection of an outlying hospital, with an empyema of the right side which had burst through the chest wall in two places—in the fourth space in the nipple line and in the sixth space in the anterior axillary line. He had an evening temperature of 102° to 104°, and was in a very weak and emaciated condition. On May 19th a piece of the eighth rib was removed in the scapular line, and the pleura opened. One pint and a half of odourless pus was evacuated, and the pleural cavity was freely douched with Dakin's solution and hot water, and a large double drainage tube inserted. He was dressed daily and syringed with Dakin's solution and hot water. The discharge, which was at first very copious, rapidly diminished, and at the end of four weeks there was only a little serous discharge on the dressings, though there was still a large intrapleural cavity, shown by the fact that from 6 to 8 oz. of lotion could be injected without pressure or discomfort. The drainage tube was left out and the wound closed without rise of temperature; on two or three occasions during the following week a probe was inserted, but, as only a little clean serum escaped and there was no further rise of temperature, the wound was allowed to cicatrize, and the patient was discharged in the beginning of July. The physical signs showed that the lung was still contracted and that there was a considerable pneumothorax.

CASE II.

An Arab, aged 18. This case was very similar; he had an empyema of the left side which had burst through the chest wall and formed a large subcutaneous abscess over the sixth space in the nipple line. On June 1st a piece of the eighth rib was removed in the scapular line, and when the pleura was opened nearly four litres of thin, foul-smelling pus escaped. The pleural cavity was douched with Dakin's solution and hot water and a large double drainage tube inserted. The further history and treatment was the same as the previous case. In three weeks the discharge had lessened so much that the drainage tube was left out and the wound closed. Here again a probe was passed on a couple of occasions and only a little serum escaped. He was discharged healed, early in July.

CASE III.

A French soldier, aged 30, said that he had been partially buried by an explosion nine months previously. An operation was performed and a tube put into his left side, from which there was daily discharge up to the time he was seen by me, last June, when he had a sinus in the posterior axillary line, about the level of the eighth rib, through which a probe could be passed for six to eight inches. The discharge was copious, and there was a slight evening rise of temperature. The sinus was enlarged, a drainage tube inserted, and the cavity washed out daily with Dakin's solution and hot water. The discharge lessened rapidly and the temperature became normal; the tube was left out at the end of three weeks, and the discharge being only serous the wound was allowed to close and the patient was discharged from hospital at the end of five weeks, healed and apparently well, though he still had a considerable pneumothorax.

The first two cases were neglected acute empyemas which had been allowed to burst externally, in fact the "empyema of necessity" of the early writers; and the third case was probably a haemothorax, which had been drained and allowed to become septic. In all three cases the result of treatment came as a great surprise, as it had been thought that an extensive operation would have been necessary; the drainage and douching was only done as a preliminary measure to get the cases as clean as possible before undertaking an Estlander's operation.

Since treating the above cases and returning to Dublin, I have read of Tuffier's treatment of empyema by the Carrel-Dakin method. He claims the same results—that is, that the discharge gradually lessens and finally is only serous, and as soon as this occurs, or it is proved that the discharge is sterile or almost so, by bacteriological examination, he removes the tubes and allows the wound to close. He draws attention to the fact that the patient is cured and the thoracotomy wound closed, while there is still a free space in the pleural cavity, and this is the real crux of the whole subject; for up to this all our efforts have been directed to obliterating this space, as it was considered impossible to obtain a cure of a case of empyema until this space had ceased to exist. In future our efforts must be directed to sterilizing the walls of this space, which has been proved to be possible, perhaps not in every one of these cases, but certainly in a large number of them. Whether we attempt to do this, as outlined in the above cases, by frequent washing with some reliable antiseptic by

means of a syringe, or by more frequent washings, as in the Carrel-Dakin treatment, will depend on various factors, such as personal predisposition, nursing facilities and idiosyncrasies of the patient. It would seem natural to suppose that quicker and surer results could be obtained by the two-hourly flushings of Carrel-Dakin than the daily or twice daily flushings by syringe when dressing the case.

Conclusions.

1. Most if not all cases of empyema can be cured without resort to such mutilating and dangerous operations as thoracoplasty and pulmonary decortication, because it is not necessary to obliterate the pleural space, but merely to render its walls sterile, and this is possible by frequent washings with hypochlorite solutions.

2. Flushing of the pleural cavity with hypochlorite solution is not dangerous provided there is a free exit for the fluid, as by the use of a double drainage tube.

3. The earlier this treatment is instituted the sooner and more surely will a cure be obtained, as there will be less formation of granulation and scar tissue, and the organisms will not have had time to entrench themselves deeply in the tissues, and will therefore be more exposed to the action of the antiseptic.

4. The drainage should be free, and the opening should not be valvular; if a Carrel tube is used it should be introduced as far as possible into the pleural cavity through a large drainage tube, so that the fluid, starting at the most remote part of the septic space, passes down over its walls and escapes freely between the Carrel tube and the drainage tube.

5. The opening is most suitably made by removing one inch of the eighth rib in the scapular line, as this is the most dependent spot for practically all positions, and there is no fear of its closure by the rising diaphragm.

PARALYSIS FOLLOWING ARTERIAL INJURIES.

BY

CAPTAIN HAROLD BURROWS, R.A.M.C.(T.F.).

AMONG the accidents of war injury of a main blood vessel is common, yet little inquiry appears to have been made into the effects upon the structures which lie within the area of distribution of the wounded vessel. Injury of a main artery—for example, the common femoral, the popliteal, or the brachial—may produce immediate and remarkable consequences in the affected limb. As the ensuing symptoms are paralytic they have been apt to be regarded either as "functional" or as arising from concomitant nerve lesions, for, owing to the close association and common anatomical relations between the vessels and the nerves, simultaneous injuries of the structures are of frequent occurrence.

As the following cases will show, extensive paralytic phenomena may follow a vascular lesion independently of any direct traumatism of the main peripheral nerves. That these sequences are not infrequent is shown by our experience at the — General Hospital, and also by knowledge gained at the other military hospitals in the neighbourhood.

CASE I.

Signr. S. H., wounded on May 26th, 1917, was admitted on June 8th. A note taken on June 14th states that there was an entry wound in the right arm 3 in. below the tip of the acromion process and an exit at the middle of the inner surface of the arm. There was no injury to bone. The note from the casualty clearing station was: "Brachial artery tied, and temporary suture of median nerve."

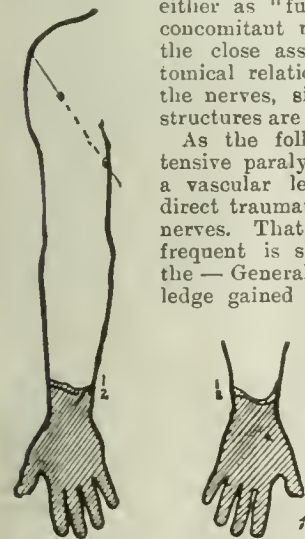


FIG. 1.—Shaded area shows extent of loss of sensation to light touch, the upper limit of which is marked by 1; 2 defines the upper limit of loss of sensation to pin-pricks.

The patient complained of pain in the hand and fingers and a "tingling, horrible sensation" in the same area. He said his

"funny bone" was tender, and that pain shooting down to the fingers could be caused by pressure applied to the ulnar nerve at the elbow.

There was anaesthesia to light touch and pressure, as shown in Fig. 1, and it is notable that the loss of pressure sense was slightly greater than the loss to light touch. There was also complete loss of sense of position in the wrist and all joints below the wrist. There was absolute paralysis of all muscles below the elbow. The right hand was warmer than the left. The radial pulse could be felt, but the pressure within it was too low for accurate estimation with Riva-Rocci apparatus. A pressure of less than 20 mm. of mercury was sufficient to obliterate the pulse. The maximum systolic blood pressure in the left arm was 118.

There can be no question that the clinical symptoms in this case cannot be accounted for by peripheral nerve injury, for the musculo-spiral escaped damage, and yet the forearm muscles were completely paralysed.

CASE II.

Q.M. Sergt. W. G. D. Wounded on June 23rd, 1917, was admitted on June 25th, under the care of Captain E. T. Tatlow, R.A.M.C.(T.F.). The note from the casualty clearing station was: "Through wound of left arm and forearm, passing through bend of elbow and wounding brachial artery. Wound explored through separate incision at bend of elbow. Artery tied. Bipp dressing. Packing for serious oozing. Scalp wound cleaned."

There was a small entry wound on the inner posterior surface of the left arm, with a small exit wound on the radial side of the anterior surface of the forearm. Both wounds had been excised, bipped, and firmly plugged with gauze. There was an oblique operation wound in front at the bend of the elbow, and this also had been sutured. The limb was fixed on an internal rectangular splint. There was no injury to the bones or to the elbow-joint, the projectile having passed anteriorly to these structures. The left hand and forearm were much swollen and colder than the right hand and forearm, and there was considerable bruising in the neighbourhood of the elbow. No radial pulse could be felt. He complained of "pins and needles" in the left hand, from the wrist to the tips of the fingers. He felt this especially if he coughed, sighed, or took a deep breath.

There was "glove" anaesthesia of the left hand (Fig. 2), including the loss of appreciation of light touch, pin-pricks, pressure, tuning-fork vibrations, and sense of position; further, there was complete paralysis of all the muscles below the elbow, except the supinator longus and extensor carpi radialis longior, which were not paralysed. In this connexion it may be noted that the blood supply of these two muscles is derived from the superior profunda artery. The paralysed muscles felt hard and inelastic. On July 9th it was noted that there had been no material alteration in the loss of power or sensation since the patient's admission. The oedema had become less, but it had not disappeared, although the limb had been elevated; the hand was now warm.

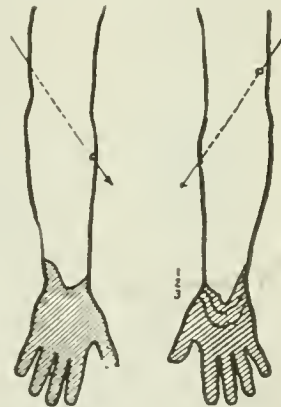


FIG. 2.—Shaded area shows loss to light touch; 2 shows upper limit of loss to pin-pricks; and 3, the upper limit of loss to deep pressure. The area of loss to light touch alone has been defined on the palmar surface owing to discomfort caused to the patient during examination of this region. The arrows show the direction of the wound.

In this case it is clear that the ulnar and median nerves may have been injured, but it is equally clear that the musculo-spiral escaped. Consequently, some factor additional to peripheral nerve injury is required to explain the symptoms.

CASE III.

Pte. S. U. F., wounded August 23rd, 1917, was admitted on August 25th under the care of Captain J. H. C. Fegan. He presented three wounds: (1) Gunshot wound of left leg, with compound fracture of left tibia and fibula; (2) a large vertical wound in the left deltoid region, tightly plugged with gauze, over which the skin was sutured; (3) a long vertical wound on the inner side of the left arm, also plugged tightly with gauze and sutured. The notes accompanying the patient from the casualty clearing station did not mention any arterial injury.

The patient had pins and needles in the left hand for the first twenty-four hours, but this symptom disappeared. He complained of a "feeling of pressure" in the hand. The radial pulse could not be felt. There was moderate oedema of the forearm and hand, and the muscles felt hard, inelastic, and tender. The fingers and thumb were flexed at all the joints.

The wrist was neither flexed nor extended. All the muscles below the elbow were completely paralysed. Sensation for light touch, pin-pricks, and pressure was lost up to the level of the wrist (Fig. 3).

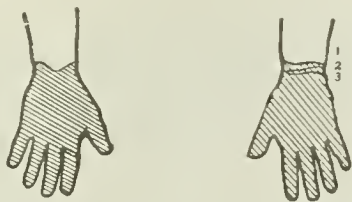


FIG. 3.—Shaded area represents loss of sensation to pin-pricks; 2 marks the upper limit of anaesthesia to pressure, and 3 the upper limit of anaesthesia to light touch. On the palmar surface the loss to pin-pricks alone was investigated, as the examination of this region caused the patient to suffer pain.

CASE IV.

Pte. E. G. was wounded on May 3rd, 1917. The note from the casualty clearing station was: "Femoral vessels tied." When admitted under the care of Captain J. H. C. Fegan there was a vertical operation wound on the antero-internal aspect of the right thigh, and a similar one at the same level over Hunter's canal. A large drainage tube connected these two wounds. The note taken on May 31st recorded an extensive area in the leg and foot, as shown in Fig. 4, where sensation to light touch



FIG. 4.—The shaded area represents loss of sensation to light touch.

was lost (other sensations were not tested). There was persistent foot-drop with rectangular talipes. The peronei were hard, bulky, and weak, but not completely paralysed. The extensor longus hallucis and all the other anterior leg muscles were weak, though not completely paralysed.

In this case, imperfect as the record is, it is still clear that there is a muscular weakness and a loss of cutaneous sensibility that cannot be accounted for by any direct injury of the peripheral nerves.

CASE V.

Pte. T. P., wounded on June 13th, 1917, was admitted on June 16th, under the care of Captain Graham-Jones, R.A.M.C. The note from the casualty clearing station was: "Gunshot wounds left thigh (three wounds). Haemorrhage. No posterior tibial pulse. All wounds excised. External branch from popliteal artery ligated. Also perforating branches of the femoral. BIPP and paraffin gauze. Progress: Foot cold and white for twenty-four hours, then signs of returning circulation; can now feel toes. Dressed. Slight discoloration over instep and tips of toes. Wound healthy."

On admission to a general hospital on June 16th, under the care of Captain Graham-Jones, the toes and a portion of the dorsum of the foot were cold and discoloured. Tight gauze packing in popliteal wound. No pulsation was felt in dorsalis pedis or posterior tibial. The whole left leg was swollen and hard; the foot was warm except in the discoloured area. There was no loss of sensation to pin-pricks except in area of gangrene, but there was absolute paralysis of all muscles below the knee except the soleus and gastrocnemius, and these were capable of the slightest movement only. Amputation above the knee was performed on June 27th.

Examination of the leg showed a striking change of colour of all the muscles of the leg, which were pale, and in their lower portions had hardly a tinge of red. The gastrocnemius was affected in its lower two-thirds and the soleus in its lower third. The upper portions of these muscles were of normal colour and looked healthy, and the transition from this healthy muscle to the pale altered tissue below was gradual, the muscle in the intermediate zone having a streaky appearance, bundles of red fibres being interspersed among bundles of discoloured fibres.

The pallor of the affected muscles was striking and at once arrested attention as an abnormal condition. Portions of these muscles were sent to Captain A. W. Stott, who prepared sections of them for microscopical examination. His report is given later.

CASE VI.

Pte. H. T. was wounded on June 16th, 1917. The note from the casualty clearing station was: "Penetrating wound of right thigh just below Poupart's ligament. Artery three-quarters severed; artery ligated. Bled freely from lower part. Pulse felt in left foot."

The note made on June 24th recorded that the patient had early gangrene of the toes and the neighbouring portion of the foot. There was absolute paralysis below the knee, and the muscles felt hard and stiff. Amputation was performed above the knee. The muscles of the leg were pale and bloodless. Unfortunately no observations were made on the cutaneous sensibility in this case.

CASE VII.

Shoering-smith J. S. was wounded on July 17th, 1917. The note from the casualty clearing station was: "Shell wound of thigh, left, July 18th, 1917. Wound excised; foreign body removed; superficial femoral and deep femoral veins divided—ligatured; bipped and sutured." He was admitted on July 19th under the care of Major Moffat. The note made on the following day recorded a transverse sutured wound $7\frac{1}{2}$ in. long on the front of the left thigh, 4 in. below the centre of Poupart's ligament. There were no gross signs of inflammation in the neighbourhood of the wound, and the patient seemed fit except for his pallor; he said that he had lost much blood when wounded. No pulsation could be felt in the posterior tibial or dorsalis pedis of the wounded limb, but blood was circulating in the foot and toes, and there was no gangrene or blistering.

The patient complained much of subjective sensation in his left foot and leg, which he described in these words: "My foot feels as if it were being drawn up tight in an onion net; the feeling works up into my ankle and shin, and keeps me from sleeping; it is a most unpleasant sensation; you would think my foot was coming off."

There was extensive impairment of sensibility of the leg and thigh, as shown in Fig. 5, but it was particularly noticeable



FIG. 5 (Case VII).—Shaded area represents loss of sensation to pin-pricks.

that the boundary of the anaesthetic area was not perfectly definite—that is to say, there was an intermediate zone, perhaps 1 in. wide, in which pin-pricks sometimes were and sometimes were not felt. There was a small area on the anterior surface of the thigh in its lower third where the anaesthesia was similarly incomplete. There was loss of sense of position in all joints distal to the tarsus. Deep pressure sense was lost up to a level about 2 in. above the ankle-joint. The boundary line of this loss was slightly irregular—that is to say, it was serrated, but might be described as belonging to the stocking type. There was complete paralysis of the extensor longus hallucis, and of all the flexors of the toes. There was very slight power in the long extensors of the outer four toes. The tibialis anticus and peronei were weak but not completely paralysed. The gastrocnemius, soleus, and tibialis posticus were nearly normal, though there was some obvious weakness in these also.

CASE VIII.

Sapper T. T., wounded on July 31st, was admitted, under the care of Major Moffat, on August 1st. He stated that he did not lose much blood after being wounded, and that no tourniquet was applied. There was an entry wound on the outer side of the left knee-joint, level with the lower end of the patella and situated over the biceps tendon; there was no exit wound. There was copious effusion into the knee-joint, and a systolic bruit could be heard in the popliteal space. The posterior tibial and dorsalis pedis could be felt pulsating. On August 5th the leg was oedematous. He had "pins and needles" in the foot, and there was an extensive area of loss of sensibility, as shown in Fig. 6. The gastrocnemius and soleus were active, and there was perhaps the slightest amount of activity in the tibialis anticus; but with these exceptions there was absolute paralysis of all muscles below the knee.

The knee-joint was needled and dark blood withdrawn; the pathologist (Captain A. W. Stott) reported: "No increase of polymorphs. No organisms seen."

On August 6th the popliteal artery and vein and the anterior and posterior tibial arteries were ligated. The artery had been wounded at its bifurcation. The resulting arterial haematoma communicated with the knee-joint through a rent in the posterior part of the capsule. The internal and external popliteal nerves were seen to be uninjured. On August 7th some recovery of sensation on the dorsum of the foot was noted, but sensation was still absent from the sole. Sensation in the left foot had completely returned on August 8th, and all movements had returned, though the muscles previously paralysed were still weak. By August 13th the muscles had recovered almost completely, and their contractions were strong, except that some weakness remained in the gastrocnemius and soleus. This weakness may have been reflex in origin, being merely an unconscious attempt to maintain rest in the popliteal region.

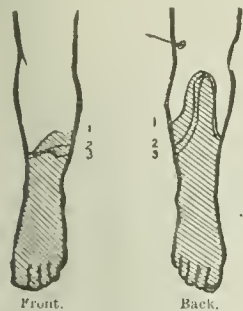


FIG. 6 (Case VIII).—The shaded area represents loss to light touch; 2 is the upper boundary of loss to light pressure; 3 the upper limit of loss to pin-pricks.

CASE IX.

Lieut.-Cpl. H. W., wounded on August 5th, was admitted on the following day. There were small entry and exit wounds in the left arm, on the inner side, just above the elbow. The projectile had passed in an antero-posterior direction close to the bone. He said that he lost a great deal of blood when he was hit—the blood “pumped out.” A tourniquet was applied over the wound, and not removed until about one and a half hours later.

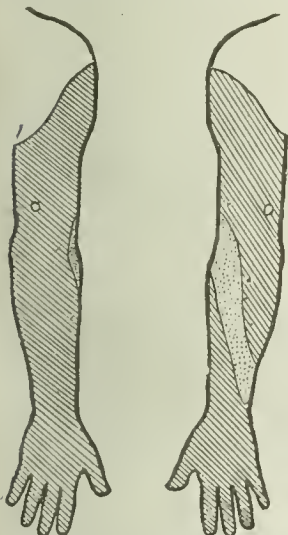


FIG. 7 (Case IX).—The shaded area represents loss to pin-pricks and light touch. The dotted area marks a partial loss of sensation to pin-pricks. The wounds of entrance and exit are indicated by small circles.

The interesting point in Case IX is that the anaesthesia extended far above the level of the vascular and nerve injury. We may explain the phenomenon by referring it to a “functional” origin, if that is any explanation. Or we may regard the condition as being reflex in nature, but we can hardly attribute it to ischaemia.

CASE X.

Cpl. W. J. B., wounded on August 21st, 1917, was admitted, under the care of Captain J. H. C. Fegan, on August 23rd. The note taken on the following day recorded a small entry wound in the left leg on a level with the lower border of the patella and situated on the outer side of the back of the leg just behind the tendon of the biceps. There was no exit wound. The moment he was hit he lost all sensation in the leg, his first thought being that the leg had been blown off. There was considerable oedema of the leg, and he stated that if the leg were allowed to hang down it swelled and became very painful. The muscles did not feel hard. No distinct difference could be felt in the surface temperature of the two feet. An arterio-venous aneurysm had formed in the popliteal region, as shown by a palpable thrill and a loud systolic murmur and venous hum. The posterior tibial could be felt pulsating, but the amplitude of its pulse wave was small and the tension low.

The patient had no “pins and needles” or other subjective sensation in the leg while he was at rest in bed. Sensation to pin-pricks and light touch was lost over an area which, as shown in Fig. 8, extended far above the level of the wound. It

was not complete, for there were areas lower down where both light touch and pin-pricks could be appreciated. The sole of the foot and front of the leg contained such areas. The upper border of the general area of anaesthesia was indefinite, there being a zone in which some pin-pricks were felt, while others were not noticed. The muscles of the leg and foot were parietic, and apart from weak contractions of the gastrocnemius, tibialis anticus, and long extensor of the toes, there was no muscular power in the leg at all. By August 25th the oedema of the leg had disappeared, muscular power had increased, and sensation was returning.

SYMPTOMS.

From these cases it will be seen that the main symptoms are:

1. Subjective sensations in the distal part of the affected limb.
2. Anaesthesia, more or less of the “stocking” or “glove” type, and involving all kinds of sensation, including light touch, pin-pricks, and deep pressure.
3. Muscular paralysis.
4. In certain cases hardness and inelasticity of the muscles.
5. Oedema.

In all of the cases in which no arterial pulse could be felt distally to the injury (I to VIII) the patients complained of subjective sensations, which they described in various terms, but to which we may refer as “pins and needles.” On the other hand, in the two cases (IX and X) in which a distal pulse could be felt there were no “pins and needles.”

In all the cases which were tested except one there was loss of cutaneous sensibility; oddly enough, in the one (Case V) in which sensation was retained (except in the toes, which became gangrenous) there was not only gangrene of the toes, but most extensive myopathy was shown to be present in the muscles of the leg. In the two cases in which a distal pulse could be felt (IX and X), the area of anaesthesia was most extensive, and reached to a level considerably above the wound. In several of the cases the loss to pin-pricks was greater than the loss to light touch.

Motor paralysis was present in all. With one exception, in every case in which no distal pulse could be felt there was a feeling of hardness and inelasticity of the affected muscles which suggested that alterations in their composition had occurred. The exception (Case VIII) was of special interest, inasmuch as the muscular and sensory paralysis rapidly passed away after a wounded popliteal artery had been ligated together with the vein. In the two instances (IX and X) in which sensory and motor paralysis were present, while the distal pulse was not obliterated, the muscles were flaccid and soft, in contrast with the hard muscles felt in the cases of complete arterial lesion.

No case of paralysis was observed as a sequence of injury to the radial, ulnar, anterior tibial, or posterior tibial arteries. In three of the cases in the series (II, III, and V) the wounds were plugged with gauze at the time of the patient's admission to the — General Hospital, and the pressure of this packing may have played a subsidiary part in the causation of symptoms.

It is a little difficult to understand why ligation of an artery in one patient should lead to little or no evil consequences, while in another, seemingly as favourable at the time of operation, grave consequences follow.

Take the following case as an example:

CASE XI.

Pte. G. T. B., wounded on August 22nd, was admitted, under the care of Lieutenant C. N. Longridge, on August 25th. The note from the casualty clearing station was: “Compound comminuted fracture of lower end of left humerus. Brachial artery ligated. Great loss of muscular tissue.”

On admission he presented a through-and-through wound above the left elbow. The original wounds had been excised, and partly stitched over gauze packs. The arm was fixed on a Robert Jones elbow splint. No radial pulse could be felt. There was much oedema of the hand, forearm, and arm.

This case certainly had many of the features which we should regard as favourable to paralysis of vascular origin, for his brachial artery had been ligated, he had a fracture close above the elbow-joint, the wounds were tightly packed, the arm was splinted, and there was copious oedema. Yet there was no paralysis at all. The case is mentioned merely as a contrast with the others and to illustrate the fact that whatever the actual cause of angiotic paralysis may be, it is not clearly defined at present.

PATHOLOGY.

So far these observations have been easier to make than to explain. And the probability is that pathological explanations must remain in abeyance for the present owing to insufficiency of data. Nevertheless, it may be a matter of interest to wander a little into the field of theory.

The attractive and simple course of attributing all the phenomena to ischaemia—to an insufficient supply of blood to the tissues—at once suggests itself, and, if we follow this course, we may describe the symptoms collectively under the title of ischaemic paralysis, and be done with all further speculation. Objections, however, to this title become apparent on close scrutiny. In the first place it involves the acceptance of a hypothesis of causation which at present is not fully established. The symptoms may be due to the small quantity of blood which is circulating, to injury of the sympathetic nerves in the vessel sheath, to the low pressure of the blood stream below the injured artery, to cold, to some other cause altogether, or to a combination of causes. Moreover, although some of the cases just described show that a paralysis similar to the so-called Volkmann's ischaemic paralysis often does follow occlusion of an artery, yet it is clear that this is not the only form of paralysis which may follow a vascular lesion.

For these reasons it appears better to adopt a general title which will not implicate us in any hypothesis other than that the symptoms are consequent upon damage to a blood vessel. Accordingly the term "angiotic paralysis" may be applied with convenience to the symptoms described in these cases.

At the outset we must assume that two factors at least take part in the causation of the symptoms. On the one hand, we may have extensive degeneration of muscle and massive gangrene, without any loss of cutaneous sensibility, except in the area of mortification, while on the other there may be widespread loss of sensation and muscular power without gangrene, without gross myopathic change, and even without obliteration of the distal pulse. From this it is clear that there is no exact correlation between the neuropathic and the myopathic symptoms.

Probably ischaemia is one of the factors, the one which is associated especially with Volkmann's myopathy. In the cases just narrated this condition has been seen only in those cases (i to vii) in which the distal pulse was obliterated, which is significant. If, however, we accept ischaemia as the cause of this myopathy, there must be at least some other cause for the flaccid paralysis and sensory loss which are to be observed after certain vascular injuries in which the artery is not completely divided or obstructed, and in which the distal pulse can still be felt. The fundamental cause in these cases seems to be the actual damage to the arterial wall or to its sheath, rather than any consequent effect upon the supply of blood to the limb. Further, it appears that an incomplete injury—that is to say, an injury in which the artery is not completely severed—is more likely to be followed by extensive sensory loss and flaccid paralysis than is a complete division or ligation of the artery. There is reason to suppose that these symptoms are reflex in nature. Accepting this to be so, we arrive at the following classification of paralysis following arterial injuries:

ANGIOTIC PARALYSIS.



Ischaemia.

Let us consider these two factors in detail. The first is illustrated well by Case v. Here a wound in the popliteal

region was followed by absence of pulsation in the dorsalis pedis and posterior tibial arteries. The foot became cold and white, and remained so for twenty-four hours, at the end of which time there were signs of returning circulation, except in the toes and a small portion of the foot, which became gangrenous. The whole leg up to the knee was slightly oedematous; the muscles were hard and absolutely paralysed. Inspection of the muscles after amputation showed them to have undergone a striking change of colour—they were no longer red, but quite pale and almost buff-coloured. This change affected some of the muscles more than others, and the change was more complete in the distal than in the proximal ends of the muscles. What the actual change and its cause may be we do not know, though the suggestion has been made that it is identical with rigor mortis. Sections of the muscles in this case were made by Captain A. W. Stott, who gives the following report:

Pathological Report.

"Portions of the peronei and gastrocnemius muscles were cut; each showed gross pathological changes. No normal muscle fibres were seen. In sections stained by haemalum and eosin the general impression was that given by an anaemic infarct. The muscle fibres and the interstitial tissues stained a uniform pink. The fibres showed various stages of degeneration—some had almost normal striation but no nuclei; others had completely lost their striation, and appeared as granular masses. Fibres showing different degrees of change were often found next to each other. The majority of fibres appeared swollen. Some were broken up into irregular masses; others were split into longitudinal fibrillae or transverse discs. There was no hyaline degeneration, and no gross fatty change was seen. The interstitial tissue appeared oedematous, stained a faint pink with Van Gieson, and was almost cell-less. There were few capillaries. Throughout the sections there was but little trace of inflammatory reaction. The large vessels, arteries, and veins contained blood, not clot, and appeared normal."

These cases (i to vii) represent the first main variety of angiotic paralysis. The condition is, for the most part, a muscular phenomenon; it is well known as Volkmann's ischaemic paralysis, following especially fractures about the elbow-joint, and may be seen apart from any material sensory defects. The damaged muscles do not recover, and any resumption of function which comes about is attributable to the fact that portions of the muscles, especially the proximal portions, usually escape and are capable of limited activity later on.

Summary Concerning Ischaemic Cases.

1. An arterial injury with obliteration of the distal pulse.
2. Subjective sensation of "pins and needles."
3. Muscular paralysis; the muscles being hard and inelastic to the touch.
4. Anaesthesia of a "stocking" or "glove" distribution, confined to the portion of limb which is distal to the injury, and involving all forms of sensation.

Reflex Paralysis.

The cases (viii to x) in which the paralysis has seemed to be of a reflex nature have the following characteristics:

1. An arterial injury without complete blockage of the vessel.
2. Absence of "pins and needles" sensation.
3. Flaccid paralysis of the muscles which do not feel hard and inelastic.
4. Widespread loss of cutaneous sensibility, extending in two instances well above the level of the wound.

These cases give the impression of being less organic, if one may put the matter in that way, than the ischaemic ones. Case viii showed almost complete recovery within two days of an operation which involved ligation of the popliteal, anterior and posterior tibial arteries and veins. Case x improved up to a certain point with no treatment other than rest in bed. Case ix was not under observation long enough for any improvement to be observed.

The hypothesis that these cases are of a reflex nature

has been adopted partly for convenience of argument, but largely because this explanation seems plausible. The fact that the anaesthesia in two of the cases extended well above the wound has led to the suggestion that it is of a functional nature. But even if we call it functional, does that carry us any further? Several controls have been tried, and patients with fractures, wounded joints, and other bad wounds of the limbs were tested, but in no case was a stocking anaesthesia discovered except in those who had arterial lesions.

Whatever the cause of the paralysis may be in these cases, it can hardly be attributed to ischaemia. In this connexion, it may be well to recall the cerebral disturbances which are apt to follow sudden obliteration, by operation or otherwise, of the lumen of the common carotid or internal carotid artery. These disturbances, severe and not rarely fatal, surely cannot be attributed to ischaemia, seeing what a liberal provision of collateral channels is present for supplying the brain with blood, and considering also the rapidity with which the cerebral symptoms develop.

CASE XII.

Pte. O. K., wounded on September 1st, 1916, was admitted on September 9th. He had been shot through the right neck. He stated that his left arm became paralysed at the instant he was hit; in fact, he thought the wound was in his arm. The projectile had clearly divided the internal carotid artery.

It is difficult to believe, in the absence of better evidence, that such an immediate paralysis could be brought about by ischaemia or embolism of the brain.

GENERAL CONCLUSIONS.

The currents of thought started by these cases are, however, not likely to lead us into any useful channel until we have a great many more clinical records to work upon, together with additional observations, including the electrical reactions of the affected muscles, the deformities produced, and the prognosis. It has not been possible to gather information on these points.

Although the importance of these paralytic effects of arterial injuries cannot at present be estimated, yet, until we are better informed as to prognosis, we may well be more reluctant in the future than we have been in the past to tie a main artery for the arrest of haemorrhage. We shall be more particular and persistent in our endeavours to find the exact source of bleeding, in the hope that it may prove to concern a branch only instead of the main trunk. And, in those instances in which the main trunk itself is wounded, we shall be more disposed to cure the leak by suture of the vessel, or failing this, to attempt an escape from the ill consequences of direct ligation by the temporary use of a Tuffier tube. Furthermore, when we are compelled by the nature of the case to tie a main artery, we shall take care to tie the main vein also; because, as Sir George Makins has pointed out, the results which follow ligation of both vessels are better than those which ensue upon a blockage of the main artery alone.

LITERATURE.

Though there is not much literature on this subject there is enough to give food for thought.

In the first place, the association of so-called ischaemic paralysis, of the type described by Volkmann, with injuries involving complete blockage of an artery, has been recorded by J. G. Sherrill,¹ Carl Hirschmann,² L. Verdet,³ and others, although the association does not appear yet to have become a matter of general surgical knowledge. Further, H. Meige and Mme. Athanassio-Benisty⁴ have observed that the vasomotor, trophic, and secretory disturbances found in certain cases of nerve injury are not due directly to those nerve lesions, but are dependent on coincident arterial lesions, while Leriche⁵ has noted not only that so-called ischaemic paralysis may follow obliterating lesions of an artery, but has put forward the suggestion that the symptoms are the result not of the arterial wound, but of the concomitant injury to the sympathetic nerves which accompany the artery. He states, moreover, that if in such a case the whole of the obliterated segment of the artery be removed together with its nerve sheath the major part of the troubles disappear, the hand becomes warm, its colour changes, and the skin resumes its normal appearance, the fingers lose their stiffness in an appreciable measure, and, finally, the

pulse reappears at the wrist. Leriche has been able to demonstrate this in six cases, and in all the transformation was identical.

It is clear that if this pathology be established there is justification for a new title for paralysis of vascular origin, a title which shall include the two factors of ischaemia and sympathetic reflex disturbance.

Acknowledgments.—In conclusion, I should like to express my thanks to the medical officers, under whose care the cases quoted have been, for their friendly co-operation, to Colonel C. A. Ballance and Colonel Gordon Holmes for several helpful suggestions.

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A CASE OF RAT-BITE FEVER TREATED SUCCESSFULLY BY INJECTIONS OF NOVARSENOBILLON.

BY

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RAT-BITE FEVER—Sodoku of the Japanese—is a comparatively rare disease. It was recognized, quite a long time ago now, by Miyake and others in Japan as a definite entity. Cases have also been reported in England (Middleton, Horder, Cruickshank), in the United States of America, in France, and in Italy (Frugoni). As far as we are aware, our case is the first reported from East Africa or the tropics proper. The finding of the causative agent is of recent date. In 1915 Futaki and his fellow workers demonstrated the presence of long spirochaetes in the lymph glands of cases on the tenth to thirteenth day of the illness. Later they discovered in man, in the wound of the rat-bite, and in the blood of inoculated mice short, thick spirochaetes, and at first were unable to determine which of these two was the cause of the disease. Recent observations have, however, shown that the long and short forms are the same species, the long ones being old and found almost exclusively in human tissues, while the short ones are the young forms, and can be found in the blood of patients with the disease and in experimental mice (Kaneko and Okuda). Futaki's work has been confirmed by Kaneko and Okuda,¹ and it seems quite clear that rat-bite fever is another spirochaetal disease. According to the authors last named, the parasite can be found in the blood during the height of the disease.

Hata, in a paper published in 1912,² refers to eight cases of rat-bite fever treated by salvarsan. The results were striking; all symptoms quickly disappeared, and most of the cases were cured. Two relapsed, but in them the dose had only been small—namely, 0.3 and 0.4 gram. Since then other cases treated in a similar manner have been reported upon, and the recent discovery that the malady is a spirochaetal one fits in well with the undoubted efficacy of salvarsan and its derivatives in curing it.

The following is the history of a case we have treated recently:

Mr. H., aged 25, on January 31st, 1917, when in East Africa, was bitten by a rat on the back of the right forearm. He was sleeping in a mosquito net, and the rat attacked him through this, inflicting a severe bite. This healed up and was practically gone when, some seven days later, pain commenced at the site and the place swelled up. Fever then appeared, and with this a rash broke out on the body. Later the glands in the right axilla enlarged, and following this a general adenitis was noticed. On the twelfth day, after onset of symptoms, the bite, which had now broken down, was lanced and some pus escaped. About the twentieth day severe joint and bone pains came on, and the throat also became inflamed and very sore. The condition improved, but quickly relapsed, and between that time and the present (January 31st, 1918—namely, a year—patient can count nineteen relapses at varying intervals. There was a severe one in May, 1917. Complicating the real rat-bite symptoms, however, the patient had also suffered from malaria, and it is not certain which of the two infections was responsible for the different bouts of pyrexia. Malarial parasites were found in the blood in August, 1917, during an attack

Previous Illnesses.—Dysentery, much malaria (before the rat bite), never syphilis (he was very definite as to this), no history of tick fever, but here again the possibility of this disease is not excluded, as he has been in areas where it prevailed, and some of his friends had actually suffered from it; phlebotomus fever December, 1916.

First Examination.—The patient was seen first by one of us (G. C. L.) on September 25th, 1917, having been sent by Dr. A. M. Elliot for examination. He was then fairly well, and was only complaining of getting tired easily and of headaches. He looked a little sallow, was slightly anaemic, the spleen was palpable, and the glands in the right axilla and in the posterior triangles of the neck were definitely enlarged. The urine was normal, the blood showed no malarial parasites, but there was a definite large mononuclear increase. A diagnosis of rat-bite fever and malaria was made, and the patient was instructed to present himself immediately if any signs of a relapse appeared.

Second Examination.—On December 10th, 1917, he came again. On December 3rd he had an attack of fever in the middle of the day, for which he had to go to bed; the temperature rose to 104° F. This attack responded to aspirin and quinine, but he still complained of pain in the glands and in the back of the neck with more or less constant headache. The glands in the neck areas were big and very tender to palpation. They were also easily palpable in the other areas. Dusky coloured purplish-red eruption over trunk and neck and on the arm which had been bitten, its appearance being best described by the term blotchy. It was very typical of the eruption described in papers on this disease. Bones tender, no malarial parasites in the blood, no trypanosomes, no spirochaetes. Relapse of the rat-bite disease was diagnosed.

Treatment.—He could not begin treatment that day, but came to hospital on December 17th. The rash was then fading, but the glands were still tender and enlarged. We then decided that we should give him a course of novarsenobillon, and he had 0.4 gram that afternoon. He stood the injection quite well, and went home that evening. The second injection, 0.6 gram, was given on January 3rd, 1918. The eruption was gone, and the glands were very much smaller, being difficult to palpate. There had been no more fever, and the patient expressed himself as feeling much fitter. Bearing in mind the experience of Hata with relapses after one small dose, we thought it better to give a third and final injection on January 25th (0.9 gram). This produced chilliness and a slight rigor. A careful examination on that day did not reveal any more signs of the disease, the glands could not be felt, there was no trace of any eruption, no rise of temperature, and all the pain in the neck, together with the headache, had completely disappeared. On January 28th he expressed himself as feeling all right, with the exception of getting fairly easily tired and slight pain in his legs. In view of his malarial element, he was told to take 5 grains of quinine twice a day for the next three months.

As already stated, two or at the most three injections of salvarsan or its derivatives seem to cure rat-bite disease completely. The interest in this case lies in the double infection, which rendered the diagnosis more difficult. A Wassermann test was done before the treatment was begun. It was positive, as is usually the case in other spirochaetal diseases. Clinically, there never was any suspicion of syphilis, the history of the bite, the way the symptoms developed after it, the typical nature of the eruption, and the relapses all being characteristic of rat-bite disease.³ The same remarks apply to trypanosomiasis, which had to be considered in the differential diagnosis. In addition, no trypanosomes were found in the blood, and the eruption was not the same as is met with in that disease.

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HOME DISINFECTION IN PULMONARY
TUBERCULOSIS.

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The object of the following experiments was to indicate the simplest, cheapest, and most available means of countering the risks incurred when a sufferer from consumption shares living and sleeping rooms with others. It is doubtless the poor who run the greatest risk, more particularly because of their crowded circumstances and the greater difficulties they experience in adopting the necessary precautions; to them efficient chemical disinfectants are prohibitive in cost, and when distributed gratuitously by the local sanitary authority they are generally employed in a manner which gives but little security.

In the selection of measures to meet their needs regard must be had to the fact that, mainly owing to the increasing use of gas stoves, there is often no open fire (for at least many months of the year) for burning sputum, infected dust, paper handkerchiefs, etc. Therefore the advice here offered is based on the use of hot water, and the aim has been to define how this agent may be simply and effectively employed.

Floors.—Pieces of board were scrubbed and thoroughly disinfected and dried. They were then smeared with a thin layer of sputum containing tubercle bacilli. This was covered and allowed to dry, and on the following day one piece was scrubbed with hot water (as hot as could be borne) and yellow soap in the proportion usually employed in washing floors. This piece was then covered and allowed to dry, after which washings and scrapings of the infected surface into sterilized water were inoculated into guinea-pigs. Two out of three experiments gave negative results, the non-scrubbed board giving positive results in each case. The conditions of this experiment were those of very gross contamination, far in excess of what would occur in actual practice; and so it may be assumed that the process of good scrubbing with hot water and yellow soap will suffice in actual practice.

Experiments were made to ascertain whether soap in the proportion usually employed for scrubbing floors has any disinfectant value, since soap itself is practically sterile. The test organism employed was *Staphylococcus epidermidis* Welch, and the soapy water used was at a temperature (140° F.) well below the thermal death point of the organism. The results indicated that the soap had only a very slight effect, and that its only material value is the aid it renders in the collection and removal of dirt (with associated organisms) from infected surfaces.

Handkerchiefs, Pillow-slips, etc.—The ordinary staphylococcus of the skin (*S. epidermidis* Welch) obtained by rubbing a little broth on the skin of the hands and distributing a loopful of this over agar slopes was employed as a preliminary test organism. A pure culture was obtained on agar slopes, and it was found that the growths were killed by exposure for twenty minutes to a temperature of 75° C. in the form of moist heat; whereas the tubercle bacillus is destroyed at 70° C. in the same time. This staphylococcus is a more convenient germ to employ in preliminary experiments than the tubercle bacillus, the thermal death point of both organisms being about the same and the former germ being easy to cultivate.

Tuberculous sputum was sterilized by steaming for twenty minutes, and inoculated with growths of the staphylococcus. Sterilized strips of linen were soaked in this, then placed in cold sterilized water and gradually brought to the boiling point. Directly the water boiled the strips were removed and cultures made from the drops of fluid pressed out of them. In four sets of experiments there were no growths, while the control slips in every case furnished growths.

Boiling water was removed from the gas, and similarly inoculated strips of linen were immediately immersed and left for half an hour in the very hot water; they were then removed and efforts made to cultivate the germ. Again in four cases there were no growths on the strips so exposed, while all the control strips immersed in warm water furnished growths.

One pint of tap water was boiled and at once poured into a cold sterilized quart basin. Four strips of sterilized linen soaked in sterilized sputum which had subsequently been inoculated with the staphylococcus were immersed in the water and left there for fifteen minutes. The strips were then removed, and in no case was it possible to obtain growth from the water pressed out of the linen strip. The temperature to which the slips were exposed was at the commencement 90° to 92.5° C., and at the end 63° to 67° C. Control slips placed in warm water (50° to 60° C.) gave positive results.

Similar experiments were made with the basin filled with sterilized handkerchiefs and inoculated strips placed between them, the aim being to deal with as many handkerchiefs as practicable, provided they were just covered by a layer of water. After fifteen minutes the slips were removed and agar slopes inoculated with the water pressed from them. Controls in warm water gave positive results; but seven out of eight were negative from the slips exposed to a commencing temperature of 86° to 88° C., and an end temperature of 62° to 65° C.

For confirmatory purposes the last experiment was repeated with sputum considerably infected with tubercle bacilli. After twenty minutes the strips were removed and the material from them filtered and inoculated into guinea-pigs. In the control strips only warm water was employed. Two months after inoculation the three control guinea-pigs had enlarged caseating glands on the side of inoculation; both by *post mortem* and microscopic examination the infection was shown to be due to the tubercle bacillus. The nine guinea-pigs which had been inoculated from the strips exposed to nearly boiling water were healthy, except one, which had an enlarged femoral gland on the side of inoculation.

I desire to acknowledge my indebtedness to Professor H. R. Kenwood for valuable advice and assistance in connexion with the foregoing experimental work and the statement in which I have embodied it.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ULCERATIVE GINGIVITIS: VINCENT'S ANGINA.

During the period of the war attention has been attracted to an ulcerative condition of the gum margins which is associated with the organisms described by Vincent. There would seem to be an idea on the part of certain writers that this is a disease discovered during the present war. Such is not the case. The clinical condition has been well recognized by dental surgeons for the last twenty years, cases constantly occurring in the clinics of the various dental hospitals. In John Hunter's famous work on the teeth there is an excellent description of this condition in the section on "Scurvy of the gums."

Amongst recent writers the credit of drawing attention to the subject should, I think, be given to J. S. Marshall of Chicago, who described the condition in the following words:

The clinical characteristics are the formation of ulcers at some point of injury, which at first appear in nowise different from the ordinary form of a localized ulcerative stomatitis, but which, after the lapse of twenty-four to forty-eight hours, begin to spread rapidly along the margins of the gingivae in all directions, involving both jaws, and sometimes extending to the hard palate and the floor of the mouth. The margins of the gums assume a general ulcerative condition, accompanied by swelling, redness, and considerable congestion of the parts, which bleed easily. Later they become covered with a dirty white or yellowish-white pellicle or membrane—somewhat resembling the thrush film—which sloughs off after a day or two, destroying the festoons and leaving a ragged surface. The denuded surface is very red and covered with coarse granulations, which bleed upon the slightest provocation. The gums are loosened from the necks of the teeth and the borders of the alveolar processes are exposed. Pus mixed with blood exudes from the inflamed tissue about the necks of the teeth. The breath and excretions are very fetid and salivation is profuse. In these respects the symptoms resemble mercurial ptyalism. The ulcerated surfaces are exceedingly sensitive and motions of the tongue and lips on this account are very painful. Food is taken with difficulty. Accompanying the local manifestations there is a general febrile condition, temperature ranging from 100° to 101° F., thirst, loss of appetite and general malaise, sleeplessness, and irritability of temper.

On the appearance of Vincent's publication it was apparent that there was a close similarity between the throat condition he described and that of the gums, and bacteriological examination showed that the latter condition was associated with the so-called Vincent's organism.

During the present war the condition has become widespread, and we have yet to find the real cause. One writer has suggested that it is to be found in the constant inhalation of putrescent matter.

The disease is seldom found in a clean mouth; by a clean mouth I mean one where the gingivae are normal. The ulceration usually starts around badly fitting crowns, in the deep pocket posterior to the lower third molar, and in mouth breathers around the necks of the lower incisors, but it may begin in any position where there is periodontal disease—in other words, in pre-existing "stagnation areas." These areas usually harbour organisms of the staphylococcal group, but in the case of Vincent's angina they have become infected with the organisms of that disease, which, as we know, are exceedingly toxic in character.

Treatment should be directed towards the irrigation of the pockets and the local application of drugs considered to have a specific action on the organism. Arsenical preparations have been advocated, but I have not found that they possess any advantage over iodine. Areas that cannot be easily irrigated should be eradicated, and it is most important that any mouth breathing should be corrected; as long as this is present the condition is extremely difficult to combat.

My principal object in writing this note is not so much to draw attention to the pathology of the condition, but to record the fact that we are dealing with a condition which was well known and recognized by dental surgeons long previous to the present war.

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Reports of Societies.

EYE-STRAIN IN GENERAL PRACTICE.

At a meeting of the Medical Society of London held on February 4th, with Dr. JAMES STOWERS in the chair, Major WALTER BROADBENT, R.A.M.C.(T.), read a paper on interlobar empyema and other surgical complications of the thorax, which was discussed by Dr. DE HAVILLAND HALL and Mr. HUGH LEE.

Dr. H. A. DES VUUX read a paper on the symptoms of eye-strain as met with in general practice. He said that the symptoms were hardly ever attributed to the eye as a possible cause, the patient declaring that the eyesight was perfect and the oculist usually saying that the defect was so slight as to be negligible. The following syndrome was produced by eye strain (including migraine: Fears and panics; depression of spirits and vitality; fits or attacks (including fainting); giddiness, dizziness, and vertigo; fatigue; indigestion; paralysis (functional); disorders of sleep; train vomiting. The paper was based on an analysis of 100 cases, consisting of 35 males and 65 females. In women the symptoms tended to be intensely aggravated at or about the catamenia. The age limit was very wide, but most of the patients could trace back symptoms to early youth or childhood. If surrounding conditions were favourable to their production the symptoms would first show themselves in a minor degree in childhood and become quite manifest about 15 to 25. The greatest success in treatment was attained at this age. The general health showed no alteration which would account for the symptoms: many complained of indigestion, without signs or symptoms of dyspepsia or any indication of disease or disturbance of the liver. Some patients suffered from colitis, but in most the eye-strain symptoms preceded this disease. Heart disease was conspicuous by its absence.

Analysis of Symptoms.

Headache or migraine was present in 60 to 70 per cent. of the patients. In some it constituted the chief if not the only sign; in others it was trifling or slight. The commonest seat of the pain was the frontal region, sometimes beginning on one side and passing to the other, sometimes beginning on both sides. Often it was definitely in the eyes, "through the eyeballs," "at the back of the eyes," with some tenderness of the eyeballs. The pain, however, might be vertical, occipital or temporal, but never parietal alone.

Depression of spirits was noted in 30 per cent., appearing generally to be due either to the frequent attacks and the dread of their recurrence, or caused by inability to take an active part in life, or by having to give up an occupation which was congenial or the only source of income. In some cases depression was the only marked symptom.

Fatigue was mentioned in about 40 per cent., produced apparently by the constant bodily suffering. Many had been typical neurasthenics and had been treated as such. As with migraine, it often began in the morning.

Fears and panics were often mentioned. Fears took the ordinary forms of unreasoning dread of what was going to happen, or some approaching catastrophe, or of a pending illness. The panics not unseldom took the form of claustrophobia.

Indigestion was frequently complained of, and was a marked symptom in 30 per cent. In most it was quite atypical; a want of appetite, distaste for food, and fullness or a little flatulence. The abdomen frequently felt normal, but in some cases there was undoubtedly definite and severe indigestion, with flatulent distension. Constipation was often marked, and in practically all the cases had always previously been assigned as the cause of the trouble. Disorders of sleep were very common. Insomnia was much complained of in twelve cases, but most patients mentioned some discomforts about sleep; it was often heavy, sometimes very restless. Whether the sleep was absent, intermitting, restless, or accompanied by dreams and nightmare, waking up unrefreshed was the ordinary result. Dropping to sleep during the day was frequently mentioned.

Giddiness or vertigo was present in one-fourth to one-third of the cases, of a similar type to that produced by other causes.

Attacks were complained of by many patients. Certain of these were undoubtedly true fainting or syncopal seizures. The fainting so common in crowded hot rooms, concerts, etc., was probably of ocular origin. Some of these seizures conformed in every respect to *petit mal*, and attacks of complete unconsciousness might occur. There might be some close relationship between eyestrain and epilepsy.

Among other symptoms noticed were an inability to concentrate; a feeling of unreality sometimes almost of dual personality; muscular twitching of the face, arms or legs, or

body generally; and irritability of temper. Train vomiting was prominently mentioned by five of the patients.

Transient paralysis was sometimes met with, mostly in those in whom migraine was prominent.

All patients immediately recognized that the symptoms were produced or intensified by railway travelling, sight-seeing, theatres, crowds, railway stations, big shops, shopping, race meetings, motoring, sometimes games of ball, and, less frequently, by hard and prolonged reading. They nearly all preferred to walk in side streets to main streets, and in the parks instead of the streets. They complained of "smoky rooms," "hot rooms," and "stiffness," but might live in a stuffy, hot, ill-ventilated house, and remain free from attack. It was a disease of town dwellers and brain users; as frequent in the quick, intelligent society gossip as in the studious. As time went on these things caused so much suffering that the patient tended to avoid them, and might drift into a life of a recluse.

With regard to the condition of the eyes, the orbits in a few cases were not horizontal, but set at an angle to one another. A more constant sign was twitching of the lower lid, very marked in some cases. Sometimes the eyelids were squeezed towards one another.

With regard to treatment, the patient must be sent to an oculist. Out of the 100 cases, 77 were reported on by an oculist; and of these 54 (or 70 per cent.) were hypermetropic and 14 (or 18 per cent.) were myopic. Both conditions were almost always combined with astigmatism. Nine cases had mixed or varied conditions. It was the slight degrees of error of accommodation which did harm. With extreme degrees the patient soon found out that he could not see without glasses; with slight degrees he could see perfectly well, but it was a strain to see, a strain not felt or recognized, but which produced results after a time. The human eye was made for man in the roving and agricultural life, and was not adapted for the restless, unceasing movement at close quarters in a town, entailing constant and rapid changes of accommodation.

Mr. ERNEST CLARKE accentuated the point that those with "perfect vision" were the most difficult to deal with. Oculists were much to blame, as they referred patients back to the physician after only a very superficial examination. Under ordinary circumstances small defects of vision were negligible, and the amount of nervous energy lost was a mere fraction of the whole; but with close, concentrated work this loss of energy became important, and the symptoms it caused could be cured by glasses. He had seen epileptoid attacks brought on by the nervous exhaustion caused by eye-strain. There was no functional nerve trouble which could not be caused by it. The importance of the subject was not yet recognized.

Dr. KENNETH SCOTT said that one proof of the fact that the symptoms were due to eye-strain was that they were cured by glasses, and that when the symptoms recurred it was found on re-examination that the condition of the eyes had changed. Patient and careful examination was most necessary, and glasses should be worn constantly. Out of 100 consecutive cases which he had seen 81 per cent. had astigmatism or astigmatic error of low degree (below 1 D.). The position of the astigmatism was important. When against the rule the symptoms were exaggerated and severe; when in one eye the astigmatism was against the rule, and in the other eye it was ordinary, the symptoms were less accentuated.

Colonel ERNEST KINGSOTE recalled a number of epileptics who suffered from error of vision, and emphasized the importance of the relation between these two affections.

ENTERITIC CONVALESCENTS.

At the meeting of the Liverpool Medical Institution on January 31st, Mr. W. THELWALL THOMAS, president, in the chair, Professor ERNEST E. GLYNN gave the substance of a special report on enteritis convalescents from the Thompson-Yates laboratory of the university. He said that there were now five types of bacteria recognized as pathogenic of enteritis: (1) Shiga's bacillus, (2) Flexner's bacillus, (3) typhoid bacillus, (4) paratyphoid A, and (5) paratyphoid B. A paratyphoid C had recently been described in Germany. Cases of dysentery had been detected among recruits who had never been out of England, and *histolytica* cysts had been discovered. Apart from the bacterial cause, it would

appear impossible to differentiate clinically typhoid B from other bacterial forms of typhoid. Paratyphoid (A and B) was more common than typhoid. The difference in temperature, the amount of distribution of the rash, the presence of haemorrhage from the various mucosae, were noted in paratyphoid cases as being more marked than in typhoid. In summing up the results of his observations, Professor Glynn expressed the opinion that in all cases of convalescent enteritis two examinations of the faeces should be made at an interval of one month. He regarded bacillary dysentery as endemic in England, especially in asylums. The importance of systematic bacteriological examination was insisted upon. There was still much confusion on the subject; a consolidation of the bacteriological findings of many observers, and their correlation with the clinical histories was greatly to be desired. The danger of carriers was emphasized, and any fresh outbreak should at once suggest the possibility of such a contingency.

RODENT ULCER.

IN a paper read recently before the Section of Medicine of the Royal Academy of Medicine in Ireland, Dr. WALLACE BEATTY discussed the different views regarding the origin and nature of rodent ulcer. He dwelt on the difficulties in explaining (1) the extremely benign course of rodent ulcer, if it is to be regarded as a carcinoma; (2) the difference in the character of the cells of the tumour, as contrasted with ordinary epithelioma, if its origin is from the surface epithelium. He considered the nervous theory of rodent ulcer attractive as it would explain these two difficulties. He compared the cells of the tumour to those found in soft naevi, which Unna had shown to originate from the epithelium of the surface. Dr. O'BRIEN said that no definite line of demarcation existed between non-ulcerated rodent ulcer and superficial epithelioma. The latter might remain dormant for ten years. Irritation seemed a causal factor in both. He had practised light therapeutics for twenty years, and in 1904 read a paper on the then position of radium therapy. In 1906 he showed cases of undoubted rodent ulcer cured by radium. Eight years later these cases were again shown, still well, and he hoped to have another opportunity soon of exhibiting them apparently cured. He considered radium bromide the best treatment, at any rate for superficial ulcers. Dr. HAYES thought that treatment should depend on the character of the growth. Carbon dioxide snow was excellent for very early cases, though x rays were also successful. He thought occasional doses should be given for several months after apparent cure was obtained. Cases in which cartilage and bone were involved presented most difficulty in selecting the most suitable treatment. No method was ideal for all cases.

SYPHILIS AMONG GYNAECOLOGICAL CASES.

At the meeting of the Ulster Medical Society on January 31st Dr. C. G. LOWRY read a paper on the incidence and manifestations of syphilis amongst gynaecological cases attending the extern department of the Ulster Hospital for Women and Children, 1912-17. The results are set out in the following tabular statement:

Total cases examined ...	1,729
Total number in whom syphilis, active or latent, was suspected ...	337
Unmistakably syphilitic ...	47
A strong suspicion of syphilis was entertained in 121 cases—	
Confirmed by Wassermann reaction in ...	87
Contradicted ...	34—121
A syphilitic element suspected in 169 cases—	
Confirmed by Wassermann reaction in ...	109
Contradicted ...	60—169
	337

In the 337 cases a reasonably sure diagnosis of syphilis was made in 243 cases either on clinical grounds alone or clinical grounds and history supported by a positive Wassermann reaction. Of the 94 cases which gave a negative Wassermann reaction, two at a later date gave a positive luetin reaction. Fifteen Wassermann reactions were

performed amongst the 47 undoubted syphilitics. All were positive. In 45 additional cases a tentative diagnosis of syphilitic influences was made, but from various reasons the blood could not be examined or results were thought unreliable or were contradictory. In all 305 patients were examined by the Wassermann test. The luetin test was applied to 15 patients. The paper gave rise to considerable discussion. Stress was laid upon the increase of venereal disease, the greatly increased number of cases of syphilis and gonorrhoea in the innocent, and of instances of the disease spreading in a family, and on the necessity of early energetic treatment with salvarsan and mercurial inunction.

Rebicus.

TUBERCULOSIS.

THE treatment of tuberculosis by means of the injection of "immunkörper," which was originally proposed by Carl Spengler, was primarily intended to meet the requirements of the case of low resistance and hence to be of service in advanced tuberculosis of the lungs. Many observers have used it, but not with uniform success. In a compact volume,¹ Dr. NIVEN ROBERTSON, of the Benenden Sanatorium, has set forth in concise form the chief points with respect to the therapeutic use of I.K. and an interesting account of the steps by which its properties were first studied and demonstrated by Spengler. His own experience of it does not appear to have impressed him with the same enthusiasm that has led others to use it almost exclusively. He relates several cases in detail the results of which would seem to have been little influenced by the special treatment, but so many other observers have recorded cases in which unexpected success has been achieved that he thinks the method ought to be more widely studied and tried, and the account of the whole subject as contained in his book will doubtless be found of great service by those who may undertake to make use of it. Spengler recognizes three varieties of bacillus: the original short bacillus demonstrated by Koch, a long bacillus recognized by himself, and the bacillus of bovine origin. Only the two former are usually detected in cases of pulmonary disease. The definition of *Immunkörper* is the acid blood of rabbits immunized against these two forms of bacillus and against pyogenic organisms, such as streptococci. The powers possessed by this blood are said to be lytic and antitoxic, as well as immunizing. Its method of preparation, properties, and practical employment in treatment are very fully described, and its specific action in experiments duly explained. While Spengler himself has gradually adopted it as a routine form of treatment, Dr. Robertson regards it as a useful adjunct to other means in properly selected cases. His account of the whole subject may be regarded as a complete summary of present knowledge with regard to I.K. therapy.

In his interesting *Three Clinical Studies in Tuberculous Predisposition*² Dr. W. C. RIVERS brings forward a mass of evidence to show that pulmonary tuberculosis is connected with three pathological conditions, namely, ichthyosis, squint, and nasal abnormalities such as adenoids, of which two at least do not at first sight appear to have any relation with it. These conclusions have been forced upon him by clinical observation, and he makes out a good case for their correctness. He believes that ichthyosis may entail a liability to consumption of the lungs; and that as ichthyosis is described by dermatologists as the most hereditary of skin diseases, the predisposition to tuberculosis that sometimes accompanies it may possibly sometimes be hereditary too. Squint Dr. Rivers holds to indicate in certain instances the presence of a predisposition to pulmonary tubercle, without itself forming an active constituent of a phthisical diathesis. In the essay on consumption and non-tuberculous nasal abnormality, which forms the bulk of the volume, the author states

that the nose is normal in only some 31 per cent. of consumptives, but in 63 per cent. of non-consumptives, and produces a great deal of evidence to show that nasal disease in general, by causing mouth breathing, predisposes to tuberculous infection of the lungs. The questions with which Dr. Rivers deals so fully and persuasively in this well-written volume are questions to be settled by the collection and analysis of statistics. It is certain that he will find many to agree with him in his endeavour to establish an endogenous factor—the soil—in the disease due to infection of the lungs with tubercle bacilli—the seed.

NOTES ON BOOKS.

THE fourth American edition of Professor KREHL's well known textbook, *The Basis of Symptoms*,³ follows rapidly on the third, which was reviewed in these columns in January, 1917. Since it does not appear that any very noticeable changes have occurred in the text, though the volume is bigger by fourteen pages than on the last occasion, there is no need to do more than endorse the opinions expressed in the last review. The American translation is well done and the work has been kept fairly up to date by insertions from Dr. Beifeld's pen.

Among the buyers of old pictures are a good many amateurs who like to trust their own judgement. They make mistakes, and it would not be in human nature did they not find solace in the mistakes of experts. Dr. RICKARD W. LLOYD has written a pleasant gossip book for amateurs. It is entitled *The Cult of Oil Paintings and the Romney Case*.⁴ Dr. Lloyd discusses the principles by which the buyer should be guided, but the story of the extraordinary conflict of expert evidence in the Romney case last summer and its dramatic ending, from which the book gains actuality, must leave the judicious amateur rather diffident of backing his own opinion by purchase. The book is illustrated by sixteen plates from old pictures, none of which, the author states, have been reproduced before.

The issue of the *Cambridge University Calendar* in 1913 contained nearly 1550 pages, forming a distinctly bloated volume. It was therefore decided to transfer in future the historical information hitherto contained in the annual calendar to a separate volume, appearing at much longer intervals under the title of the *Historical Register*.⁵ The first issue of this has now appeared. The new arrangement has given an opportunity of adding to the customary information. Thus the lists of holders of university offices, professorships, readerships, and lectureships, have been completed from the earliest recorded dates, with brief footnotes to the names of notable men. New sections have been added on university courts, ceremonies, customs, discipline, and other historical matters. Again, the Tripos lists of the old Calendar have been collated and corrected, and the footnotes revised to the end of 1915. The arrangement and printing of this interesting volume leave nothing to be desired. It is a mine of information, edited with scholarly care and precision.

A valuable summary of the literature dealing with *The Theory and Use of Indicators*⁶ has been made by Mr. PRIDEAUX. It is a book for the chemist and mathematician primarily, and makes no allowances for the weakness of physiologists or others whose acquaintance with chemistry and mathematics may chance to be incidental rather than profound. It approaches the use of indicators, or organic substances indicating the acidity or alkalinity of solutions by some characteristic colour, from the point of view of electrolytic equilibrium and molecular structure. It thus deals with problems of great interest to the chemical physiologist, the chemical geologist, workers in the fermentation industries, and technical chemists.

¹ *The Treatment of Tuberculosis by Means of Spengler's Immune Bodies (I.K. Therapy)*. By Niven Robertson, M.D. Edin., D.P.H. Camb., Medical Superintendent, National Sanatorium, Benenden, Kent. London: Baillière, Tindall, and Cox. 1917. (Cr. 8vo, pp. xiii + 152.)

² *Three Clinical Studies in Tuberculous Predisposition*. By W. C. Rivers, M.R.C.S., D.P.H. London: George Allen and Unwin, Ltd. 1917. (Demy 8vo, pp. 285; illustrated. 12s. 6d. net.)

³ *The Basis of Symptoms: The Principles of Clinical Pathology*. By Rudolph Krehl, Ordinary Professor and Director of the Medical Clinic in Heidelberg. Authorized translation from the seventh German edition by Arthur Frederic Beifeld, Ph.B., M.D., with an introduction by A. W. Hewlett, M.D. Fourth American edition. 1917. Philadelphia and London: J. B. Lippincott Co. (Pp. 540. 21s. net.)

⁴ London: Skellington and Son. 1918. (Cr. 8vo, 196 pages; 16 plates. 6s. net.)

⁵ *The Historical Register of the University of Cambridge. Being a Supplement to the Calendar with a Record of University Offices, Honours, and Distinctions to the year 1910*. Edited by J. R. Tanner, Litt.D. Cambridge: The University Press. 1917. (Cr. 8vo, pp. 1198. 12s. 6d. net.)

⁶ *The Theory and Use of Indicators. An Account of the Chemical Equilibria of Acids, Alkalis, and Indicators in Aqueous Solution, with Applications*. By E. B. R. Prideaux, M.A., D.Sc. London: Constable and Co., Ltd. 1917. (Demy 8vo, pp. vii + 375. 12s. 6d. net.)

VENEREAL DISEASES.

PROPHYLACTIC AND ABORTIVE TREATMENT.

In the House of Commons, on January 22nd, Mr. Macpherson, Under Secretary of State for War, was asked by Mr. Peto:

Whether it was proposed to take any further steps to stop the spread of infection by venereal poisons among British troops; whether there was any Army Order which forbade or discouraged the necessary prophylactic medical measures, and whether it was proposed to issue an Army Order instructing army medical officers of superior rank to take the necessary action as a part of their regular medical duties. Mr. Macpherson, in reply, said that there was no Army Order authorizing the use of such preventives or forbidding them. The answer to the last part of the question was in the negative. In reply to a further question, Mr. Macpherson expressed the opinion that this was really a national question and not so much a military question.

On February 1st Mr. Peto asked a further question with regard to a War Office letter to General Officers Commanding, dated March 18th, 1916, which stated that the Army Council could not accept suggestions with regard to prevention which would imply the adoption of any system of prophylaxis which might be said to afford opportunities for unrestrained vice, whether this deterred army medical officers from taking steps to prevent the spread of venereal disease in the army, and whether the Army Council would now withdraw any restrictions which prevented effective measures being taken to avoid the waste of man power in the army from this cause. Mr. Macpherson declined to add anything to his answer of January 22nd, and in reply to a further question stated that he could not give accurate statistics of the number of men who passed through hospital suffering from venereal diseases in a year, and who were at any one time incapacitated from that cause. He added that it was not to be inferred that medical officers were prevented from taking every possible step to cure the diseases.

We have asked Mr. E. B. Turner, Chairman of Representative Meetings of the British Medical Association, and Representative of the Association on the National Council for Combating Venereal Diseases, for an expression of his views, and he has replied as follows:

I have been asked by the Editor to furnish him with a statement from my personal knowledge of the matters referred to by Mr. Macpherson with regard to prophylactic treatment of venereal disease, and the orders issued by the Army Council relating thereto.

I have given lectures on venereal disease ever since the commencement of the war, and I have been distinctly directed and ordered by the authorities not to introduce into the lectures any description of chemical personal prophylaxis, or in any way advocate its use. The lecturers are allowed to impress upon the men the importance of the earliest possible treatment if they find themselves infected, and also the wisdom of consulting their medical officers with regard to preventive or abortive early treatment if they have run the risk of infection but do not yet know whether they have been infected. Thus far the lecturers have been authorized to go by the Army Council.

With regard to the whole question of the issue of prophylactic outfits my personal opinion is that it might not be of much real use in diminishing the actual number of cases of venereal disease occurring in the army. In the first place no one can say that the methods afford absolutely certain and sure protection from the infection either of gonorrhoea or syphilis. Figures are always fallacious, but in the cases which have come under my personal knowledge the percentage of failure has been very high, and this can easily be understood when one considers the conditions under which infection generally takes place. The principal medical officer of one of the largest hospitals for venereal diseases in London lately traced the source of infection in the last 100 cases admitted into that institution; he found that of these 100 men only 28 had got the disease from professional prostitutes; the remaining 72 were the victims of what might be described as the amateur flapper. It therefore stands to reason that in many cases the necessary precautions to avoid infection would have to be taken not in the "ordered circumstance of a harlot's room" but in the open air, in barns, coppers, or commons, or behind a hedge, and therefore unless a man were extremely sober, very cold-blooded and skilful with his fingers, the chances are that he might fail to protect himself efficiently. It is pretty certain that an intoxicated or semi-intoxi-

cated man would almost infallibly fail in the minutiae of the protective process, and therefore become infected. If a man, as is very probable in some circumstances, incurs the risk of infection three or four times in a few hours, it is very improbable that before each performance he is likely again satisfactorily to protect himself.

It follows from all this that there will always be a certain percentage of cases infected even if prophylactic precautions are taken. If 100 men were exposed to the chances of infection unprotected, and 100 protected by prophylactic measures, in all probability the percentage of cases of infection would be a good deal larger in those unprotected. But if the doctrine of prophylaxis were widely preached and the efficacy of the methods insisted on, the chances are that a very much larger number of young men would run the risk of infection than is now the case.

I have no doubt myself that fear of contracting venereal disease of either sort is a very potent inducement to a large number of young men to keep straight, and I am sure that the impression that a perfectly sure method of avoiding infection could be used would lead a larger number of men to run the risk. If they know and thoroughly understand the fact that gonorrhoea is a very serious disease, and that syphilis in its latest stages spells ataxia and general paralysis of the insane, they are afraid of running the chance of contracting either.

It is a fact well known to all social workers that the standard of what I may call practical morality among young women of every class of society has gradually deteriorated since, some twenty years ago, the Malthusian propaganda began and the public display and advertisement of Malthusian appliances followed. The fear that a lapse from morality would mean an increase in the population was an extremely potent factor in ensuring the chastity of young girls.

I am certain that among young men the fear of infection with venereal disease acts in the same way, and I consider that on this matter I am probably better fitted to speak with authority than most men of my age and standing, because I was a competitor in first class athletic events until I was 38 years old, and before that time and ever since I have been in the closest touch with young men, athletes, in every class of the community, serving on committees and acting as president of athletic, cycling, and football clubs and as a member of the governing bodies of sport. If the idea that illicit sexual intercourse could be indulged in with impunity became at all general, I am sure that the gross number of cases of venereal disease would be by no means diminished, though the actual percentage of cases of infection after exposure would probably be a great deal lower.

Where I have spoken on several occasions at varying intervals at a camp, dépôt, or training centre for soldiers, I have been informed by the commanding officers that, after putting before them the results of these diseases and exhorting them by everything that a young man particularly holds sacred—his honour, his patriotism, his chivalry, and his sportmanship—to keep straight, the first result of the lecture has been to induce a certain number of men to report sick who had previously been concealing disease; a second result was that, so long as the particular unit to which the lecture had been addressed remained, there was a diminution varying from 50 to 80 per cent. in the number of cases of venereal disease reported.

If prophylactic outfits are issued and prophylaxis taught in the army, it stands to reason that the practice must be extended to civilians. Workers in munition factories are nearly as important as soldiers in the fighting line, and among them there is a fairly extensive prevalence of the disease. Further, if these methods are taught and put before men, it follows that they must also be put before women, a prospect from which I am not ashamed to say I recoil with horror.

In giving this statement I have put on one side every question of religion, morality, or aesthetics, and have confined myself simply to what as a physician and man of the world I consider likely to happen.

E. B. TURNER, F.R.C.S.

British Medical Journal.

SATURDAY, FEBRUARY 16TH, 1918.

ARMY MEDICAL RECORDS.

LET us begin by saying that we regard statistics with a reverence which might win the approval of Professor Karl Pearson and the keeping of records with a respect that would excite the admiring envy of a civil service official. But virtues carried to excess become vices, and the multiplication of elaborate notes made with a view to the assembly of facts and statistics warranting conclusions may easily end in such an unmanageable accumulation of documents as even the wide buildings of the British Museum shall not contain, nor all the calculating machines of all the statisticians reduce to even the semblance of order. To be set to make records, perhaps more than one copy, which the recorder feels certain can only cumber space that might more profitably be given to growing potatoes, is a drudgery to take the heart out of the most eager and industrious. Panel practitioners may judge from their own little piles the mountain the Insurance Commissioners and their clerks have already accumulated. The clerks are not to be blamed; it is the inevitable effect of the whole training of a civil service clerk to attach great importance to the document and little to the act recorded in the document; their nature is subdued to what it works in, like the dyer's hand. Only a few rare spirits escape, who, living down the suspicion of their colleagues, eventually become peers or undergo some less honorific form of extinction. But if the yoke of the Insurance Commissioners is heavy, the Army Medical Department put more to our yoke, and if the Commissioners chastise with whips the Army chastised with scorpions. Unless an officer commanding a hospital, as was no doubt the case in the majority of instances, put the clinical work first, even though the clerical work should suffer, medical officers might, under the old system, have to spend so much time in clerical work (note-taking, copying, etc.) that they saw little of their patients.

We would not be misunderstood. We fully recognize the importance of proper clinical records of soldiers who become patients of the Army Medical Service. They are of importance from at least three points of view. First, a sufficiently complete and accurate record of what has befallen a man and of the treatment he has received from each medical officer and in each medical unit through which he has passed, is important for the welfare of the individual. Owing to the conditions inseparable from medical work with an army in the field, the man must pass through a series of medical hands, and it is important that each succeeding medical officer should know not only the nature of the injury, which is often quite obvious, but should have also a summary note of the treatment applied at the various stages through which the man has passed before he reaches a home hospital. It is especially important that the information received with the man at the home hospital, where his final treatment is to be carried out and where possibly a primary or secondary operation must be undertaken, should be sufficiently detailed, in chronological order. This is necessary in order to

enable the surgeon under whose care he then comes to understand the history of the case and the nature of the attempts made during the various stages to put him in the way of recovery. It is also of importance that any system of records should work backwards; that is to say, medical officers with the armies abroad should be able to learn the after-histories of cases in order that they may be able to estimate the value of various methods of treatment adopted during the early stages of injury or disease.

In the second place such records will form the statistical basis of the medical history of the war, and during its progress they provide valuable data for the investigation of the prevalence of various types of disease and of the results of various forms of treatment, whether of disease or injury.

In the third place, the records will be of permanent national value in dealing with the vast number of claims for pensions and allowances which are arising now, and will arise in the future, and perhaps long after the war, among civilians who may attribute subsequent ill health to alleged previous disability produced by war services.

The case sheets, diet sheets, and the many other medical forms previously used in the army, though they may have been suitable to military hospitals in time of peace, were not well adapted to the new conditions created by the immense expansion of the armies, the general employment of medical officers drawn from civil life, and the establishment of very numerous auxiliary hospitals staffed by civilian practitioners unfamiliar with army forms and procedure. If the importance of each medical officer doing his share in the preparation of a complete record of each patient has not always and everywhere been fully appreciated, this may be set down, in part at least, to the cumbersome and vexatious clerical machinery which grew out of the old system, but which it is now decided shall give way to a simplified system of note-taking devised for the Army Medical Service by the statistical department of the Medical Research Committee.

The system devised by the official statisticians is founded on the new field medical card, issued on June 1st, 1917. This is intended to serve as a condensed diary of the patient's hospital career at the seat of war. The first entry on it is made by the Field Ambulance; it gives—in addition, of course, to the number, name, rank, and unit—the date of the wound or onset of illness, a note of the administration of antitetanic serum or morphine, and the diagnosis. The card is enclosed in a stout envelope, which is tied on to the man's tunic, and goes with him to the casualty clearing station. At that unit, as at the base hospital, any alteration or addition to the diagnosis is noted, and the inside of the folded card affords space for clinical notes. The envelope contains spaces for particulars of the ambulance train, convoy, and hospital ship by which the man is transferred, as well as for information regarding his special needs in transit. Temperature charts or additional notes may be sent in the envelope. If this field medical card is properly kept through the various stages, the patient reaches the home hospital with a brief clinical record of the early stages of his case. On his admission to an overseas base hospital another card—the index card—is issued. The necessary details of name, rank, unit, and so forth having been filled in by orderlies in the office, the card is taken to the ward, and comes under the charge of the medical officer, whose duty it is to fill in the diagnosis, with notes of any operation and its result, and of all complications in order of occurrence, and a brief summary of other important facts, authenticated

by his signature. When the patient reaches a home hospital from overseas, a similar card, printed in red, is made out for him; an index card of the same form, but printed in black, is used in home hospitals for men not belonging to an expeditionary force. The field medical card and the index cards eventually reach the Medical Research Committee, which arranges and files them for future reference.

The new system seems to have been carefully worked out in its application both to the expeditionary forces and to home hospitals. The three (or two) cards* taken together obviate, as we understand, the necessity of maintaining the old medical case sheet, which is no longer required, except for cases of special importance or interest. By their use the medical officer's note-taking for official purposes seems to be reduced to a minimum. For the reasons given above it is of the first importance that this minimum should in all cases be supplied. We are informed, however, that the statistical department of the Medical Research Committee views the disappearance of the case sheet with some apprehension, on the ground that in numerous instances it is the sole source of information on the previous history of the patient, information which may be of first importance in adjudicating on a pension claim. The Committee considers that ideally it would be desirable that the case sheet and the appropriate index card or cards should be maintained for every patient.

In addition to this uniform system, applicable to all patients, another more elaborate system has been set up to facilitate inquiries into special classes of cases, and there has, perhaps, been some confusion in the minds of some medical officers between the ordinary and the special system. Special note-taking schedules have been supplied by the Medical Research Committee to be used for grouping the records of special types of cases the treatment of which is being studied by chosen medical officers. These special subjects now make a rather long list, as they include wounds of joints and fractures of long bones; amputations; wounds of the head, chest, and abdomen; functional nervous disorders; injuries of the spine; disorders of the heart; nephritis; and gassed cases. Hospitals in France are supplied with post-cards asking home hospitals to transmit the schedules, and the information so conveyed to France has been used already in several important reports and articles upon selected groups of cases; some have been published, and others given to the conference of allied services in Paris. In particular directions treatment abroad has in this way either been confirmed as valuable or modified in the light of experience. Effort has been made so to frame the schedules as to give the minimum of trouble to the medical officer asked to fill them up. Special appeal is made to medical officers at home to give everywhere their cordial co-operation, but it is stated that a large percentage (nearly 70 per cent.) of the post-cards filled up and actually sent with patients from France are lost or ignored at the home hospitals.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

At a meeting of the Executive Committee of the Belgian Doctors' and Pharmacists' Relief Fund on February 7th it was decided to issue a circular letter to the medical and pharmaceutical professions appealing for contributions to maintain the fund. It was agreed to send to the Com-

*The cards, we are informed, are officially known as follows: A.F. W 3118, Field Medical Card, A.F. W 3162, used in British hospitals abroad. A.F. W 3243(A), printed in red; filled up in home hospital for men from B.E.F. A.F. W 3243, printed in black; for men admitted to home hospital not from B.E.F.

mission for Relief the sum of £400 to be forwarded to Belgium for the month of February; this compares with the sum of £800 sent monthly during last year. The Honorary Secretary, Dr. S. S. Sprigge, stated that since the last meeting the General Committee had been joined by Sir A. Garrod Thomas, M.D., M.P.; Lieut.-Colonel Adami, F.R.S., of the Canadian Army Medical Corps; Sir Thomas Barclay, Director of Southall Bros. and Barclay; and Mr. Harry J. Fisk, representing Parke, Davis, and Co. We may take this opportunity of saying once more that the need for renewed contributions to the fund is urgent. The previous appeal—that made in November, 1914—produced a sum of just under £21,000. By judicious investment during its gradual disbursement a further sum of £1,000 was earned in interest. At first the chief expenditure was made to relieve the necessities of the Belgian doctors and pharmacists, who, frequently accompanied by their families, had taken refuge in this country. They were helped to become self-supporting, and acting on the advice of Mr. Hoover, at that time director in Europe of the Commission for Relief in Belgium, and now Food Controller in the United States, it was resolved to send substantial sums monthly for disbursement in Belgium to doctors and pharmacists working in that country. These disbursements were made through a representative committee of Belgian doctors and pharmacists sitting in Brussels, and the Committee in this country is satisfied that the Committee in Belgium has acted throughout with prudence and discrimination. At the meeting of the General Committee of the Belgian Doctors' and Pharmacists' Relief Fund reported on February 2nd, p. 178, Dr. Des Vœux, the honorary treasurer, made a moving appeal on behalf of our Belgian colleagues. The act of the Belgian nation in withstanding the armed forces of Germany was, he said, a deed of courage beyond praise, and laid this country under a special debt of gratitude, because it gave Great Britain time to throw into Flanders a force which saved the Channel ports from occupation by the German legions. What the occupation of those ports would have meant to our empire could, he said, be deduced from the troubles which have followed the occupation of Antwerp, Ostend, and Zeebrugge. He showed from an analysis of the donations that subscriptions had been received from Great Britain, Ireland, Canada, Australia, South Africa, India, and some other parts of the British empire. The letter from Mr. Poland, who succeeded Mr. Hoover as director in Europe of the Commission for Relief in Belgium, published in the *BRITISH MEDICAL JOURNAL* of December 29th, 1917 (p. 864), afforded ample proof of the need for the continuance of the Fund. "If its supporters," Mr. Poland wrote, "knew how much actual suffering they had allayed, how much potential, moral, and physical suffering they had prevented, they would not cease to continue their support, many as are the claims now made upon them. This office is a gulf into which pours the stream of Belgian misery, and it would not be difficult to supply you with hundreds of testimonials as to the state of things there. . . . All the charities in Belgium are well administered. There is no leakage by the way. Only those who deserve it get relief, and never more than they need. . . . The knowledge that their associates in England have not forgotten them is an inspiration to the whole profession at a time when moral support is perhaps as much needed even as food." We may add that, owing to the self-sacrificing exertions of the treasurer, Dr. Des Vœux, and his secretary, Miss Brock, who has refused to receive any remuneration for her services, the Fund has been most economically administered, the total expenditure under this head for the first two years having amounted to only £50. Subscriptions may be sent to the Treasurer, Dr. H. A. Des Vœux, 14, Buckingham Gate, London, S.W.1. Cheques should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, and crossed "Lloyds Bank, Ltd."

ALCOHOL AND FOOD ECONOMY.

IN the fourth of the series of public lectures at University College, London (February 11th), Professor A. R. Cushny dealt with the value of alcohol as food. Strictly speaking, he said, alcohol must be regarded as a food in that the body could utilize it for heat and as a source of energy. In the completeness with which it was used up in the tissues it resembled sugar closely, and indeed sugar was a more complicated alcohol. Many substances, however, while carrying energy into the body, produced other effects, such as digestive or brain disturbance, which seriously detracted from their food value, and the drawback of alcohol was its effect upon the brain and upon other tissues ultimately. If alcohol could be obtained from such a source that it did not involve the destruction of other foods there might be an argument in favour of its use to some extent, but alcohol was obtained from cereals which could be used for food purposes. He had been unable to obtain the figures for beer production in 1917, and statements in Parliament on this point were conflicting. He had been compelled, therefore, to fall back upon the figures for 1916, when 26 million barrels of beer were brewed, and 955,000 tons of barley, 57,000 tons of grits, and 120,000 tons of sugar were used by the brewer. Only 60 per cent. of the barley, however, could have been made available for human consumption, but the grits could have been used entirely, and as for the sugar, although the Chancellor of the Exchequer had declared that it was not utilizable, many held a different opinion; in any case it had to be imported, and an equal amount of finer sugar might just as well have been imported in its place. The materials used for brewing, therefore, would have provided 750,000 tons of human food, and the remaining 40 per cent. of the barley would have furnished 382,000 tons of cattle food. It remained to determine the food value of the beer. This for the total barrelage for the year was placed at 2,200,000 million calories; that of the food available for human consumption destroyed in brewing was 2,651,000 million calories, making a loss of 17 per cent. In the case of the food for cattle, 283,000 tons of which were available after the brewing process, the loss in calorie value was similar—18 per cent. A still greater loss was apparent if the value of the grains in protein material were taken. The protein value of the barley and grits available as human food was 53,625 tons; that of the beer was only 4,250 tons, a loss of 90 per cent. The food available for cattle, on the other hand, represented a gain in protein after brewing, but in giving protein to animals only about one-sixth was returned. The lost protein and calorie value in the diversion of foodstuffs to the making of beer represented what was used up by the grain itself and the yeast plant. The embryo of the grain was caused to grow, which it did upon its own stock. At a certain point the growing grain was killed and put into the mash tub and infected with yeast, which grew rapidly, using up the original foodstuff. The amount of food taken up by the plant and by the yeast in growing would feed London for three weeks.

THE MEAT RATION.

THE Food Controller has now published the scheme for meat rationing for London and the Home Counties, which will come into force on February 25th. The meat card contains four coupons for each week; three of these may be used for uncooked butcher's meat, upon which each adult may spend 1s. 3d. a week. The fourth coupon may be used to purchase other meatstuffs—such as poultry, game (including venison), bacon, rabbits, sausages, cooked meats, and tinned meats—which are rationed by weights regarded in each case as the equivalent of 5 oz. of uncooked butcher's meat containing an average amount of bone. These equivalent weights have been published in a table. The general result is to make the weekly adult ration 1s. 3d. worth of butcher's meat—which

includes pork and suet—together with other meatstuffs equivalent to 5 oz. of butcher's meat; but there is nothing to prevent all four coupons being used for buying meats other than butcher's meat. Children under 10 will be entitled to half the above ration. Lard is not rationed, but is very scarce, as is also margarine; since butter also is very difficult to obtain it seems certain that the diet available will be deficient in fats. The scheme is admittedly experimental, and in particular the table of equivalent weights is subject to revision. Its effect on the amount of meat which will be available for a household is very difficult to estimate. A family consisting of a man, his wife, and two children over 10 years old would be entitled to spend 5s. a week on butcher's meat, and the Food Minister seems to assume that for this they will be able to buy 3½ lb., which is at the rate of 1s. 4d. a lb. We have seen no guarantee that meat will be available in this quantity or at this price per lb. The metropolitan district has been chosen as the *corpus vile* of the experiment, but what it is to suffer ten days hence Lancashire and the rest of England may have to experience next month.

SIR RICHARD CROFT, BT.

IN his interesting account of Sir Richard Croft, who shot himself on February 13th, 1818, as a result of depression consequent on the death in childbirth of his patient Princess Charlotte of Wales and the stillbirth of her male child, the anticipated heir to the throne of George IV, on November 5th–6th, 1817, Dr. S. D. Clippingdale¹ not only gives more detailed information about this student of St. Bartholomew's Hospital than is contained in the *Dictionary of National Biography* but throws a more favourable light on this unfortunate obstetrician than that in which he is usually shown. Sir Richard Croft did not take any diploma, but as this was not obligatory in his day, he was not then quite such an irregular practitioner as would be the case now. His fashionable practice no doubt owed much to his marriage to the elder twin daughter of Thomas Denman, the leading accoucheur and father of the future Lord Chief Justice, but he was able to take advantage of his opportunities, and in virtue of his position was selected, with Dr. John Sims and his brother-in-law, Matthew Baillie, to look after the Princess. This turned out to be a difficult and anxious task, and a path in the grounds of Claremont Palace is still shown where Sir Richard paced in an agony of doubt as to what should be done for the best, thus showing how libellous and cruel was the accusation of neglect made against this sensitive gentleman. The tragic death of the Princess raised a public outcry, to which Jesse Foot, the malicious biographer of Hunter, possibly stimulated by Matthew Baillie's post of responsibility, contributed two letters on the necessity for a public inquiry, and stated on the authority of the nurse that when the child was born the doctors were all asleep. The king ordered a necropsy, with the result that Sir Everard Home and Sir David Dundas reported that everything had been done for the best. But in spite of every consideration by the royal family and his many patients the tragic death of the Princess weighed heavily on Croft, and after an exhausting journey he put an end to himself, "Love's Labour's Lost" being beside him, open on the page containing the words "God save you; where is the Princess?"

MISSION OF AMERICAN SPECIALISTS.

OUR American friends when they entered the war began at once to make very elaborate preparations for their campaign. Among these preparations were inquiries directed to obtaining first hand information as to the experience of their European allies. As an instance of the care taken to examine all problems from every point of view may be mentioned the mission sent to Europe

¹ St. Bartholomew's Hospital Journal, London, 1918, xxv, 35–37.

some months ago by the American Surgeon-General, General Gorgas, to study certain special subjects. The mission consisted of Colonel T. C. Lyster of the United States Army Medical Corps, Major Harris P. Mosher of Boston, a leading laryngologist with a world-wide reputation, Major George E. de Schweinitz, the well-known ophthalmic surgeon of Philadelphia, and Major Isaac H. Jones, the noted otologist of the same city. Their mission was to observe and report on certain special military problems, particularly as regards the surgery of the eye, ear, nose, throat, and brain, and plastic and oral surgery, and to give special attention to the medical problems of aviation. They have spent three months in Italy and France, where they visited the American and British formations, as well as the French. The mission passed through London recently on its way home, and by the courtesy of Sir StClair Thomson a number of medical men in London had the opportunity of meeting its members. Although its stay in London was short, as it is due back to report at head quarters in Washington, the mission had time, amongst other institutions, to study the installation for facial surgery at Sidcup, and the working of St. Dunstan's Hostel for Blinded Soldiers and Sailors. Its members were much interested in the re-education of the blind, and were good enough to say that the work being done at the Queen's Hospital at Sidcup is not excelled anywhere. There is a suggestion that some American surgeons may be sent there for study. In addition to the pavilion for British soldiers, the Queen's Hospital at Sidcup is now equipped with pavilions for Canadian, Australian, and New Zealand soldiers under surgeons belonging to those Dominions; the addition of an American pavilion would emphasize the happy combination of people speaking the same tongue and fighting for the same cause.

MEMORIALS TO TWO MEDICAL WOMEN.

STEPS have been taken to raise a memorial to the late Dr. Elizabeth Garrett Anderson from the women of England. It will be devoted to the endowment of beds in the New Hospital for Women, Euston Road, which she founded in 1866. A sum of over £9,000 has already been received, and a number of women's colleges and schools have undertaken to raise £7,000. The honorary treasurer of the fund is Lady Hall, who may be addressed at the hospital. A committee has been established in Edinburgh, with Mrs. Johnston, 10, Wester Coates Avenue, as honorary secretary, to found a memorial to commemorate the life and work of the late Dr. Elsie Inglis. It is proposed to enlarge the hospice in Edinburgh, which since she established it in 1899 has done good work as a nursing home for poor women, and to endow it for the instruction of women medical students. It is also proposed to establish in Serbia after the war a memorial hospital and training school for Serbian nurses and to maintain during the war the Elsie Inglis Hospital in France.

CENTRAL HEALTH ADMINISTRATION IN FRANCE.

Dr. MOURIER, who represents the Gard in the French Chamber of Deputies, has succeeded M. Godart as Under Secretary for Health in the Ministry of War. M. Godart held that office for two years and a half. His successor was a member of M. Painlevé's Cabinet, and, as a member of the Army Commission, was the author of an act giving autonomy to the French Army Medical Service. There was some expectation that M. Clemenceau, in fulfilment of the policy he has long advocated, would take this opportunity of establishing a ministry of hygiene and public health, and the name of M. Augagneur, a member of the faculty of medicine of Lyons, at one time minister for the navy, was mentioned in connexion with it. The arguments in favour of such a course were similar to those which have been used for the establishment of a ministry of health in this country, the chief

being the multiplication of medical departments in various ministries—the ministries of the interior, of education, of labour, and of agriculture. The advocates of the change, driving the matter to its logical conclusion, seem to have desired that the army medical service, and that of the navy also, should be placed under the direction of the proposed ministry of hygiene. It was, however, admitted that this department alone would be sufficient to engage the attention of an independent ministry. It is probably largely for this reason that the simple course of merely replacing M. Godart has been followed, but it is interesting to note that the question of establishing a ministry of health in France has been raised at the very time when it is engaging attention in this country, and for similar reasons.

THE ARMY MEDICAL SERVICE TO-DAY.

IN an article on "The Army Medical Service To-day," published in the *JOURNAL* of February 2nd, p. 154, it was said that the continued enforcement of old army regulations requiring medical officers to prepare documents in triplicate in their own handwriting had aroused criticism. We are informed that the requirement as to autograph reports is not made in compliance with army regulations. This notification will, we have no doubt, be a relief to many medical officers.

Medical Notes in Parliament.

The New Session.

THE new session of Parliament was opened on Tuesday by a speech from the Throne, wherein His Majesty concentrated attention upon the war. The phrase attracting most notice was that in which the Sovereign spoke of the struggle as having reached "a critical stage which demands more than ever our united energies and resources." The interest in the debate centred mainly round Mr. Asquith's inquiries as to the Versailles Council and Mr. Lloyd George's reply.

The Army Medical Service.—After the storm thus raised had subsided, Sir W. Watson Cheyne said that various causes were at work antagonistic to the interests of the country; there was too much yielding to expediency, undue delay in making decisions and in taking action on them; parochial instead of wide views were allowed to prevail; underhand intrigue was not put down with a firm hand; and incompetence was condoned, and in some cases seemingly rewarded. While admitting that Government departments were overworked, he expressed the opinion that there must be something wrong when matters of importance which could be settled in a short time were kept under consideration for weeks and months. He referred to the delay in the publication of the report of the Committee which had made inquiry with regard to the medical service in France. He had been informed that the matter was under the consideration of the Army Council. It appeared that a copy had not been sent to France, and the consideration of the Army Council had now occupied two months. He thought the delay might be in part due to the fact that there was no medical member on the Army Council, and expressed the opinion that had the Director-General A.M.S. been a member of the Council when the medical arrangements were being devised there would have been no Mesopotamia scandal. He paid a warm tribute to the splendid work being done by medical officers in the army and by the sisters and nurses, and pointed out the great saving of life effected by the prevention of disease, especially typhoid fever.

Air Force Medical Service.—Sir W. Watson Cheyne went on to say that quite early in its work the Air Board had recognized the need of a medical service for the new force. A committee was appointed to advise, but action upon its report was delayed and it became known that some sort of intrigue had been going on with the view of preventing the establishment of a special service. Thereupon a second committee was appointed, which tried to keep the two older services in touch with the air service, and a compromise had been reached. The delay of many months such as had occurred was very serious; airmen were losing their lives for want of a proper medical service, and during the period of delay medical officers could not be trained to cope with their illnesses. Though he did not

think much of the compromise, he hoped that it would allow the air service to begin at once to train medical officers. If the compromise broke down, it would be possible to fall back on the original complete scheme.

The Reform Act.

THE Council of the British Medical Association, at its meeting last week, took steps to draw the attention of Divisions and Branches, both at home and abroad, to the importance of the representation of the medical profession on public bodies, especially at the present time, in view of the reconstruction proposals known to be in contemplation or likely to be proposed in various parts of the empire. As a preliminary to any further remarks upon the subject, it seems well to give a general account of the effect of the Reform Act placed on the Statute Book last week.

The Act will, it is estimated, add 8,000,000 voters to the electorate, of whom 6,000,000 will be women (5,000,000 married and 1,000,000 single). The total number of voters on the register will thus be brought up to 16,000,000, or, roughly, 1 in 3 of the population. When the Reform Act of 1867 was passed the proportion was 1 in 12. The enlargement in 1884, which brought in agricultural labourers, increased the proportion to 1 in 7.

Under the system which has now come to an end there were seven franchises carrying with them certain rights of plural voting. Under the new Act there are only three qualifications. The first, and numerically the most important, is the residential vote; the second, the business vote, and the third, the university vote. In future a man may not vote at a general election for more than one constituency for which he is registered by virtue of a residence qualification, or for more than one constituency for which he is registered by virtue of other qualifications of whatever kind. If he has other qualifications in addition to the residential, he must choose between his business qualification and his university right; he has also a right of preference to exercise a livery vote.

Leaving out of consideration for the moment men in the fighting forces, the qualification of men for voting is defined as 21 years of age and six months' residence or occupation of business premises. The university qualification is the attainment within the above age limit of a definite standard which in England and Wales is the taking of an ordinary degree. The election in a university will be the method of the proportional vote.

For parliamentary purposes a woman, married or unmarried, who for six months has been a householder or tenant of unfurnished rooms or the occupier of land or business premises of £5 annual value, has a vote if she has reached the age of 30 years. A woman also has a vote for local government purposes on the same qualification as a man—on attaining the age of 21. A married woman of not less than 30 years of age has a vote for parliamentary and local government elections where her husband is the tenant and he is entitled to vote as a local government elector. If a woman is 30 years of age and a partner in a business, she gets a vote if the annual value of the business premises occupied is sufficient to allow £5 for each partner. A woman may have a parliamentary vote for a university if she is 30 years of age, and either would be entitled to be so registered if she were a man, or has passed the requisite examinations and observed the conditions as to residence at the university. If a woman has one parliamentary vote in respect of her husband's qualification and another in connexion with her own business premises, she may not vote at a general election more than once, unless she has a university qualification, in which case she may exercise a second vote.

The period of qualification for the vote, both for men and women, has been reduced from twelve months to six. One period ends on January 15th and the other on July 15th; qualification is made easier by certain special provisions as to removals. The arrangements afford facilities for successive occupation, but puts difficulties in the way of the manufacture of the fagot voter.

The age qualification for naval and military voters has been fixed at 19 years. These war-service voters are to be registered for the constituencies for which they would have been qualified (with the concession as to age) but for their service. The provision applies also to merchant seamen, pilots, and fishermen, and persons engaged on Red Cross work, or other work of national importance abroad or afloat.

Two disqualifications have been made. Conscientious objectors to military service are disqualified during the war and for five years afterwards unless they satisfy the central tribunal that they have fulfilled certain conditions

such as employment in work of national importance. Aliens are cut out, the right of voting being limited to British subjects. The receipt of poor relief will not be a disqualification; residence in a workhouse does not give the qualification, but a limited stay in a workhouse owing to temporary exigencies does not constitute a barrier to voting qualifications.

The system of registration has been entirely changed. Two lists are to be prepared every year—in the spring and in the autumn. The cost of registration expenses will fall in half shares on the local rates and on the Treasury.

Nomination day is to be the same in all constituencies and all pollings are to take place on one day. Separate lists of the war-service voters are to be prepared. Ballot papers are to be sent to absent voters to be marked by them and returned with a declaration of identity, and to meet their case an Order in Council may be made to delay the counting of votes at any election for a period not exceeding eight days after the close of the poll.

The provisions of the Act, which have the effect of very largely reducing election expenses, involve a change which may prove to be of considerable importance to the medical profession. First, to lessen the danger of vexatious contests, each candidate is required to deposit £150, to be forfeited if the number of votes polled by him does not exceed one-eighth of the total number polled. The returning officer's expenses are to be paid by the Treasury. The maximum scale of election expenses has been fixed at 7d. for each elector in a county constituency and 5d. in a borough, but a candidate may, in addition, pay his agent a fee of £70 in a county division and £50 in a borough. It is impossible to make any close estimate of the cost of parliamentary elections in future, for under the redistribution scheme the size of constituencies still varies. The aim, however, was to take 70,000 inhabitants as a general unit of population for each constituency. The reduction in the cost as compared with the past will be great. Under the old system candidates had to bear a proportionate share of the official election expenses. The security that had to be deposited with a returning officer was in the case of a county or a district on a scale beginning at £150 where the registered electors did not exceed 1,000 and rising to £1,000 where the electorate approached a total of 30,000 voters. In the case of boroughs the deposit was £100 where the registered electors did not exceed 1,000 and £700 where the total approached 30,000. The candidate's personal expenses allowed for Great Britain were for a single candidate in a county division where the electorate did not exceed 2,000 voters, £650; where the electorate did not exceed 14,999 voters, £1,430, the intermediate figures being roughly according to a scale. For parliamentary boroughs the figures were for a single candidate where the electorate did not exceed 2,000 voters, £350; where the electorate did not exceed 14,999 voters, £740. The figures for joint candidates where the electorate did not exceed 2,000 voters was £525; where the electorate did not exceed 14,999 voters, £710. The Act contains a prohibition against outside associations flooding constituencies with oratory and literature. On the other hand, candidates are assisted because they are allowed free postal communications to the amount of not more than 2 oz. to each elector.

The qualifications and conditions as to local government elections remain very much the same as heretofore. There is a relaxation as to length of residence in respect of a candidate for local offices, but very few other alterations have been made. Some modifications were needed both as regards Scotland and Ireland. Scotland preferred to retain its existing local government franchise, which was rather wider than that for England and Wales, but as the women's vote was so closely concerned with local government, the latter had to be modified in Scotland for the purpose of creating women voters.

The redistribution scheme adds 37 members to the House of Commons provided that there is no diminution or withdrawal of Irish representation from Westminster in the interval. London boroughs gain three members, other boroughs 33, and the universities six; the counties lose five members. Of the 37, England receives 31, Wales 2, Scotland 2, and Ireland 2. The total membership of the House of Commons is thus brought up to 707.

THE late Dr. Edward Bard of Shrewsbury left estate of the gross value of £120,286.

OF the fifteen successful candidates at the recent examination for sanitary inspectors held by the Sanitary Inspectors' Examination Board thirteen received their instruction at the National Health Society and two at the Royal Sanitary Institute.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Drowned.

LIEUTENANT K. H. BHAT, I.M.S.(T.C.).

Lieutenant Kalyanpur Harihar Bhat, I.M.S., was reported, in the casualty list published on February 6th, as "missing, believed drowned." He was educated at Madras University and at Charing Cross Hospital, took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1916, and joined the I.M.S. as a temporary lieutenant on March 11th, 1916.

LIEUTENANT C. C. W. MAYS, R.A.M.C.(T.C.).

Lieutenant Charles Cecil William Mays, R.A.M.C., was reported as "missing, believed drowned," in the casualty list published on February 9th. He was educated at Sheffield Medical School, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1900. After filling the posts of resident assistant medical officer of Woolwich Infirmary and of resident medical officer of Ecclesall Union Infirmary, Sheffield, he went into practice at Comynside, Sheffield. He had only recently joined the R.A.M.C. as a temporary lieutenant.

It has been announced that the transports *Aragon* and *Osmanieh* were torpedoed and sunk in the Mediterranean, the former on December 30th, with the loss of 610 lives, the latter on December 31st, with the loss of 199 lives. Eight nurses were reported as lost in the *Aragon*.

Died of Wounds.

CAPTAIN T. F. CRAIG, R.A.M.C.

Captain Thomas Forrest Craig, R.A.M.C., died of wounds received in action, on board a hospital ship, on February 2nd. He was the second son of the late Rev. A. M. Craig, of Kelso, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1910; afterwards he served as house-surgeon of the Whitehaven and West Cumberland Infirmary. He had taken a temporary commission in the R.A.M.C. a little over a year ago.

Died on Service.

Captain J. K. Palling, C.A.M.C.

Prisoner of War.

Captain H. J. Davidson, M.C., R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Bigger, John A. W., Second Lieutenant East Surrey Regiment, third son of Dr. W. G. Bigger of Streatham, reported missing May 8th, 1917, now presumed killed on that date, aged 24.

Cronyn, William Benn, Captain Army Veterinary Corps, third son of the late Dr. John Cronyn of Dublin, died of influenza and meningitis at Marseilles on February 1st. He was educated at Foyle College, Derry, took the M.R.C.V.S. in 1887, and joined the A.V.C. early in the war.

Fenner, Athelstan Lennox, Lieutenant-Commander R.N., only surviving son of Dr. Robert Fenner of Manchester Square, London, died on service, January 31st. He joined H.M.S. *Britannia* in 1903, and reached his present rank on January 30th, 1915. He went from Portsmouth to Hong Kong in command of submarine C 37, which, with C 36 and C 38, made what was then a record voyage. During the war he had served chiefly in submarines, and had received the Order of St. Stanislaus. His younger brother, Lieutenant Cyril Fenner, Scots Guards, was killed in the battle of the Somme in September, 1916.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, issued on February 7th, contained a list of awards and promotions for services in connexion with the operations in Mesopotamia. The following medical officers are included in the list:

To be C.M.G.

Colonel (temporary Surgeon-General) A. P. Blenkinsop, C.B., A.M.S.

D.S.O.

Lieutenant-Colonel T. B. Kelly, I.M.S.

Majors (temporary Lieutenant-Colonels): R. M. Barron, I.M.S., F. P. Connor, I.M.S.

Majors (acting Lieutenant-Colonels): C. A. Gourlay, I.M.S., J. F. Whelan, R.A.M.C.
Major E. A. Roberts, I.M.S.

Military Cross.

Captains: H. Lal Batra, I.M.S., J. W. Dalglish, R.A.M.O. (S.R.), M. Das, I.M.S., P. K. Gilroy, I.M.S., J. W. Maclean, R.A.M.C.(S.R.).

Temporary Captains: R. C. Begg, R.A.M.C., R. D. Davy, R.A.M.C., R. H. Hodges, R.A.M.C., W. E. Hopkins, R.A.M.C., R. Y. Stones, R.A.M.C.

Lieutenant W. P. Hogg, I.M.S.

To be Brevet Lieutenant-Colonel.

Major (temporary Lieutenant-Colonel) W. H. Hamilton, D.S.O., I.M.S.

Major (acting Lieutenant-Colonel) J. C. H. Leicester, I.M.S.
Major W. H. Leonard, I.M.S.

To be Brevet Major.

Captains G. G. James, I.M.S., J. A. S. Phillips, I.M.S.

The Supplement also contains as amendments the following correct descriptions of officers whose rewards were published in the Supplement to the *London Gazette* dated January 1st, and in our issues of January 5th and 12th, 1918:

Awarded C.M.G.: Colonels Rupert M. Downes, A.A.M.C., Arthur T. White, A.A.M.C.

Awarded D.S.O.: Lieutenant-Colonel Charles E. Wassell, A.A.M.C., Major George W. Miller, R.A.M.C.

Awarded M.C.: Quartermaster and honorary Captain John H. Maunder, R.A.M.C.

COMMENDED FOR SERVICES.

A Supplement to the *London Gazette* issued on February 12th contains a list of officers whose names have been brought to the notice of the Secretary of State for War by the Army Council for very valuable services rendered in connexion with the war up to December 31st, 1917. The following medical officers are included in the list:

Surgeon-Generals: Sir David Bruce, C.B., F.R.S. (ret. pay, late A.M.S.), F. J. Jencken, A.M.S.

Colonel and honorary Surgeon-General M. W. Russell, C.B. (ret. pay, late A.M.S.).

Colonels: K. Cameron, C.A.M.C., W. Coates, C.B., V.D., R.A.M.C.(T.F.R.) (ret.), F. G. Finley, C.A.M.C., J. Griffiths, T.D., R.A.M.C., C. H. Melville, A.M.S., C. P. Oliver, K.H.P., T.D., A.M.S., G. S. Rennie, C.A.M.C., W. A. Scott, C.A.M.C., W. L. Watt, C.A.M.C.

Temporary Colonels: C. A. Ballance, C.B., M.V.O., A.M.S., A. E. Garrod, C.M.G., F.R.S., A.M.S., H. H. Tooth, C.M.G., A.M.S. (Lieut.-Colonel R.A.M.C.T.F.).

Temporary honorary Colonel Sir J. Collie, A.M.S.

Lieut.-Colonel (honorary Surgeon-Colonel, temporary Colonel) W. M. Roodcroft, V.D., R.A.M.C.

Lieut.-Colonels (temporary Colonels): D. M. McWhae, A.A.M.C., K. Smith, A.A.M.C.

Lieut.-Colonels: H. S. Anderson, R.A.M.C., J. Gordon, A.A.M.C., T. Mill, N.Z.M.C., A. de C. Scanlan, R.A.M.C., ret. pay (Reserve of Officers).

Honorary Lieut.-Colonel J. A. Murdoch, A.A.M.C.

Temporary Lieut.-Colonels: A. Balfour, C.M.G., R.A.M.O., J. C. G. Ledingham, R.A.M.C., G. B. Price, R.A.M.C., C. M. Wenyon, R.A.M.C.

Temporary honorary Lieut.-Colonels: G. S. Buchanan, R.A.M.C., H. R. Kenwood, R.A.M.C. (Major R.A.M.C.T.F.), J. Robertson, R.A.M.C.

Major and Brevet Lieut.-Colonel R. M. Carter, I.M.S.

Major (acting Lieut.-Colonel) J. A. Amyot, C.A.M.C.

Major T. W. Griffiths, R.A.M.C.

NOTES.

FAMILY HONOURS.

AMONG the officers who received decorations at the hands of the King at the investiture at Buckingham Palace on February 9th were three sons of the late Sir Thomas Crawford, K.C.B., Director-General of the Army Medical Service from 1882 to 1889. Two of them (Captains T. M. and H. G. Crawford), who received the M.C., both belong to the R.A.M.C.; a third son, Major J. D. Crawford, Indian Army, received this decoration and the D.S.O. also. Sir Thomas Crawford had six sons; of the other three, Lieut.-Colonel D. J. Crawford, R.A.M.C., received the D.S.O. some time ago, and Captain H. M. L. Crawford the M.C. Another brother, Engineer Commander W. R. Crawford, R.N., was mentioned in Jutland dispatches. It is probable that not many families can show such a record, but last week it was announced that the M.C. had been conferred on Temporary Captain E. A. T. Green, R.A.M.C., whose brother, Mr. R. A. Green, Second Lieutenant, Hampshire Regiment, received the same decoration about a year ago. Both are sons of Dr. James Green of Portsmouth, honorary secretary and treasurer of the

Southern Branch of the British Medical Association. We may recall also the distinctions conferred on the two sons of the Bishop of Liverpool, Captain N. G. Chavasse, R.A.M.C., who won the Victoria Cross and posthumously a clasp to the Cross, and his brother, Captain Francis B. Chavasse, R.A.M.C., who received the M.C.

FRENCH WOUNDED FROM THE AISNE.

In a communication made to the last meeting of the Académie de Médecine, Paris, M. Tuffier gave some statistics of the surgical results from the last French offensive on the Aisne. Although the action developed with great rapidity 80 per cent. of the wounded were quickly evacuated. Of the wounds 72 per cent. were produced by shells and 17 per cent. by bullets; 67 per cent. affected the limbs, 16 per cent. the head, and 4 per cent. the abdomen; in the remaining 13 per cent. the wounds were in various other parts of the body or multiple. The general mortality among all cases was 5.18 per cent., but among those wounded in the abdomen it was 61 per cent. The proportion of deaths from gangrene was 3 per 1,000 and from tetanus 0.5 per 1,000. In the majority of the wounded who died death was due to haemorrhage or shock. The system of evacuating and treating the wounded worked very well, so that forty-five days after the beginning of the operations only 1.43 per cent. were still retained in the advanced formations. M. Tuffier attributed this satisfactory result partly to the improved administration already mentioned, partly to the more intimate relations maintained between different surgical units, and partly to immediate disinfection and suture of wounds accompanied by the application of the Carrel-Dakin method.

Dr. Francis D. Boyd, C.M.G., temporary Lieut.-Colonel R.A.M.C., Physician to the Royal Infirmary, Edinburgh, and a member of the staff *à la suite* of the 2nd Scottish Territorial General Hospital, has gone to Egypt on his appointment as Consulting Physician to the British Army there.

England and Wales.

FIVE YEARS OF NATIONAL INSURANCE IN LONDON.

At a meeting of the London Insurance Committee on February 7th a quinquennial report was presented covering the work of the committee from the time it was constituted until the end of 1917. The report was mainly a history of the committee's activities which have been reported from time to time in these columns, but some interesting tables of statistics were added. The number of practitioners in agreement with the committee at the end of 1913 was 1,462, and at the end of 1917, 1,453. The total amount of the practitioners' fund in 1913 was £504,570; it fell each year until 1916, when it was £443,199; the number of units of credit rose in the same period from 1,138,569 to 1,465,342, and the amount paid for unit of credit fell from 8s. 10d. to 6s. The number of panel practitioners on military service at the end of 1917 was 252, and five practitioners had been killed in action or had died on active service. A large section of the report was occupied with an analysis of prescriptions, which was only carried to 1916. In that year the number of prescriptions submitted was 3,682,198 (the lowest on record), and the average value of each prescription was 6.37d. The mean number of insured persons as ascertained from the amounts credited for medical benefit in 1913 was 1,447,994, and fell each year until 1916, when it stood at 1,245,521. On the other hand, the mean number of index slips on the register has not shown the same tendency to fall, and in 1916 was 1,572,153. A central scheme is foreshadowed for clearing the index register and preventing a recurrence of such inflation. The number of questions or complaints raised by insured persons against practitioners during the five years was 446, of which 213 were substantiated. Questions raised by practitioners as to conduct during treatment numbered only 17, of which 9 were substantiated. The number of persons receiving sanatorium benefit varied within wide limits, from 801 in the middle of 1914 to 364 at the end of 1917. The waiting list also fluctuated greatly, from 40 or 50 at the end of 1915 to over 500 in the latter part of last year.

Scotland.

RATIONS IN GLASGOW.

ABOUT a year ago (February 24th, p. 266) we published a report by Miss Margaret J. W. Ferguson comparing the voluntary ration then in force with the ordinary diet of the poorer labouring classes in Glasgow. Miss Ferguson made a further report to the meeting of the Royal Society of Edinburgh on February 4th, giving the results of a further inquiry made in November, 1917, of eight among a number of families previously considered, five of them soldiers' families. They included three men, eight women, and forty-six children. The price of food had not risen since February. Some commodities were cheaper, and the average income had risen 20 per cent. The diet on the average of all families had become more adequate, but this rise was due chiefly to two families whose financial position was markedly better. Excluding them, the average was the same as in February. It appeared that the maximum consumption of bread, about 10 lb. a "man" a week, had been reached. On the present proportion of men, women, and children of the population this corresponded with 7½ lb. a person a week, or a little over 5½ lb. of flour. The cereals other than flour used corresponded approximately to ¾ lb. a person a week. Increased potatoes had not on the average been attended by decreased consumption of bread, and the amount of milk had not decreased. It appears that some 86 per cent. of the energy of food taken was derived from the articles now proposed to be rationed—cereals, meat fats, and sugar. In the food of the class investigated it seemed that unrationed foods could be relied upon to yield only some 14 per cent. of the necessary energy, and it was pointed out that this should be taken into account in framing the compulsory ration.

Ireland.

TREATMENT OF VENEREAL DISEASE.

At the last meeting of the Statistical Society of Ireland Professor McWeeney read a paper on venereal diseases and their treatment. The conspiracy of silence with regard to these diseases had, he said, been brought to an end by the appointment in 1913 of the Royal Commission, which reported in 1916. Its more important recommendations were now being put into execution in Ireland under the direction of the Local Government Board. The task of making the necessary arrangements had been imposed on the county councils. The general hospitals ought to be asked to deal with such cases, both as in-patients and out-patients; and, in view of the enormous loss of infant life, maternity hospitals should arrange for antenatal clinics in connexion with the scheme. Inasmuch as a large percentage of cases of blindness, deafness, mental deficiency, and other congenital defects owed their origin to these maladies, it was to be hoped the institutions specially devoted to such cases might see their way to participate in the advantages offered them under the scheme. The pathological laboratories of existing universities and schools of medicine were to be utilized for the diagnosis of specimens sent in by medical practitioners, and the necessary drugs for the treatment of syphilis would be supplied free. All expenses incurred by the local sanitary authority in carrying out the scheme would be defrayed as to 75 per cent. by the Exchequer, leaving only 25 per cent. to be paid by the local authority. In England and Wales schemes under the order were now in operation, covering areas comprising a population of over 20,000,000, and it was to be hoped that in Ireland the matter would also be actively taken in hand.

VACCINATION OBJECTORS.

The opposition to vaccination appears to be spreading. At recent proceedings at the Enniscorthy Petty Sessions it was stated that there were 8,000 vaccination defaulters in the union. In the six cases brought before them the magistrates imposed a fine of £1, with 10s. costs and 21s. expenses. Their solicitor said the defendants would go to gaol. In the Gorey Union, where the defaulters are said to number 1,482, the guardians have resolved to ignore the Local Government Board's letter.

Correspondence.

NEW DIET RESTRICTIONS.

SIR,—Since the food rationing scheme has been in force in the Chesterfield area I have been requested with increasing frequency to give permits for excess allowance of sugar, fats, meats, and milk. The cases vary from those which might seem to be desirable, such as extra meat for diabetics, to a general requisition for more sugar where no such allowance is at all called for. It is obvious that a very thankless burden is to be placed on the profession unless very strict limits are set to these demands. I am not aware if the profession will have power to grant such requests, but I feel sure it would be a great help if the council, who gave us a lead on the question of white flour, would also issue a memorandum on the limits that should be fixed to granting these further demands for various foodstuffs.—I am, etc.,

Chesterfield, Feb. 9th.

ARTHUR COURT.

*** We understand that representations have been made to the Food Controller with reference to the matter raised in the above letter, and that it is possible that a memorandum may be issued similar to that issued with regard to white bread by the War Bread Medical Subcommittee of the Ministry of Food, and published in the JOURNAL of October 20th, 1917, p. 524.

DIABETES, STARCH, AND SUGAR.

SIR,—Dr. R. T. Williamson draws attention to the part played by the consumption of sugar in the causation of diabetes mellitus. Are we to conclude that abundance of sugar is more likely to induce this disease than abundance of starch? Needless to say, this is a point of practical importance.—I am, etc.,

London, W., Feb. 12th.

HARRY CAMPBELL.

TONSILS AND ADENOIDS.

SIR,—From an extremely large experience as operator and observer Mr. Davis (BRITISH MEDICAL JOURNAL, January 26th, 1918) concludes that "the results of operations in the carefully selected and well-marked cases are excellent." He endorses the general preference of the surgical world for tonsillectomy over tonsillotomy, and he recommends the careful examination and selection of operation cases, and that an attempt should be made to ascertain and eliminate the cause of the condition under observation before the question of operation is finally settled.

The importance of his final recommendation has struck me very forcibly during the last two years in the examination of nearly 10,000 school children. The past records of school-child examination are more or less carefully preserved, but in the case of most children now examined above the "infant" age the records of one or more previous medical examinations are usually available for comparison, and I am surprised to find what a large percentage of children had tonsils enlarged in infancy of which no trace remains, in whom also there is no visible trace or verbal record of any operation having been performed. Hence a large proportion of enlarged tonsils disappear from natural causes—possibly from cessation of embryological function, as in the thymus gland, or from the proportionally smaller labours they are put to, as barriers to infective invasion, when the milk diet of infancy is replaced by other forms of food, and the fragile milk teeth by the more durable second dentition.

What the percentage of "vanished" tonsils may be to those now present matters little, but the fact that a great many do disappear naturally punctuates Mr. Davis's plea for a period of observation and elimination of likely causes before proceeding to operate. Personally, I believe dental examination and treatment, widely carried out, would greatly reduce the volume of tonsillectomies.—I am, etc.,

ARTHUR W. HARE, M.B., F.R.C.S.E.,

Gateshead, Jan. 28th.

Asst. Sch. Med. Offr., Gateshead.

A POSSIBLE RAILWAY DANGER.

SIR,—I should be glad to be allowed to draw attention to a recent railway accident the history of which brings into prominence a matter of interest to the medical profession. It happened in America and the man responsible for it was an engine-driver. Although under medical care, he was well enough to continue at work, but when driving a train he ran it past a series of danger signals and a number of lives were lost in the collision which ensued. It transpired that he had been treated with a medicine the ingredients of which included a soporific, and it was held that this was the direct cause of his failure to observe the signals.

There have been serious railway accidents in this country due to the default of drivers, and the reasons for experienced men failing in the essentials of their duty have remained obscure. They may or may not have been associated with the cause traced in the instance cited, but it will be permissible to suggest that patients among railwaymen concerned in the movement of trains, whether on the engine, in the guard's van, in the signal-box, or on the line of railway, should be warned of the danger involved in taking medicine of a soporific character in circumstances in which its effects might be experienced during a turn of duty.—I am, etc.,

February 4th.

A RAILWAYMAN.

THE PAY OF TERRITORIAL R.A.M.C. OFFICERS.

SIR,—I desire to draw attention to the position of junior officers of the Territorial R.A.M.C. compared with that of officers in other branches of the R.A.M.C.

There is considerable difference between the pay of the Territorial and the temporary commissioned officer. At home the Territorial officer draws £100 a year less than the temporary commissioned officer, and this without regard to seniority. A captain of the R.A.M.C. with seven years' service is entitled to an increase of pay, and it might have been assumed that the Territorial captain who had completed that period of service would have received that small addition to his pay. But no; shortly after the outbreak of war an instruction was issued stating that the seven years' service meant mobilized service. The Territorial officer is entitled to a certain war gratuity which, after a time, is much the same as that given to the temporary commissioned officer. The latter has his pay made up to £500 a year by the addition of a bonus of £60 paid annually, whereas the Territorial captain, whose pay amounts to £282 17s. 6d., has to wait until the end of the war for his war gratuity.

At the beginning of the war, when units were being rapidly formed, many officers were promoted to field rank in order to complete establishments, and this in many instances was done without reference to merit or seniority. Captains in field ambulances and on the staffs of hospitals became majors and lieutenant-colonels, while others who remained with the combatant units to which they had been attached in pre-war days were passed over to France and served in the trenches with them, but the possibility of promotion was denied to them. Thus to-day there are many senior officers in the R.A.M.C. Territorial Force who are still captains, while their contemporaries, and in some cases their juniors, hold much superior ranks.

If a Territorial officer is sent to India the position is infinitely worse. His slightly increased pay scarcely exceeds the sum of his pay and allowances at home, and is much less than in France. He receives no allowances except the trivial "exchange compensation allowance," and this is being reduced by half; he receives no free quarters and no rations, and he is never allowed to go home unless the condition of his health renders him unfit for further service.

The remedies are obvious and simple. So far as pay is concerned the rate should be the same for both Territorial and temporary commissioned officers; or, if the Territorials must be on the same footing as the regulars, they should have the benefit of the slight increase of pay after seven years' commissioned, not mobilized, service; and there ought to be an additional increase to compensate for the pension the regular is earning, and the war gratuity should be paid annually.

A seniority list of all the Territorial officers should be drawn up, as has been recently done in the case of the more

highly paid Royal Engineers, and, other things being equal, strict regard should be had to that list.

An officer might be given an option, when the exigencies of the service permit, of serving in India for a definite period, and while there he should be provided with free quarters and rations, or an adequate allowance in lieu thereof.

The attention of Parliament should be drawn to the gross injustice and the unfair treatment meted out to the officers who had the misfortune to belong to the Territorial R.A.M.C. before August 4th, 1914.—I am, etc.,

Edinburgh, Feb. 7th.

J. W. L. SPENCE.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on February 9th the following medical degrees were conferred:

M.D. - H. J. Gauvain, G. L. Keynes.

UNIVERSITY OF LONDON.

At a meeting of the Senate on January 23rd a committee was appointed to inquire into the question of the admission of Dominions' soldier and sailor scholars medically unfit for further service to the university as internal students.

Regulations were adopted, to be in force during the war, by which external students passing the first examination for medical degrees Part I in December may be admitted to the second examination in the following March.

Studentships.—Candidates for the Lindley Studentship and the University Studentship in physiology, value £100 and £50 respectively, to undertake research in physiology, must send their applications to the Academic Registrar, from whom full particulars can be obtained, by April 30th and May 31st respectively.

PARLIAMENTARY REPRESENTATION OF UNIVERSITIES.

UNDER the new Reform Act the representation of universities has been increased by 6. The number of members now allotted is: Oxford, 2; Cambridge, 2; London, 1; Wales, 1; Durham, Manchester, Liverpool, Leeds, Sheffield, Birmingham and Bristol, 2; Aberdeen, Edinburgh, St. Andrews and Glasgow (together), 3. The principle of proportional representation is introduced for universities represented by two or more members. The Irish University representation, like the other representation of Ireland, remains unaltered.

The Services.

THE AUXILIARY R.A.M.C. FUNDS.

Officers' Benevolent Branch.

WE have received a letter from Major A. C. Farquharson, R.A.M.C.(T.F.), a member of the Committee of the Auxiliary R.A.M.C. Funds, but as it is not quite self-explanatory we propose, with his sanction, to explain the situation to which he wishes to call attention.

In the first place it is to be remembered that there are two funds managed by the same committee—the one for the benefit of officers, the other for that of non-commissioned officers and men. The remarks we have to make refer only to the fund for officers (the Officers' Benevolent Branch), which is for the benefit of the Special Reserve, Territorials, and those holding temporary commissions in the R.A.M.C. The funds were established at a meeting, under the chairmanship of Sir Alfred Keogh, on June 26th, 1916. A scheme was submitted to this meeting, which has since been modified in certain respects, the most important being that the original limitation to orphans has been altered so as to allow assistance to be given to the children of officers totally disabled. The rule that orphans of officers who are non-subscribers to the fund shall have no claim on its benefits appears to be maintained and would, we assume, apply to the children of disabled officers.

An account of the work of the Officers' Branch Fund down to the end of 1917, furnished to us by the honorary secretary, was published in the JOURNAL of January 12th, p. 71. The first annual general meeting was held on October 26th, 1917, but we were unable to give a report of the proceedings at the time as reporters were not admitted. We learn that the accounts made up to September 30th, 1917, showed that a sum of a little over £4,000 had been received in subscriptions and donations, and that of

this sum £3,800 has been invested in new War Loan at 5 per cent. As already reported, the annual meeting approved grants amounting to £160 to the orphans of four officers with temporary commissions and two officers in the R.A.M.C.(Territorial). We find that at this meeting Major W. T. F. Davies, D.S.O., M.D., urged that an appeal should be made to the profession throughout the United Kingdom, a suggestion which we had ventured to put forward on June 24th, 1916, when the Fund was about to be formed. We gather that at the annual general meeting Major E. H. T. Nash (T.C.) also expressed the view that an appeal should be made to others not serving in the Auxiliary Branches of the Corps. In speaking on this point, Major Farquharson said that his own experience of an effort in this direction at Christmas, 1916, had not been encouraging; he had sent out a large number of letters but had only received £6 from civilian practitioners engaged in part-time duties in the Northern Command and not connected with hospitals. The note of his speech in the report of the first annual general meeting issued by the Funds has given the erroneous impression that this was the whole result of his appeal. The response from officers was good; he received in donations and subscriptions some hundreds of pounds, and the late secretary of the Fund acknowledged that if all the other Commands had done (at that time) half as well as the Northern Command the success of the Fund would have been assured. "The R.A.M.C. did splendidly, the civilian practitioners did not." Major Farquharson goes on to deprecate optimistic and fanciful estimates of the amount of donations that will be expected.

The sum received in donations down to September 30th, 1917, appears to have been £2,548, and we gather that nearly the whole of this has been in gifts from officers holding commissions in the Auxiliary Branches R.A.M.C. The number of subscribers in 1916 (six months) was 503; at the end of 1917 it had been increased to over 1,200.

EXCHANGES.

Medical Officer in charge of a cavalry unit in France desires exchange with medical officer serving in England.—Address, No. 593, BRITISH MEDICAL JOURNAL Office, No. 429, Strand, W.C.2.

Medical Officer in charge of a motor transport unit in France desires exchange with medical officer serving in England.—Address, No. 600, BRITISH MEDICAL JOURNAL Office, No. 429, Strand, W.C.2.

Obituary.

By the death of Dr. THOMAS LAFFAN, Cashel, co. Tipperary, which occurred in his 76th year, an able and many-sided personality has been lost to the profession in Ireland. A son of the late Mr. D. Laffan, solicitor, Dr. Laffan was a well known politician, philanthropist, and controversialist. He was formerly demonstrator in anatomy in the Catholic University, Dublin. Old students will recall the strenuous and successful fight he made for the conferring of degrees (*ad eundem*) on graduates of the old Catholic University by the Senate of the National University, he himself being one of the first recipients. He contributed many articles to the French and English medical press, and was the author of an essay on the grievances of Poor Law medical officers. He was a past president of the South-Eastern (Ireland) Branch of the British Medical Association, and for several years acted as its representative at the Annual Representative Meeting, where he frequently enlightened and amused, by his contributions to debate, his British colleagues. He was surgeon to the Cashel Infirmary, and enjoyed a lucrative practice. He was a member of the Cashel Urban Council. As a speaker and writer of independent thought on Irish National affairs he was also widely known.

WE regret to record the death, on February 7th, of Mr. W. H. JALLAND, of York, after a long illness. He was born at Nottingham, and received his medical education at Guy's Hospital, taking the diplomas of M.R.C.S. in 1870, L.R.C.P. in 1871, and F.R.C.S. Eng. in 1873. After holding the offices of house-surgeon and resident obstetric officer at Guy's Hospital, Mr. Jalland joined Mr. W. D. Husband, of York, who was a very active member of the British Medical Association. Mr. Jalland became a member of the Association, and retained his membership throughout the whole of his professional career. He was president of the Yorkshire

Branch in 1894, and vice-president of the Section of Surgery at the annual meeting at Sheffield in 1908. He was for over thirty-four years surgeon to the York County Hospital, and for some years a member of the house committee. On his retirement in 1914 from the office of surgeon the committee elected him consulting surgeon, and recorded its appreciation of the value of his professional work for the hospital, and the indefatigable energy he showed in assisting it financially, both by his own gifts and by his influence with others. He was surgeon to the 1st Volunteer Battalion West Yorkshire Regiment (York Rifles) for over seventeen years, and retired with the rank of surgeon-major. He was much interested in ambulance work, was president of the York centre and a Knight of Grace of the Order of St. John of Jerusalem. Since the war began he had given much time to the military hospital in Haxby Road, of which he was surgeon. Mr. Jalland was a J.P. for the North Riding of Yorkshire, and deputy lieutenant for the West Riding; he was sheriff of York in 1896. He is survived by his widow, a daughter, and a son; another son, a lieutenant in the East Yorkshire Regiment, was reported missing and subsequently presumed killed after the Suvla Bay landing.

SURGEON-GENERAL SIR ADAM SCOTT REID, K.C.B., Indian Medical Service (retired), died of pneumonia in a nursing home in London on February 2nd, aged 69. He was born on April 4th, 1848, educated at Edinburgh University, where he graduated M.B. and C.M. in 1869, and entered the I.M.S. as assistant surgeon on March 31st, 1872. He became surgeon on July 1st, 1873; surgeon-major on March 31st, 1884; surgeon-lieut.-colonel on March 31st, 1892; brigade-surgeon-lieut.-colonel on June 9th, 1897; full colonel on May 19th, 1899; and surgeon-general on June 16th, 1902; and retired on March 25th, 1907. He served in Afghanistan in 1879-80 (medal); in the Chin-Lushai campaign on the North-East Frontier of India in 1889-90, with the Burma column (medal and clasp); and in the North-West Frontier campaign of 1897-98, when he took part in the relief and defence of the Malakund, in the relief of Chakdara, and in the operations in Bajaur and in the Momund country, was mentioned in dispatches, and received the medal with two clasps. On his promotion to the administrative grade he was posted as administrative medical officer and sanitary commissioner of the Central Provinces, and during his tenure of that office initiated and presided over a conference on malaria at Nagpur in 1901. In February, 1902, he was appointed inspector-general of civil hospitals in the Punjab, and on June 16th, 1902, surgeon-general of the Punjab Command, holding that post till his retirement. Except for the three years May, 1899, to June, 1902, during which he held civil administrative appointments, his whole service was spent in military employ. He was granted a good service pension on December 2nd, 1901, was made a C.B. on June 26th, 1903, and promoted to K.C.B. on June 23rd, 1911.

THE death occurred at Catcliff, Bakewell, Derbyshire, on January 15th, of Dr. PHILIP SHELTON FENTEM. He was the son of the late Thomas Fentem, F.R.C.S.Eng., and was born at Eyam on November 8th, 1841. After being apprenticed to his father he proceeded to Edinburgh. He took the diploma of M.R.C.S.Eng. in 1863, and the degree of M.D.Edin. in 1865. He settled in Bakewell in 1865. He was the first M.O.H. for the Urban District of Baslow and for the Northern Division of the Bakewell Rural District, and afterwards was appointed M.O.H. for the whole district. He retired from the post of district medical officer and public vaccinator for Bakewell District in 1916, having held these offices for forty-seven years. He was actively interested in ambulance work, and was an honorary life member of the St. John Ambulance Association. He took an active share in local affairs as churchwarden, member of the Local Board, and one of the original Governors of Lady Manners School, Bakewell. Dr. Fentem belonged to the best type of general practitioner. His quiet courage enabled him to meet the difficulties of rural practice, but he was perhaps at his best as an obstetrician. Sir James Young Simpson advised him to remain in Edinburgh and specialize in that work, but the charm of a country life called him. He made a fine collection of old oak furniture,

and on that subject was an authority. Though of a retiring disposition, all knew that behind his reserve was a kind and generous heart, and many sought his advice in their troubles, not as a medical practitioner only, but as a true friend. He was for many years a member of the British Medical Association, which his father had joined soon after its inception. He married the daughter of Mr. Robert Mackay, of Fountain House, Loanhead. She died in 1909. He leaves one son, with whom he has been in partnership many years, and two daughters, to mourn his loss.

Medical News.

DR. E. RYAN, J.P. (Crumlin), has been elected a member of the Monmouthshire County Council.

DR. S. RIDEAL, public analyst for Chelsea, has been elected president of the Society of Public Analysts.

At a meeting of the medical profession in Guildford, held on December 29th, 1917, it was unanimously decided that it was necessary that the fees for medical attendance in Guildford and district must be raised.

A QUARTERLY meeting of the Medico-Psychological Association of Great Britain and Ireland will be held at the Maudsley Hospital, Denmark Hill, London, S.E., on Thursday next, at 2.30, when Lieut.-Colonel F. W. Mott, M.D., F.R.S., will read a paper on war psychoses and psychoneuroses, and demonstrate the microscopic changes in the brains of fatal cases of shell shock and gas poisoning. It is hoped also that Professor Marinesco of Bucharest will give a microscopic demonstration.

INFANTILE beriberi due to breast-feeding by mothers with the disease in a latent or declared form has been recognized in two forms: (a) the chronic aphonic lasting for several weeks, with a hoarse voice and a dilated and hypertrophied right heart, and (b) the acute pernicious cardialgic, lasting from several hours to two days, and characterized by intense and incessant crying. In addition, J. Albert (*Philippine Journ. Sc.*, 1917, vol. xii, p. 166) briefly describes the pseudo-meningitic form in infants of five to six months, or somewhat older than the ordinary cases. Ptosis giving the infants an idiotic expression is a prominent feature; drowsiness, retraction of the head, and upward rotation of the eyes also occur. The right side of the heart is shown by x rays to be enlarged. In two out of the three cases there was a history of previous aphonia, thus suggesting that the meningeal symptoms were due to a second attack of beriberi. The cases were rapidly cured by the extract of tiqui-tiqui, which is a specific for infantile beriberi.

THE report presented and adopted at the annual meeting of the Scottish Poor Law Medical Officers' Association early this month stated that it had not been necessary to warn any applicant against accepting an appointment because the information supplied by the secretary, Dr. W. L. Muir, 1, Seton Terrace, Glasgow, as to the area, population, difficulties of locomotion, etc., had been sufficient to deter applicants. The claim made upon the Highlands and Islands Medical Service Board was for a guarantee of a dwelling-house, rent and taxes free, expenses of a professional nature, and a free income of not less than £300 a year. It was thought that it would be well that the medical officers should formulate their grievances and appoint a deputation to interview the Board. The position created by the action of some parish councils in adding the whole of the old age pensioners to the list of medical officers was under consideration. A suggestion had been made that a capitation grant of nine shillings for medical attendance and medicine should be paid by the parish council for each old-age pension case.

THE current number of the *Nordiskt Medicinst Arkiv* (Bd. 50, Heft 3-4) presents a remarkable feature in the number of papers which are written in the English language. It has been a rare occurrence hitherto to note a single paper in English. Of eleven papers, nine now appear in English and two in German. The *Nordiskt Arkiv* has always maintained a high standard for the contributions it accepted, and this somewhat new departure will tend to make it more generally read and appreciated among the English-reading races, and more specially among the surgeons of the British empire and America. The current number contains articles upon the surgical treatment of the reflex dyspepsia associated with chronic constipation, the examination of gall stones by x rays, the prognosis of otogenic sinus phlebitis, septic lung diseases in connexion with clearing out of teeth, on sliding hernia,

appendicitis and the functions of the gall bladder. This delicate expression of cordiality in the Scandinavian countries towards the English language may, perhaps, be taken as the expression of sympathy and encouragement in our fight for what is right and true and free.

HERMANN KÜTTNER (*Muench. med. Woch.*, August 14th, 1917), consulting surgeon in the German navy, has drawn attention to the fact that the explosive action of projectiles in the body is not confined to the rifle bullet. This effect of the rifle bullet had, he says, in recent wars been the cause of numerous mistakes and false accusations, but omits to confess that the Germans floundered heavily into this pitfall early in the present war. Küttner recognized that fragments of shells and bombs may inflict a single wound of entry and numerous wounds of exit. He has seen a whole series of such cases, and he believes that they are not rare. He has seen not only single wounds of entry and multiple wounds of exit inflicted by shell fragments, but with the x rays has demonstrated the presence of many fragments of shell in the body, though there was only one wound of entry. He reproduces photographs of two metal boxes for holding a gas mask outfit which had been struck by fragments from aerial bomb. Both boxes show a single hole of entry, while on the opposite side there were many large and small holes of exit. An analysis of the splinters from the bombs revealed no intrinsic explosive qualities, only nickel molybdenic steel.

FROM several thousand examinations during the last three years J. A. Johnson (*Phillipine Journ. Sc.*, 1917, xii, Sect. B., 115) has been led by its varying morphological appearances to classify *B. leprae* into four groups: (1) The classical, common in comparatively recent macular and nodular lesions, and occasionally seen in old lesions becoming active again. (2) Fragmentary (degenerative) with (a) coarse, (b) fine granules; the granules are probably evidence of degeneration, as the fragmentary form is rare in active lesions and common in old inactive lesions, and in patients treated with chaulmoogra oil. (3) Solid form, (a) long, (b) short, is rare, and is found in the ulcer on the septum nasi, and at the margin of chronic ulcers. (4) Nocardial or streptothrichial, non-acid-fast, the parent form of the others. Stricker and others have insisted on the diagnostic value in doubtful, especially anaesthetic, cases of *B. leprae* in the nasal mucus. Johnson found them in the nasal mucus of 12.9 per cent. of known anaesthetic lepers, that is, the cases in which their presence is likely to be of diagnostic value, and in 52 and 43 per cent. of known nodular and mixed lepers. He concludes that nothing is gained by examination of the nasal mucus in the presence of definite clinical evidence of leprosy, and that in the absence of clinical signs, acid-fast bacilli in the nasal mucus should not be regarded as prima facie evidence of leprosy. He attaches much importance to the examination of the blood during febrile paroxysms in doubtful cases.

THE report of the Government Veterinary Bacteriologist, Southern Rhodesia, for the year 1916-17, compiled by Mr. Bevan, M.R.C.V.S., the Government bacteriologist, states that over 2,500 smears and specimens from the field and almost as many from animals under experiment at the laboratory were examined. Of the former, 120 showed the parasites of African coast fever, 125 the parasites of other diseases, and 33 specimens of serum the presence of the virus of contagious abortion in cattle. It is stated that the more general application of the principle of "short-interval dipping" has to a large extent reduced the losses due to plasmoses of cattle. In practice there would appear to be three stages in the development of a herd: (1) The pioneer stage, when imported animals cannot be used for the improvement of the nucleus of native cattle unless inoculated, and when a heavy mortality of young stock must be expected from redwater and other diseases. (2) A second stage, when by systematic dipping the veld becomes tick-free and imported stock can be introduced with impunity, and the young progeny grow up and thrive free from disease. (3) A third stage, when animals bred upon such areas being susceptible to tick-borne diseases cannot be exposed to tick-infected veld, so that the market for them becomes restricted. Until, therefore, the practice of systematic dipping becomes universal, there are certain disadvantages associated with this method. There still exists the necessity of a satisfactory method of inoculation for the protection of imported bulls exposed upon infected veld, and efforts have been made during the last ten years to discover a means of conveying immunity. An epidemic amongst pigs was found to be due to a trypanosome of the *T. pecorum* group. The administration of antimony oxide had no apparent influence upon the course of the disease.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology*, Westrand, London; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES AND ANSWERS.

ULSTER MEMBER.—A M.P.S.I. cannot permit an unqualified assistant to dispense medicine except under the proper supervision of a fully qualified chemist. We would advise our correspondent, if his chemist should persist in ignoring his representations in this matter, to communicate with the Pharmaceutical Society (Ireland), 67, Lower Mount Street, Dublin.

INCOME TAX.

"LOCUM" inquires as to the proper method of assessment of fees received while acting for a local authority on terms of weekly notice; and as to the position of the tax officials who are sending communications through a friend's address, given by our correspondent to them some time ago.

. All salaries, fees, wages, etc., paid by local authorities are assessable under Schedule E on the basis of the current year's receipts; at the same time, if our correspondent has been acting temporarily at various places during this financial year and in the three previous years, the authorities would, we believe, deal with the whole matter on a three years' average. In the circumstances we do not see what right the assessor for the town in which our correspondent's friend resides has to demand his present address, but we suggest that, having used that address, our correspondent has probably brought himself on to the assessor's list—in fact though not in law—and that the assessor's inquiry is directed towards obtaining a more recent address to which the matter might be transferred; if so, the satisfaction of the request would seem desirable from all points of view.

B. G. R. C. is employed by the Ministry of Munitions at a Government factory hospital. He inquires whether he is taxable at the civilian rate or at the "reduced rate chargeable on Government pay."

. Our correspondent has in mind the special rate applicable to army and navy pay, to which he is not entitled. There is no difference between the ordinary civil rates of tax and the rates chargeable on Government salaries and fees other than army and navy pay.

LETTERS, NOTES, ETC.

HABIT AND CRAVING.

DR. ARTHUR KING (Wareham) writes: In your leading article on veronal (February 9th) there is a small point which is less hair-splitting and more practical than at first appears. Sir James Mackenzie, I take it, in effect says there is no such thing as a veronal habit because there is not the same craving as with morphine and the bromides, which produce their own peculiar, attractive, dreamy quiet, and that veronal is a means only to an end, while morphine has its thralldom in its means—that without craving there is no habit. Observation in not a few instances has suggested that craving and habit can be things apart, and that habit often persists after longing has died. The original act may be, no doubt, the result of desire, but every act tends to repeat itself, and, if not unduly complex, is performed automatically. "The cause of drunkenness is drink" is a statement of bald fact. If repeated vicious acts have not craving as a mainspring, the patient's cure should be almost simple, but to burke or scotch desire involves a more difficult problem.

IMPETIGO COMPLICATING SCABIES.

DR. FRANCIS CHILD (Princess Christian Military Hospital, Englefield Green) sends a letter which confirms the observations made by Major Henry MacCormac, R.A.M.C., in a paper published in the JOURNAL of February 2nd (p. 144), to the effect that many men who arrive from France with a diagnosis "impetigo" or "I.C.T." are in reality suffering from scabies, the lesions occurring frequently in parts of the body not usually associated with itch. In such cases patients who have been under treatment for impetigo for weeks will generally heal rapidly without recurrence, under treatment by sulphur instead of mercurial ointment.

ILL-TREATMENT OF PRISONERS IN GERMANY.

MRS. SONIA E. HOWE (St. Luke's Vicarage, Finchley, N.3) asks us to state that Dr. Basilevitch, one of the 110 Russian doctors who have returned from captivity, desires to be put into touch with British colleagues who, like himself, have witnessed German ill-treatment of prisoners. As no British bishop or Russian Red Cross sisters are allowed to visit the camps in which the greatest horrors are perpetrated medical men alone are in a position to give authenticated proofs of the accusations. Dr. Basilevitch has written a book of evidence collected by himself and his colleagues, which will be translated into English. Any British medical man who has been in enemy captivity is asked to communicate with Mrs. Howe.

THIRST AT SEA.

MR. MORLEY ROBERTS writes: In 1910 the idea occurred to me that death at sea from thirst when there was no fresh water could at any rate be postponed, and possibly altogether avoided, by rectal injections of pure sea-water. I founded the view on the fact that when sea-water is actually drunk it sets up reverse peristalsis, locks up the pylorus in a tonic spasm such as occurs in acute abdominal cases, and hence is not absorbed; while hypotonic and isotonic injections, though unpleasant to drink and likely to cause vomiting, serve every purpose in subduing thirst. Thirst is in practice thus avoided when malignant disease or obstruction of the oesophagus prevents deglutition. I considered that the saline not needed by the blood plasma would be excreted by the kidneys, and that the heavy work thrown on them for short periods would be unlikely to damage them. I communicated these opinions to many medical men, and even to one medical paper—not the BRITISH MEDICAL JOURNAL—in 1911, but was unable to get them published without some proof. One well-known physiologist who thought them rather interesting suggested I should try the experiment on myself. This I did not do, for reasons with which I need not trouble you. I am, however, now in a position to quote evidence that my theoretical views were sound, and Mr. R. Graham, for whose bona fides many well-known men will vouch, has kindly permitted me to adduce it. The following are the facts:

While returning to England from the United States in 1916 he undertook a fast, and while fasting injected daily two gallons of pure sea-water. During the first five days he did not take anything whatever to drink, although on the fourth and fifth day he washed his mouth out with ordinary water. He did not feel in the least thirsty till the sixth day, when he took half a tumbler of water. Such thirst as he experienced was, however, very slight. On the seventh day he drank one and a half glasses of water, although he felt he could have gone without had he chosen to do so. During this period his pulse was normal, his general condition good, his strength well maintained, and though the injections resulted in the usual evacuation, there was no tendency to diarrhoea or any other disturbance. On the eighth day he resumed his normal life. I think there can be no doubt that these facts are highly important. Even this last year, owing to the U boat campaign, English seamen have died of thirst. With a Higginson syringe as part of a boat's normal equipment, I submit that such disasters could be avoided or, at the very least, postponed, thus affording castaways a better chance of being picked up.

THE same post brought us a letter from Lieut.-Colonel Geo. WHEBBY, M.C., F.R.C.S., R.A.M.C.(T.), suggesting that "the injection of sea-water into the lower bowel, if slowly done, would give some relief and prolong life in such cases. We use saline injections in our hospital wards with great advantage and the apparatus needed is of a simple kind:—a glass syringe or a rubber tube to be used as a siphon; the nozzle and bowl of a tobacco pipe in emergency might answer. As I cannot gather from any navigator that the plan has ever been tried, I make the suggestion as above for the slow injection of sea-water as an enema for absorption."

TREATMENT OF VINCENT'S ANGINA.

DR. CASSIO DE REZENDE (Guaratatinga, S. Paulo, Brazil) writes to express his agreement with Dr. Scargill as to the good effects of the application of ordinary tincture of iodine in Vincent's angina. Of late the following course of treatment has seemed to me to be still more efficient: (a) Three or four times a day to gargle with a solution of hydrogen peroxide; (b) after every gargle to apply to the diseased spots a mixture of quinine hydrochloride with an aqueous solution of methylene blue (3 or 5 per cent.). He has followed the same line of treatment in pyorrhoea alveolaris.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

The following subscriptions to the Fund have been received during the week ending February 11th:

	£	s.	d.		£	s.	d.
Dr. Norman Walker	5	5	0	Dr. Herbert Menzies	2	2	0
Sir Alfred Pearce Gould				Miss Marjorie Monk-			
(£5 for advertising, £5				house	5	0	0
for relief)	10	0	0	Dr. Cameron Kidd	2	2	0
Dr. Alfred Cox	1	0	0	Dr. Hale White	5	5	0
Dr. W. Black Jones	1	0	0	Mrs. Duopbie	5	0	0
Mr. J. E. H. Watson	1	1	0	Dr. Hyla Greves	3	3	0
Per Sir Rickman J.				Dr. A. Hill Joseph	2	2	0
Godlee	2	0	0	Dr. H. B. Williams	2	2	0
Dr. David Rice	3	0	0	Dr. Unthoff	5	5	0
Dr. J. T. Rogers	2	2	0	Captain F. W. Jones,			
Dr. Chas. J. Lathbury	2	2	0	R.A.M.C.	1	1	0
Dr. T. W. Robbins	1	1	0	Dr. Herbert Lucas	1	1	0
Mr. Charles Ryall	26	5	0				

The Executive Committee, at its meeting on February 7th, resolved to issue a circular letter to medical men and pharmacists making an urgent appeal for subscriptions to the Fund. The allocation by Sir Alfred Pearce Gould of part of his subscription towards the necessary expenditure on this circular draws timely attention to the fact that its cost must be considerable.

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

ON NATIONAL RATIONING.

IN a letter dated February 6th, 1918, Dr. John L. Spiers of Gateshead writes: "I take most emphatic exception to the statement in your leaderette on rationing in this week's BRITISH MEDICAL JOURNAL asserting that the butchers' wealthier customers consume proportionally more meat than the working classes. From careful observations I am prepared to assert that the case is almost exactly the opposite."

* * The increased proportional consumption of meat with rising income and social position is shown in all collections of data yet published (for instance, in Mr. Rowntree's York families, the weekly "man" consumption was 2 lb. 4 oz. in poor families and 4 lb. 5 oz. in servant-keeping families). As we have repeatedly pointed out, the consumption of meat by the hand-working classes increased last year, but, for obvious economic reasons, the general proposition is, we think, still valid. Indeed we have never before seen it challenged.

DETERMINATION OF SEX.

DR. T. S. SHELTON (Chester) writes: The following, which is a footnote in vol. i of Lecky's *History of Rationalism in Europe*, may be interesting to some of your readers: "Melancthon deals, in a tone of the most absolute assurance, with the great question of the cause of the difference of sex: 'Mares nascuntur magis in dextrâ parte matricis, et a semine quod magis a dextro testiculo oritur. Fœmellæ in sinistrâ matricis parte nascuntur.' (Melancthon, *De Animâ*, p. 420.) This theory originated, I believe, with Aristotle, and was afterwards repeated by numerous writers."

THE STERILIZING OF HYPODERMIC SYRINGES.

DR. F. E. TAYLOR (London) writes: Dr. Lyon Smith's method of sterilizing hypodermic syringes (January 26th, 1918) is described as simple and convenient. The following is also a simple, rapid, and convenient method. I have given several thousand hypodermic injections with syringes so treated, without a single failure to maintain asepsis. The barrel is withdrawn and syringe and barrel are kept immersed until required in a two per cent. solution of bacterol, which forms a clear transparent non-greasy solution. Steel needles are similarly kept immersed in phenol-xytol, consisting of one part of crystallized phenol dissolved in two parts of xytol, in which the needles do not rust. To remove the phenol-xytol before use, the needles are rinsed through with alcohol and ether (equal parts), and then with the two per cent. bacterol in the vessel in which the syringe is kept.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Seven lines and under	0 6 0
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NOTES ON PENETRATING WOUNDS OF THE BRAIN.

BY

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In the later part of July three contiguous casualty clearing stations in a certain army area were designated as a centre for the reception of all wounds of the head occurring during an expected period of military activity.

To one of these hospitals the writer was attached for three months, and on taking up his duties endeavoured to make an estimate of what might be:

1. The operation mortality at all three hospitals combined.
2. The proportion to one another of simple scalp wounds, cranial injuries without dural penetration, and cranio-cerebral wounds, respectively, among all the cases forwarded from the field ambulances on the front concerned, with an initial diagnosis of "head or scalp wound."

Toward this end a combined record was made of all cases admitted with the above general diagnosis during the first two weeks of the three-month period, verifying it and particularizing it in each case whenever an operation or other circumstance rendered this possible. This actually proved to be possible in only about half the total, as in times of pressure many of the lighter cases were of necessity immediately evacuated. It is probable that the majority of the wounded, thus passed on without operative investigation, had injuries confined to the scalp, or to the scalp and cranium, though it must be admitted that among walking wounded it is not uncommon to find men with penetrating wounds of the brain.

The net results of the study were as follows: Taking as 100 the total number of cases admitted with an initial diagnosis of some form of "head wound," the percentage with dural penetration was 23.5. Taking the verified cases alone, the percentage with dural penetration was 49.3.

Of these 49.3 per cent. verified cases approximately one-third died without operation, their injuries being either of extreme gravity or multiple. Of the remaining two-thirds, all were submitted to operation, and exactly half of the patients subsequently died, thus giving the generally accepted 50 per cent. operation mortality for wounds of this type.

The foregoing figures relate, as has already been indicated, to all the three hospitals during the first two weeks of the three-month period. For comparison the following figures covering the whole three months may be given for the cases that came under the supervision of the writer's team. Of the cases submitted to operation, 10.9 per cent. proved to have merely scalp wounds, 23.7 per cent. cranial wounds with intact dura, 60.7 per cent. cranial wounds with dural penetration, and 4.5 per cent. bursting fractures of the cranium but with the scalp and dura both intact. In most of the cases with simple scalp wounds or depressed fractures the condition had been such as to lead us to anticipate finding a dural penetration.

During the initial two weeks to which reference has

been made, the operation mortality for the writer's own team was above the average figure for all the hospitals together. This may be accounted for in some measure by the fact that during this period, as also during the entire three months, wounds of the more serious type were deliberately selected from among the cases retained at the hospital. This is indicated by the relative height of the percentage of cases with dural penetration (60.7) as compared with the corresponding percentage (49.3) for the whole of the verified cases during the first two weeks.

It was with the penetrating wounds, in short, that we were chiefly concerned, and a serious effort was made to see whether the accepted mortality figure of *circa* 50 per cent. could not be lowered by improvement in technique, and a more intimate supervision of each individual case from start to finish. Careful records have been kept of the 225 cases which came under the care of the team: of these 6 died without intervention, the remaining 219 were operated upon, and 133 proved to have dural penetration. The net results are best shown by dividing these 133 cases into thirds roughly corresponding with each consecutive month of service.

First	44 cases with 24 deaths = 54.5 per cent.
Second	44 " 18 " = 40.9 "
Third	45 " 13 " = 28.8 "

These percentages, which are practically end results, for no cases were evacuated until they had passed the stage of conceivable complications, are sufficiently encouraging to justify the hope that a still further lowering of the mortality may be attained, and that in an advanced hospital 75 per cent. of recoveries is not too large a figure to be set as a goal.

The improved figures do not mean that more favourable cases were selected as time went

on, for, on the contrary, as the results improved the general tendency was to undertake operations on more and more unpromising injuries, particularly of the cranio-cerebro-facial type, in many of which radical measures in the earlier weeks of the service would hardly have been attempted. Indeed, on two occasions six consecutive deaths occurred in the series, due to an uncontrollable gas encephalitis which had become established in cases "lying out" for two or three days after a battle.*

* In computing these mortality figures no cases whatever have been eliminated, even when the ultimate cause of death—including tetanus, gas poisoning, complications from wounds elsewhere, spinal cord transection, and so on—was obviously unrelated to the cranio-cerebral injury. Should one begin to eliminate these complicated cases in making out his mortality percentages the figures would lose all their comparative value, for there can be no agreement as to what conditions may justifiably be excluded.

Detailed mortality figures for penetrating wounds of the dura are rarely given, and when given are variously computed. This is unfortunate, for it is only by comparison with such estimates that one can tell whether his end results are better or worse than the average.

That the mortality percentage is high is commonly admitted. Colonel Sargent has made the statement in an unpublished address that "in the first two years of the war 45 per cent. of patients with perforating (penetrating?) wounds operated upon in field ambulances and casualty clearing stations died in the base hospitals." If, therefore, nearly half of the cases operated upon succumbed at the forward hospitals before evacuation, as is more than likely, and nearly half of those evacuated subsequently died at the base, the total mortality must have been in the neighbourhood of 70 per cent.

Colonel Gray, however, in his paper (BRITISH MEDICAL JOURNAL, February 29th, 1916) states that in 392 cases (excluded in the base hospitals at R—there were 58 deaths, a mortality rate of 14.8 per cent. He adds that if 12 "hopeless" cases which died within forty-eight hours of admission are excluded from the series, the mortality is only 9 per cent. This estimate is lower than the mortality figures at a casualty clearing station, for the non-penetrating cranial wounds



FIG. 1.—Flap incision for penetrating wound of anterior temporal region. Gutta-percha drain through unexcised wound. Condition at first dressing after forty-eight hours, when sutures and drain should be removed.

The surgical care of the wounds of modern warfare is very much of a specialty, and, no matter what may have been an operator's previous training and experience with

traumatic surgery, he finds himself ill prepared for his tasks; indeed, his fixed habits of work acquired in the favourable surroundings of a civil hospital and his unfamiliarity with infections may prove a handicap rather than an asset. This applies possibly even more to the surgeon who in civil practice has specialized in a comparatively narrow field than it does to the surgeon whose work has been more generalized.

However, during the three-month period an operation, with certain technical devices applicable to the average penetrating wound, was gradually evolved; and as the lowered mortality percentages of the later series can be ascribed to it, the method may deserve description. Aside, possibly, from the principle of track suction there is nothing original about the procedure, nor are the instruments new, though they do not seem to have been commonly utilized, at least in the British overseas hospitals.

The main features of the procedure lie:

1. In the removal *en bloc* rather than piecemeal of the area of cranial penetration.

2. In the detection of the indriven bony fragments by catheter palpation of the track rather than by the exploring finger.

3. In the suction method of removal of the disorganized brain, thereby cleansing the track of the so-called pulped or devitalized tissue, whose retention, as is the case with dead tissue anywhere, favours infection.

4. In the use of dichloramine-T in oils as an antiseptic particularly suitable for infections in the central nervous tissues.

In addition to these more essential features of the performance, the routine pre-operative neurological study of the case stereoscopic x-ray negatives, the shaving of the

entire scalp, the invariable use of local anaesthesia, pre-ferential radial (tripod) rather than flap incisions, foreign body extraction with the magnet when possible, closure of

the wounds with buried sutures in the galea, the dressing of all serious cases in the operating room rather than in the wards—all these steps, though less novel, were, nevertheless, contributory to the successful outcome of the more severe cases.

1. THE ORGANIZATION OF THE OPERATING TEAM.

At a casualty clearing station, where at times wounded may be admitted in great numbers, team work, particularly when

serious cranial procedures are to be covered, is of prime consideration. At best most of the more critical operations deservedly require upward of a two-hour period; and as one team, eliminating all delays, can hardly expect to do many more than eight major cases a day, the greatest possible economy of time must be practised.

Each team should be provided with an extra wooden table, indeed, if there is sufficient space, with two extra tables or trestles to support the stretchers. In this way a series of cases can be continually fed in, and the patients be more or less under the surgeon's eye while the neurological examination, the x-ray exposures, the shaving of the scalp, the giving of the primary drug and the novocainization of the field, all of which is time-consuming, can be carried out, and the next patient be ready to supplant the preceding without the usual loss of time between operations. An extra table is almost as valuable to a team as an extra medical officer.

2. THE NEUROLOGICAL EXAMINATION AND THE X RAY.

It is generally conceded by the majority of those

who have written on the subject that serious cranial operations should not be undertaken without a preliminary neurological study. It unhappily is not universally

It would be desirable if we could all come to record our cases from the same standard, whether from a forward or base hospital, and as a temporary basis for comparison, it may be suggested that all cases of dural penetration, regardless of complicating factors, be included in future reports. Only by the establishment of some accepted standard will it be possible to compare the efficacy of operative methods advocated by different individuals, or for one individual to appreciate an improvement in his own results as he gains experience.

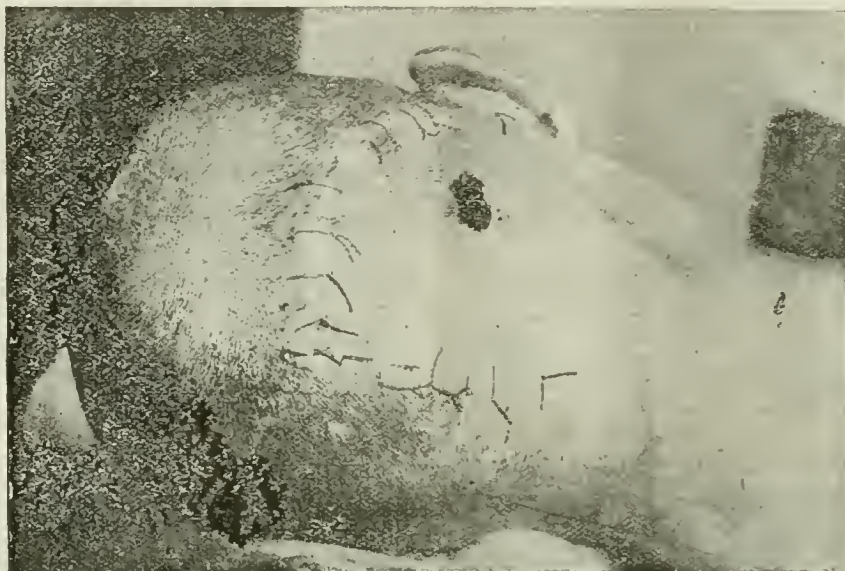


FIG. 2.—Unilateral occipital flap for penetrating wound of right cerebellum. Wound of entrance unexcised. Condition on sixth day. Sutures should have been removed earlier. Those of silkworm-gut are deeply cutting; those of black silk remain dry.

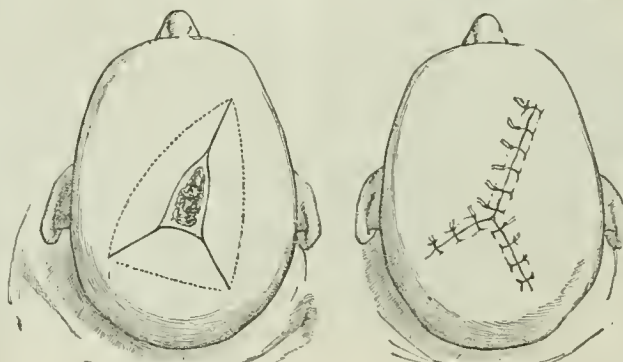


FIG. 3.—Tripod incision for small irregular wound of vault. Dotted lines indicate area of reflection of flaps.

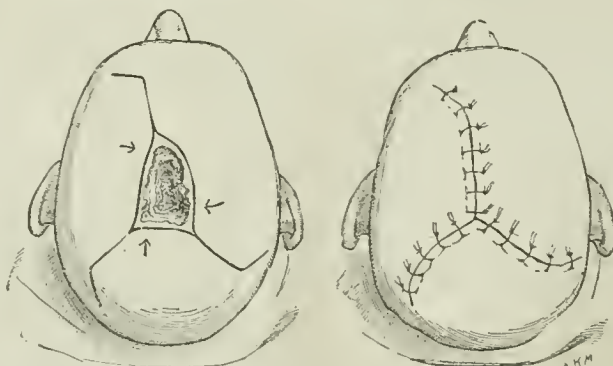


FIG. 4.—Three-legged (Iste of Man) incisions for larger wound of cranial vault.

taken by them-selves. Abadie's statistics (*Presse Médicale*, September 25th, 1916, p. 421) for 102 cases with opened dura gave 56 per cent. mortality. Cunéo (*Presse Médicale*, July 6th, 1915, p. 229) estimated a mortality of 60 per cent. for cranio cerebral wounds. Lapointe's figures (*Journal de Chir.*, 1915, xiii, 241) for all cranial injuries treated at a forward hospital early in the war were 53.75 per cent. Seneert's figures, also from a hospital at the front (*Lyon Chirurgical*, March-April 1916, T. xiii), including the 24 deaths recorded as occurring after evacuation are in the neighbourhood of 63.5 per cent.

observed. Without such an examination and the careful recording of the positive neurological findings, an operator can never be sure whether the paralyses which are subsequently observed were pre-existent, or were due to or increased by his surgical manipulations. Certainly any immediate post-operative increase in pre-existing symptoms, whether in the sphere of speech, vision, motion or sensation, should be regarded as an evidence of faulty technique. Moreover, if pre-existing palsies, the presence and grade of which, except in the profoundly unconscious cases, can easily be determined, fail to subside with considerable rapidity, the fact can be interpreted as an evidence of an incomplete operation, and complications may be anticipated. Furthermore, the question of justifiable opening of an intact dura in the course of an operation, or the need of a secondary operation for symptoms of a presumptive abscess may depend entirely upon the original neurological symptoms and their post-operative increase or subsidence.

Stereoscopic radiograms are of course invaluable, not only for the

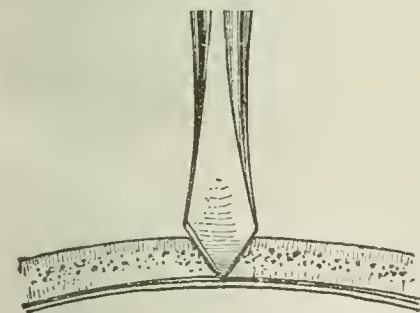


FIG. 6.—Cranial perforator (seven-eighths natural size).

localization of a penetrating missile, but for the detection and enumeration of all indriven bone fragments.

3. THE PREPARATION OF THE SCALP.

The entire scalp should be shaved—no easy task when an uncropped head of hair has become caked with blood and mud. A close haircut before going into battle, and the application of a warm soap poultice at a field ambulance would not only help toward preventing infection but would also make the preparation for these operations a less arduous matter. The partial shaving so commonly employed is undesirable, for one can rarely tell beforehand how extensive may have to be the incisions necessary for closure.

Shaving of the scalp is an art and requires a good barber, but it is indispensable to a proper preparation of the field. The preliminary use of clippers is to be avoided, for they leave the scalp covered with short hairs difficult

to remove. As a final step the mere sponging with alcohol and a mercuric bichloride solution is preferred to any of the staining solutions such as iodine or picric acid, which are apt to leave the epithelium scaly or encrusted.

4. THE ANAESTHETIC.

During the shaving of the head, possibly an hour before the patient's turn will come, a sedative is given, a third of a grain of omnepon usually being sufficient, though this may be repeated if the patient is very restless or obstreperous. Then fifteen or twenty minutes before the operation, in the lines of proposed incision,

the scalp is infiltrated with a 1 per cent. novocain and adrenalin (15 drops to 30 c.cm.) solution, injected in the sub-aponeurotic layer.

There exists a difference of opinion regarding the relative merits of a general *versus* local anaesthesia for cranial operations. The writer confesses to an original prejudice in favour of inhalation narcosis, but experience has led him completely to alter this view.

General narcosis increases intracranial tension, which exaggerates the difficulties of an operation already difficult enough. It increases bleeding from the scalp, which, with the adrenalin-novocain solution, is rendered negligible. It encourages the use of rougher methods, which a patient under local anaesthesia would not tolerate, and which therefore are in all likelihood

harmful. It encourages speed, which is to be decried if employed at the expense of delicacy. It leaves many patients, particularly those with threatened respiratory difficulties, in a condition in which inhalation troubles are prone to occur.

Until recovery from a general anaesthetic is complete every patient should be under close observation, and this, at

a casualty clearing station at least, is an impossibility. It is very rare, and then only in the case of semi-conscious patients or those with restless irritability, that the operation cannot be carried through under local anaesthesia, though this necessitates more gentle manipulations than

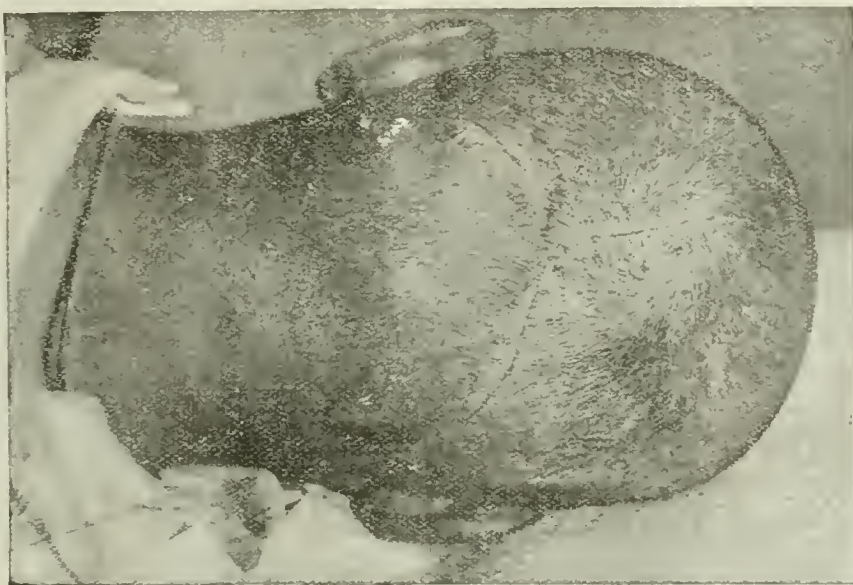


FIG. 5.—A typical tripod incision (after five days) for penetrating wound in the mid-occipital region. To show character of wound healing when flaps are held by buried Galen sutures and superficial sutures are removed early.

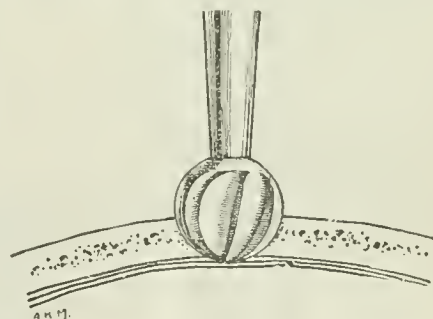


FIG. 7.—Burr to follow perforator (seven-eighths natural size).

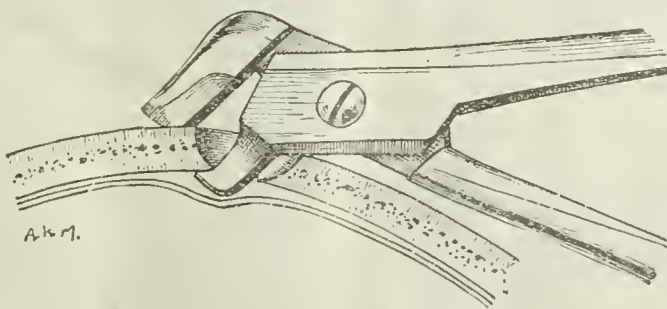


FIG. 8.—Montonovesi linear cutting forceps to follow burr (seven-eighths natural size).

these usually employed, particularly during the process of removing the area of cranial involvement.

5. THE PLOTTING OF THE INCISION.

Many procedures have been advocated. They necessarily vary greatly, according to the likes and practices of different surgeons, and for different wounds in different areas. As in plastic operations elsewhere, success in closing defects is the offspring of ingenuity and experience.

Flap incisions, which leave the wound in the centre of the flap, are suitable for some of the penetrating wounds through muscle in temporal or suboccipital regions (Figs. 1 and 2) but for ragged or gutter defects over the vault what may be described as a "tripod" (Fig. 3), or for more extensive defects a "three-legged" (Isle of Man) incision (Fig. 4) has come to be the preferential one in the writer's hands.

When the three flaps are reflected, ample exposure of the field necessary for the trepanation is afforded, and if the flaps have been sufficiently undermined in the subaponeurotic layer the corners may usually be brought together without undue tension. It is the writer's custom to bring the edges of the galea together by a layer of buried fine black silk sutures, so that the external sutures used to approximate the cutaneous edges may be safely removed on the second day. The heavy silkworm-gut sutures usually employed in a single layer, particularly if tied under tension, rapidly cut through and make an uncomfortable wound, an ugly scar, and encourage infection.

These tripod incisions (Fig. 5) with the focal point of the closure directly over the dural defect, have come to be preferred to the switching of a flap over the centre of the field, owing to certain trying experiences with an infected hernia cerebri in cases in which the track of the missile has been incompletely cleansed. The surface of such a fungus is much more difficult to treat when partly overlain by a flap than if it were allowed to present in the centre of radiating incisions.

6. THE TREPANATION EN BLOC.

The method usually advocated is to make with a trephine an opening to one side of the depressed area, and with rongeurs to nibble away fragments of bone until an opening of sufficient size is secured. Even with rongeurs of the best pattern this necessarily means not only working across an infected field, but the jar of breaking out the fragments with the ordinary forceps entails an amount of trauma which is more than a patient not under a general anaesthetic will tolerate. Moreover, there are certain areas of the skull where even the most expert runs a risk of cutting the dura when using a trephine.

A far more simple and satisfactory procedure is to encircle the area of depressed bone with a number of small punctures made with a perforator and burr* (Figs. 6 and 7),

and then to connect these small primary openings with a linear cut, thus excising the soiled area of depressed fracture in the bone, just as the soiled scalp wound is excised. The linear cut may be made with the instruments designed by De Vilbiss or Dahlgren, but a far more effective tool for the purpose is the Montenovesi cranial forceps (Fig. 8). This instrument, when of proper pattern, inflicts far less

jar, its beak can be inserted through a smaller hole, and with it a corner can be more easily turned. When the area has been encircled, the bone disc is tilted out in one piece (Fig. 9).

The depressed fractures thus disclosed are of two main types: (1) With the fragments still adherent (Figs. 9 and 10), or (2) with the fragments completely detached and "showered" to a greater or less depth into the brain (Fig. 11). The preservation of the mosaic of fragments in the first type is often a matter of importance, for when incomplete it is evident that one or more fragments are indriven and must be secured before the operation can be regarded as complete.

Particularly when working over a sinus is this method of bone removal to be favoured, for if the sinus happens to be torn by a bony spicule, as it so often is, the withdrawal of this particular spicule before complete exposure of the area may provoke haemorrhage which may be very difficult to control. On the other hand, with the entire field exposed by the careful tilting outward of the entire block in one piece (Fig. 9), the bleeding point is fully bared, and can be quickly and easily sealed, preferably by a muscle graft.

7. THE TREATMENT OF THE TRACK.

In penetrating cases the proper and thorough cleansing of the track is the most important step of the operation.

In the earlier cases in the series it was the custom to enlarge the dural opening by cutting away its torn and ragged margin. This has since been abandoned, for it is a procedure which often causes troublesome bleeding from the unavoidable fresh division of the vessels in the torn pia arachnoid, for the two membranes quickly adhere after the injury, a matter of hours rather than days, as is often stated. Even though bleeding from these vessels can be readily checked by the placement of "silver clips" (Fig. 12), it has been found unnecessary to practise routine re-

moval of the dural margin, for it does not appear to be a source of infection which need be seriously feared.

Much more serious is the retention of the disorganized and devitalized cone or cylinder (Fig. 13) of cerebral tissue which lines the track, and in which the indriven bone fragments are embedded. Though extraction of these fragments is advocated, no special emphasis has been laid on the desirability of thorough removal of the pulped tissue which surrounds the pathway of the missiles, and which, like devitalized tissue of any kind, is a soil favourable to the growth of organisms.

As Colonel Gray has suggested, if the patient is encouraged to cough, clots and cerebral debris oftentimes

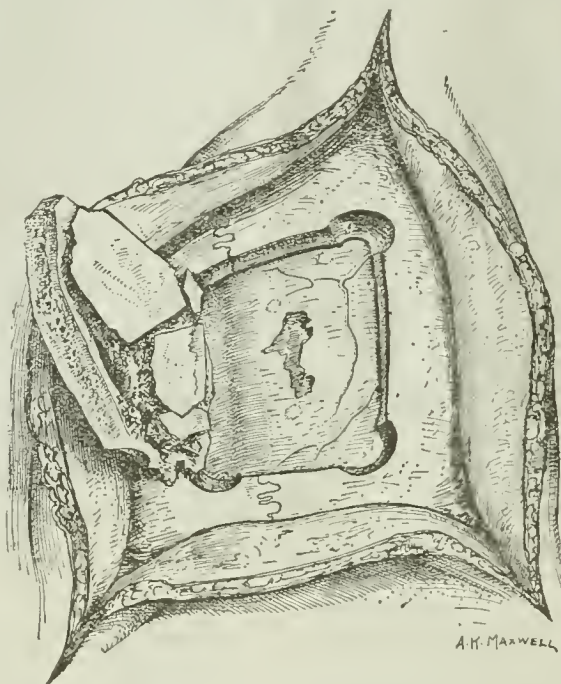


FIG. 9.—Showing the turning back from the mid vertex of an area of depressed fracture (actual specimen), disclosing a dural laceration with tear to the margin of the sinus.



FIG. 10.—Specimen of depressed fracture removed *en bloc*, showing adherent fragments with mosaic complete (natural size).

* These instruments are almost as ancient as the trephine. Though commonly ascribed to the late Dr. Doyen, the brace and bit and various forms of burr were fully pictured by Barengar in the sixteenth century.

may thus be expressed, and some have employed gentle curettage or irrigation; but if a finger is introduced in the track for purposes of exploration, the disorganized and soiled cerebral tissue lining its walls will be crowded inward, whereas every effort should be made to get it out.

Almost from the outset reliance was placed on the use of a flexible, soft-rubber catheter as a means of determin-



FIG. 11.—Specimen of cranial gutter wound removed *en bloc*. No fragments adherent, all having been detached and driven into brain.

ing the exact direction taken by the missiles, whether a metallic body, or bone fragments, or both (Fig. 13). Without the production of additional trauma one may investigate in this way even the narrowest track, and it will be found that the presence and situation of any indriven bone fragments can be detected with almost as great delicacy as by direct palpation.

By attaching to the end of the catheter a Carrel-Gentile glass syringe with its rubber bulb (Fig. 14) it is possible to suck up into its lumen the softened brain, which can then be expelled from the catheter as paste is expressed from the orifice of a tube. The process should be repeated until the cavity is rendered as free as possible of all the softened and infiltrated brain. It will be found that the adjoining normal cerebral tissue, unaffected by the original contusion, will not be drawn into the tube by the degree of suction which can be applied by the average rubber bulb.

Not infrequently bits of bone come away in the eye of the catheter, and on one or two occasions a small foreign body has thus been withdrawn. Meanwhile, as the track becomes clean and the tension and tendency of the brain to herniate subsides, it is possible with delicate duck-billed forceps to pick out from the track one by one the bone fragments, whose depth and position can be determined by the unmistakable sensation they impart to the catheter, which thus supplements the information given by the x-ray plates. The technique of the performance will quickly be acquired by any one who may wish to put it into practice.*

Any procedure is capable of being abused, and even a soft flexible catheter may possibly be forced to do damage. Even those who advocate digital exploration admit that damage may be done thereby unless the greatest care is exercised, but

* In not a few cases in the series the missile and bone fragments have been driven through into the ventricle, and in the process of suction the cerebro-spinal fluid spaces have been sucked completely dry. These ventricular penetrations have been met with in twenty-five cases, and it is by no means as desperate a condition as is generally supposed. Many cases with opened ventricle, when treated in this way, have made perfect recoveries, as will be related in a more detailed communication which will permit of case reports.

we must recognize that the surgical profession contains its Little Jack Horners, and it is better, on the whole, for all of us to keep our fingers out of the brain so far as possible.

8. PURPOSEFUL INCISION OF THE DURA.

This procedure, in the case of the usual subtemporal decompression through an intact scalp, need not concern

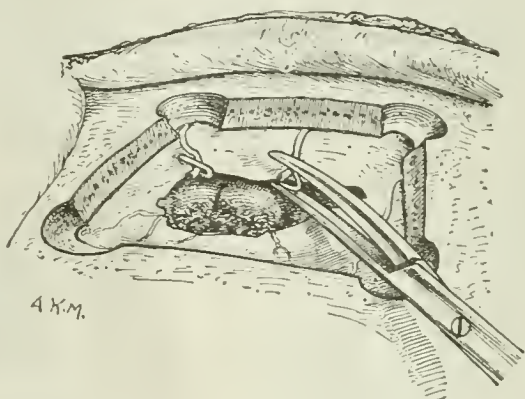


FIG. 12.—Showing the method of placing silver clips on the vessels of dural or meningeal margin.

ns, but when performed in the area of a dirty wound it is a different matter. Under these circumstances it must be undertaken with great hesitation, and only in those cases in which the neurological symptoms indicate a serious local loss of function, or in which the exposed and undamaged dura is tense and evidently overlies a clot or severely contused area.

If the dura is opened under these conditions, if the disorganized area is washed and sucked away until normal tension is restored, and if the membrane is then accurately closed with delicate fine black silk sutures passed on curved French needles, there is practically no risk of infection. Needles with cutting edges and heavy suture material are unsuited to this delicate procedure.

There can be no doubt but that the period of convalescence and its attendant discomforts in this particular group of cases can be greatly lessened by opening the dura, but if the surgeon has any doubts of his technique or of the cleanliness of the wound, he had far better give the patient the chance of recovery afforded without incising the membrane.

9. RETAINED MISSILES.

It goes without saying that it would be the ideal treatment, at a primary operation for a penetrating wound, if the foreign body could always be removed. Otherwise the operation must be regarded as incomplete, with a far greater likelihood of subsequent abscess formation than if removal of the missile has been accomplished. It is equally true that foreign body extraction, no matter how desirable as a means of avoiding these possible secondary complications, should never be forced to the point of increasing the damage to the nervous tissues already done by the penetration. Some say "avoid infection at any cost"; others "better a fatality from infection than the certainty of perpetuating paralysis." Between these two schools one must decide in the individual case.

It is well known that many, even sizable bodies—a shrapnel ball, for example—may be retained without provoking symptoms, but even so, the writer has known of

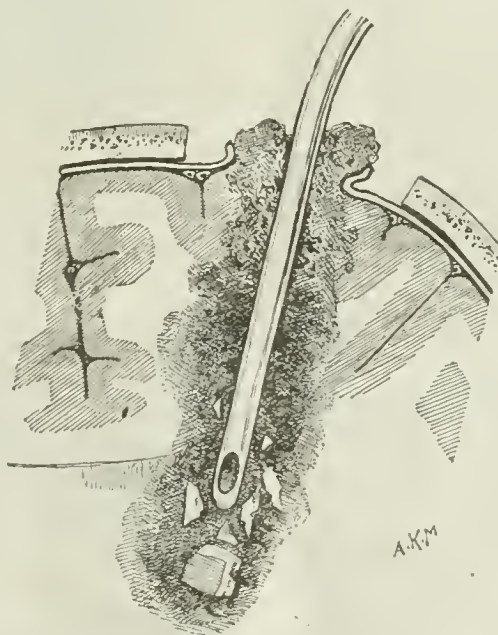


FIG. 13.—Diagram to show the insertion of a catheter in the track of a penetrating missile.

abscess formation around such a missile first giving evidence of itself a year after the injury. The middle ground position is the safest one—namely, always to extract a foreign body if it can be accomplished without increasing the damage already done.

This discussion applies solely to deeply implanted missiles, for all agree that superficial and easily accessible ones should of course be removed. Extraction with a magnet is the only justifiable method applicable to deep-seated bodies and can often be accomplished after suction of the track in the usual method by gently sliding into it, to the proper depth, a French wire nail with rounded point. Contact with the proximal end of the nail is then made with a portable electro-magnet, which need not be a weight greater than can be easily handled, and if the foreign body is magnetizable and proper contact secured it will be withdrawn along its own track of entry.*

All of the foreign bodies from which cultures were made gave a growth of organisms—usually streptococcus, staphylococcus, or some gas-producing bacillus.

10. THE USE OF ANTI-SEPTICS.

The use of watery solutions of antiseptics in the brain is disappointing, for they lead to oedema with swelling of the tissue and an increased tendency to herniate. It was not until Dakin's dichloramine-T in eucalyptus oil came to be utilized as a routine during the latter weeks of our service that there was a notable diminution in the number of infections.

It is true that the technique of the procedures had greatly improved at this time, and true also that we can record no thoroughly conclusive bacteriological studies, though cultures of many of the wounds and foreign bodies were made. With the dichloramine-T, in not a few cases in which an infected foreign body was removed and in which bone fragments as well gave an abundant growth, no symptoms whatsoever followed closure of the wound without drainage. In two instances the cultures showed the presence of the pneumococcus in the ventricular fluid, and the only patients in the series who have recovered from active gas infection of the brain were treated with this drug.

As the terminal step of cleaning out the contused pathway of the missile a small amount of the oily solution is injected along the course of the track through a small catheter, and, just before final closure of the scalp, the dural surface of the wound is moistened with the same solution.

CONCLUSION.

This bare recital of an operative method for a certain type of the many wounds which occur in warfare makes dull reading. It is hoped that it will nevertheless carry some suggestions to others who, like the writer, without preliminary instruction, may, by force of circumstance, have to undertake similar tasks. Much admirable work directed toward the improvement of cranial operations has been done by surgeons in the allied armies—in the British Forces notably by Sargent, Gray, Anderson, Grahame, and Wagstaffe. Unfortunately, however, there have been few, if any, detailed reports of a series of cases, either from front or base, and the underlying principles of treatment

* The extraction was successful in eleven cases in the series in which the missiles would otherwise have been inaccessible. It would have been preferable to place the interposed nail in exact contact with the foreign body under the direction of a fluoroscope, but our situation did not permit of this. The procedure is capable of great development, and next to the eye the brain is the most favourable place for employing the magnet.

of these penetrating wounds has been the source of some disagreement. A surgeon naturally becomes wedded to the particular procedure which he happens to have developed and is more likely to succeed therewith than by adopting the methods of others.

There can be little doubt but that, as is the case with thoracic, abdominal, and joint injuries, the earlier a cranial operation is performed the less likelihood there is of sepsis. The mortality, however, in a hospital near the front is, in the natural course of events, almost certain to be greater than the mortality of operations for similar conditions at the base, for delay always serves to eliminate a certain percentage of the more desperately injured. For this all allowances must be made.

A distinguished surgeon once seriously advocated operating upon typhoid perforation in the second rather than in the first forty-eight hours, because the collected statistics had shown that a larger percentage of cases operated upon in the second forty-eight hours recovered. In the difficult task of dealing honestly with statistics fallacies of this kind at least can be avoided.

Acknowledgements.

There are many obligations to acknowledge—to General Bruce Skinner, to Lieut.-Colonel C. I. Ellis, to Captain F. A. Roper for his helpful x-ray studies, to Captain Archibald Leitch for his many bacteriological observations, and to those

who from time to time were assistant members of the surgical team on whose shoulders fell the larger part of the work.

NOTE ON THE EXTRACTION OF A FOREIGN BODY FROM THE BRAIN.

BY

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THE damage necessarily done to the brain structure in the removal of a foreign body, coupled with the fact that experience has shown that fragments lodged in the brain may give rise to very little disability, argues for leaving deep-seated ones in position until such time as it becomes evident that their presence is the cause of the symptoms and that removal, if it can be effected, will lead to an improvement in the patient's condition. The following is a report of a case in which the attempt to remove a foreign body from the brain was considered to be indicated and was justified by the result.

History of the Case.

T. K., a man aged 20, was wounded on February 7th, 1917. The note from the casualty clearing station was: "Several small wounds in neck and back of head. Semi-conscious and suffering from shock. Vomited on the way down to the casualty clearing station. X-ray report stated that there is a small foreign body in the brain and that there is some damage to the occipital bone." He was kept in the casualty clearing station and base hospital in France for seven weeks and improved considerably; he was then transferred to England. On admission to the 2nd Western General Hospital his condition was poor; there was marked mental dullness, slowness and hesitancy of thought and speech, and he was somewhat childish mentally. He could not sit up for more than a few

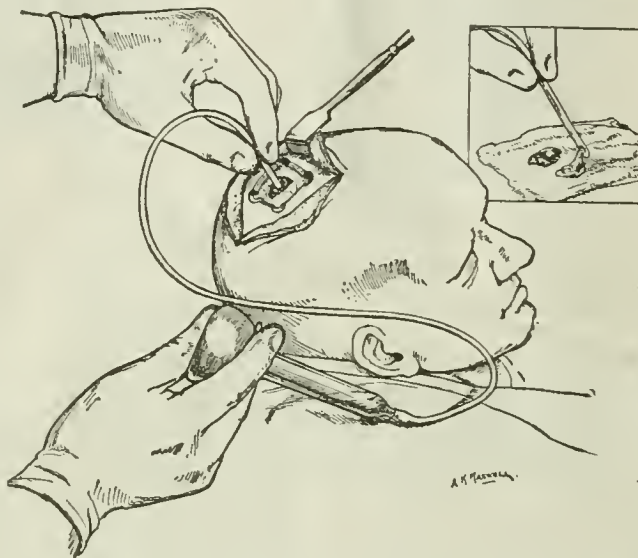


FIG. 14.—Sketch illustrating the method of suction of the track of a penetrating wound.

minutes and suffered from intense headaches. He seemed to have some difficulty in opening his eyes and in bringing his mind to bear on anything. The tendon reflexes were all increased in the left arm, and there was definite weakness of the left arm and leg. There was slightly increased knee-jerk and very marked ankle clonus. The signs and symptoms all suggested a sub-cortical lesion in the right Rolandic area, and the x-ray examination confirmed this view, a foreign body being located in the suspected region. For three months he was kept under observation and symptoms became more marked. Any effort was followed by marked clonic spasms, and he was quite unable to sit up. He complained of a burning pain over the right side of the head.

The patient knew that he was getting worse both mentally and physically; he was therefore transferred to the Manchester Royal Infirmary for investigation and consideration as to the possibility of operative interference. He was again x-rayed and the foreign body was localized as 2 in. deep from the scalp beneath the Rolandic area of the right side; the damage in the occipital region was no

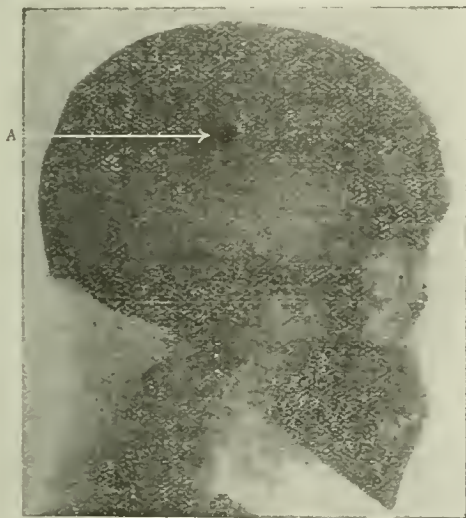


FIG. 1.—Radiogram showing position of foreign body, A.

longer noted in the x-ray plates. In view of the fact that the patient had steadily become worse since admission, it was decided to attempt the removal by means of a special instrument described by one of us (A. E. B.) before the Electro-therapeutic Section of the Royal Society of Medicine.¹

The Operation.

On June 26th, 1917, the foreign body was relocalized as 2 in. deep and a skin mark was made on the right parietal region just before the operation in the theatre (by H. H. R.). The position of the skin mark corresponded to a point about half an inch behind the lower third of the fissure of Rolando. The fragment was small, but it could be seen on the screen fairly well. The patient was then anaesthetized. The bone was marked through the skin mark by a fine drill and then the flap was reflected. A one inch trephine was then used, taking the bone mark as the centre, and the opening enlarged slightly above and below. In order to assist in the repositioning of the patient on the x-ray couch, small screws were put into the skull on either side of the opening.

The patient was then taken to the x-ray department and the head placed in exactly the position in which the skin mark had been made, the shadow of the foreign body falling midway between those of the two small screws. A small horizontal incision, three-quarters of an inch long, was then made in the dura, and the point of the extractor placed in position (by A. E. B.). With the lights out, the extractor was then manipulated so that the shadows of the fragment and of the points of the extractor fell exactly in the middle of the small fluorescent screen attached to the instrument. With the lights up, the point of the extractor was allowed to descend almost to the depth of the fragment (2 inches), a small band of rubber tube having been placed on one of the blades to mark this distance. Then, with lights off, the blades were gently opened to see that the shadows of the fragment and the extractor points still corresponded

to the centre of the fluorescent screen. Seeing that the direction was correct, the blades were allowed to descend to the full length, and very gently moved about to "feel" the foreign body. Almost at once the bell attached to the instrument gave a slight ring, showing that the metal had made contact across the blade points, and that by raising the points very slightly, then opening sufficiently and descending, the fragment should come in between the jaws of the extractor. This manipulation was carried out, and the shadow was again seen between the blades. On closing the blades the bell at once rang continuously, showing that the fragment had been caught. With the lights on, the instrument was gently withdrawn, and in the middle of the clot of blood that came away was the small foreign body.

The patient was then taken back to the operating theatre, where the incision in the dura was brought together and the opening in the skull closed by replacing the piece of bone.

A small quantity of clear cerebro-spinal fluid came away when the extractor was inserted to its full depth, suggesting that the fragment lay in the lateral ventricle, and this was again suggested on examination of the fragment; it was partially covered by a deposit of what appeared to be lime salts.

From measurements of the skull, the foreign body lay slightly over half an inch from the mid-sagittal plane.

In the x-ray department it took perhaps five or ten minutes to reposition the head accurately; the extraction of the fragment occupied about three minutes. The slight extent of the disturbance to the brain may be judged by the fact that there was no paralysis, even on the following day.



FIG. 2.—Radiogram showing actual size of foreign body.

After-History.

The shock of the operation was not as severe as expected, and even on the following day he could move both the hand and foot fairly well. There was no paralysis of any part and within a week the power of the grip was as good as before the operation. Recovery of power continued and the mental condition became very much clearer: it was evidently less effort to think, and the patient himself stated that he felt that he was getting better. He was able to sit up in bed without any ill effect, and the clonic tremors were less frequent and not so easily brought on. The wound healed rapidly, and the trephine disc united to surrounding bone firmly. A few weeks after operation he was able to stand and walk a few yards with assistance. On August 30th, 1917, he was transferred to Dr. Macmillan at Moorlands Red Cross Hospital, but the journey in the ambulance seemed to cause a setback for a time. Attempts to stand brought on the clonic spasms, which were also induced even in bed by slight causes. The grip was less strong, and there was very slight paresis of the facial muscles. Improvement has gradually taken place, and he is now very much in the condition he was in before he was transferred except that the mental condition is now much sharper, and there is less hesitancy in speech and thought. There is no trace of facial paresis, the grip is fairly strong, and he can walk about the room with assistance. He is evidently recovering quite satisfactorily though slowly.

The Extractor.

The extractor is made like a pair of dental forceps, the jaws being about 1½ in. apart when closed. Above the jaws is fitted a small fluorescent screen. Beaks or blades are fixed at right angles to the jaws and meet at the points, but are insulated from one another by a small fibre block let into one of the blades, which is made slightly longer than the other (see Fig. 4). For brain work the blades are thin and close together, the point of the longer blade being rounded. For the removal of foreign bodies from ordinary tissues stronger blades are used, the point being fashioned like a blunt dissector so that the instrument can dissect, and, by opening the blades, separate its own way down after the skin incision has been made. The blades are connected with an electric bell through a relay that is specially fitted in order to avoid stimulation of structures

when contact is made. When the blades are brought into the correct relationship with the foreign body—that is, with the longer blade alongside and the shorter blade

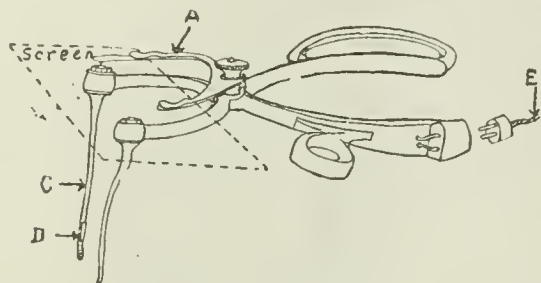


FIG. 3.—Diagrammatic view of the instrument. A, Screen holder and contact of the insulated blade; C, insulated blade; D, block of fibre on insulated blade; E, connexion bell circuit.

touching the top of the fragment—contact is made and the bell rings. This indicates that by raising very slightly and opening the blades the foreign body can be picked up without any intervening structures being also caught.

Protection, additional to that of the diaphragm, tube, box, etc., is afforded by a sheet of heavy x-ray proof rubber with a 3-in. hole in it that is placed either above or below the patient.

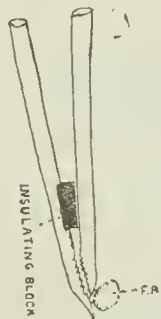


FIG. 4.—Large view of the points of the blades of the extractor, showing how contact is made by foreign body across the points.

The use of this instrument is not easy; like other surgical instruments, it requires practice. It also requires experience in the interpretation of x-ray shadows. When the foreign body can be seen, it looks so simple to pick it up with the points of the extractor, which can also be seen in the fluorescent screen. And it is simple, provided that the operator recognizes that it is absolutely essential to make an *exact* start directly over the foreign body and move the points of the extractor *exactly* in the line of the rays—that is, straight

to the foreign body, correcting his direction as he proceeds towards it.

Only certain cases are suitable—that is, those in which access can be had to the foreign body directly in the line of the rays, and through soft structures, or with the assistance of a trephine, as in this case. Old-standing aseptic cases, surrounded by a fibrous capsule, are not suitable for extraction.

It is not an instrument for anyone to use—it involves exposure to x rays, and must be used by or in co-operation with a competent radiologist, who is experienced in radio-therapeutics, and who knows where the danger zone from x-ray dermatitis begins, and how to protect not only the patient but also the operator.

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ON THE INFLUENCE OF MUSCULAR EXERCISE ON LONGEVITY.

BY

SIR HERMAN WEBER, M.D., F.R.C.P.

To promote longevity all the systems and organs of the body ought to be kept in a healthy condition, and prevented from decaying as long as possible. We must not attend to one of them alone, but to each and all of them, must endeavour to keep them all sound and vigorous, make them assist one another, and work together in harmony.

In the present paper I intend to show the principal features of the influence of the muscular system on the functions of the other systems and on the life of the whole organism.

The contraction of the muscle, as shown by Professor Ludwig, Sir Lauder Brunton, and Dr. Oliver of Harrogate,

causes dilatation of the arterioles, capillaries, and lymph spaces, allowing more oxygenized blood to flow to the muscular fibres, which abstract from it what they require for their nutrition and let the remainder, together with the used-up material, pass partly into the veins, partly into the lymph spaces and the lymphatic vessels. By this process the muscle is nourished, the products of decomposition are removed, metabolism is promoted, and heat is produced. In addition, the small blood vessels, through their increased action, are kept in a healthy condition. We may go further and say that the spheres of the brain which initiate the contractions of the different sets of muscles, are likewise favourably influenced, for an increased flow of blood is attracted to them by their work and the blood vessels are forced into greater activity, by which their own coats as well as the brain substance are nourished.

Walking Exercise.

The most natural of all muscular exercises, as pointed out by Hippocrates, is walking exercise. A great part of all the muscles of the body is activated by it; the action of the heart and respiratory organs is increased; the blood is passed with greater force from the heart into the blood vessels of the body, which are obliged to contract more vigorously, carry more blood to the different organs of the body, nourish the latter, and are themselves nourished through their work. By the contraction of the muscles of the legs more blood is attracted to them, and is squeezed out from them into the veins and lymphatics and carried to the heart, which is forced to contract more vigorously. The pumping action of the heart thus induced strongly assists the circulation of the blood and lymph in the abdominal organs, and is helped in this by the more powerful contraction of the diaphragm and abdominal walls which accompany the increased respiratory movements forced on by the more rapid and more energetic contractions of the heart. The more powerful breathing leads to improved oxygenation of the blood and increased metabolism. All the organs in the abdominal cavity are favourably influenced by active walking; the appetite, the digestion, and assimilation are remarkably improved.

Thus walking exercises a favourable influence on the whole organism. We must therefore take daily walks and, if possible, in the open country, and do so in all weathers. The amount of walking required by different persons varies according to personal conditions and the manner of living; we may say between half an hour and two or three hours. It depends not only on the constitution of a person, but also to a great degree on the varying state of health and strength, on habit, on occupation, on the meteorological conditions—heat or cold, dryness or humidity, strong or light wind, or stagnation of air.

The walk ought not to be extended to actual fatigue, but ought to lead to exhilaration and agreeable warming of the whole body. The pace of walking, too, must vary in different persons, from less than a mile to three and four miles an hour, according to the condition of the walker and to habit, and ought not to be changed all at once from an accustomed slow to an unaccustomed very rapid pace.

With increasing age the power and the inclination to walk diminish, and this coincides with the diminution of the creation of warmth. Friar Roger Bacon, in the thirteenth century, stated that the body heat decreases after the age of 40. His statement agrees with the experience of many others as well as myself, though the exact age varies in different persons according to their general condition, their manner of living, and especially their activity. To prevent this decrease of heat production persons advancing in years must continue to walk or take other muscular exercises as much and as long as they can, and must not allow their friends to dissuade them from doing so, or yield to their own inclination to give it up. Even if it rains or snows, or the weather is otherwise disagreeable, they must continue to take their accustomed exercise; since, if they neglect it, and stay at home engaged in reading or some other occupation, they have great difficulty in resuming the necessary exercise. Great is in this respect the difference between the young and the old; the former can easily return to active muscular work after long rest, not so the latter. They must not regard their number of years but their physical capacity. If those advanced in years neglect muscular exercise their muscles waste, their metabolism fails, their body heat

diminishes, and their path to premature senile decrepitude is rapidly paved. On the other hand, it is to the majority of people almost incredible how much can be done by energy and will power to postpone this decay.

A matter which is not sufficiently considered is the mode of walking. A walk of three or four miles with half-bent knees and back is not as useful as one of the same length with firmly contracted muscles of the legs and thoroughly erect spine.

Persons with a sound circulation derive more benefit from walking uphill than from walking on level ground. Even to those with slight dilatation of the heart gentle ascents at a slow pace are very useful.

The benefit of walking is much enhanced by taking once or twice a week a longer walk in the country, and infinitely more so by walking tours of some weeks in mountainous or hilly regions. Marvellous is the improvement effected by them in the physical and mental condition. Old people need not be quite debarred from the benefit of such tours; they ought not to climb high mountains and glacier passes, but with judicious limits they can, with great benefit to themselves, do much more than is generally admitted.

Many other forms of muscular work can be advantageously substituted for walking, such as riding on horseback, hunting, shooting, cricket, football, golf, fishing, etc., some of which not only benefit the body, but also the mind and the character.

By walking we employ principally the muscles of the legs and the spine; we must also put into action those of the arms and the thorax. Those of the thorax we exercise through deep inspirations and expirations, which we effect by the contractions of the intercostal muscles and the diaphragm. In so doing we massage the ribs, expand the thorax and the lungs, keep up their elasticity, powerfully influence the contractions of the heart, and compress the organs in the abdominal cavity. By the massage of the ribs we keep them in a healthy condition, the bone substance as well as the marrow, with its blood-forming function.

With the respiratory movements we ought to combine exercises of the arms in various ways, extending them, for instance, vigorously with a deep inspiration, contracting them with a full expiration; raising them perpendicularly with deep inspirations, so as to allow the air to pass freely into the apices, which, with shallow breathing, are often insufficiently expanded, and are apt to become seats of disease. The habit of shallow breathing ought to be entirely avoided, and that of full breathing, which can and ought to be substituted for it, can and ought to be acquired by every one.

The effect of these arm gymnastics is, however, not restricted to the muscles of the arms alone, but extends to those brain centres which initiate their movements. As soon as they become active, an increased amount of blood rushes to them, the small blood vessels are forced to work, and the work keeps both the blood vessels and the brain substance in a healthy condition.

The muscles of the trunk we put into action by moving the trunk upwards and downwards with deep inspirations and full expirations; or by turning the body in the erect position as much as possible around its axis, with deep inspiration from the left side to the right, and with full expiration from the right to the left. There are many other methods of exercising the different sets of the muscles of the trunk.

All the muscular actions of the body have a certain action on the bones. Each contraction of a muscle causes a pull on the bone to which it is attached; this pull acts as a kind of massage on the periosteum, the bone substance, and the bone marrow. The nutrition of the different parts of the bones is through this process maintained; the well-known brittleness of the bones in old age is prevented, the bone marrow is kept healthy, and by improving the composition of the blood increases its power to combat hostile bacilli, and thus prevent disease.

After this short discussion of the muscular actions on different parts of the body, I venture to point out the following effects:

1. Increased afflux of blood to the muscle with each contraction.
2. Increased nutrition of the muscle, combined with improved metabolism and production of body heat.

3. Increase of exchange of fluid between blood and tissues.

4. Facilitation of the removal of waste products.

5. Preservation of the elasticity of the thorax and lungs.

6. Abundant supply of oxygen for the blood and the metabolism.

7. Maintenance of a healthy condition of the organs of circulation, from the heart to the smallest arteries, capillaries, and lymphatics.

8. Massage of the bones, keeping up the healthy condition of the bone substance and the bone marrow, and through this the formation of a sufficiency of blood efficient for the fight with hostile bacteria entering the blood.

9. Increase of the resisting power of the body against disease.

10. Persistence of the working capacity of the brain centres, which initiate the action of the different sets of muscles.

I add to this short paper a personal note regarding my view of the influence which muscular exercise has had on my longevity. I do this in the hope that some of my professional brethren may accept this view, and may induce their friends and patients to act on it in order to prolong their lives. I take no gloomy view of the conditions of old age, but think it a privilege to obtain a long life. It has not, I concede, all the pleasures, nor the powers—mental and physical—nor the imagination of youth; but it need not be helpless, useless, cheerless, and friendless if the aged person endeavours to be in harmony with the aims of the younger generations; and happily the mental faculties, especially intelligence, often survive the physical powers for many years, and enable the aged sometimes to give useful advice to his younger friends.

Although I know that it is not the exercise of the muscular system alone to which I owe the satisfactory condition of health and strength, which I retain in my 95th year, but that the attention to hygienic conditions in general, to the digestive functions, to the mental work, and the tenor of the mind, as I have explained in my little book on *Prolongation of Life*, has a great share in it, yet I am sure that the keeping up of the muscular system has played a prominent part in it, and does so still. The facts of my spending daily two to three hours in the open air, walking, as a rule, thirty, more frequently forty or fifty, miles a week and enjoying the beauties of nature, have not only an exhilarating effect on my mind, but keep up the whole organism and the resisting power to a considerable degree for my age. The possibility of heredity might be suggested, but this suggestion will probably be discarded, when I state that both my parents died in the 60th year—my father from cerebral apoplexy (a frequent cause of death amongst his forefathers), my mother from inherited weakness of the heart, leading to frequent bronchial attacks, anasarca and effusion into the pleural cavities. One might rather say that I had inherited a tendency not to long life, but to these life-shortening morbid conditions. If so I have been able to counteract them by energetic fighting against them from an early period of life.

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THIGH STUMP EXTENSION SPLINT.

BY

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The stumps following flapless or flush amputations of the thigh that have come under my notice after transport from the seat of war have all apparently suffered from having been unprovided during their treatment with some continuous extending force to counteract the natural tendency to retraction of the soft parts that in these cases leads to conical stump formation in a short time to a serious degree.

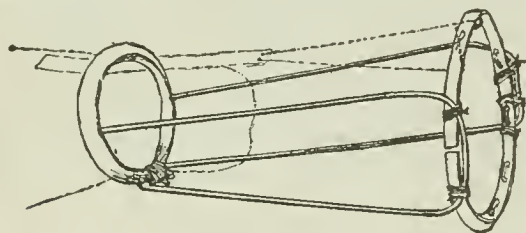
The nature of the injuries has necessitated, as a life-

saving device, the division of tissues without regard to adequate flap formation. But thereafter it becomes incumbent upon the surgeon to conserve for the patient every fraction of the stump possible. If the retraction of the soft tissues is permitted to proceed unrestrained until such time as secondary amputation is performed, it will be the general experience that an undue length of femur will require removal before the soft parts are capable of approximation, and that the ultimate shortening of the stump may prove very disappointing.

I am aware that stump extension is at times employed, but such contrivances as are usually made use of cannot, in my opinion, be relied upon to maintain the necessary continuous uniform traction during all movements of the stump and positions of the patient both in bed and during transport.

A splint that I have improvised achieves this, and after its use in numerous cases during the last two years I am able to speak of its utility. Unhappily, many of the cases that arrive in this country have reached a stage in which the tissues are fixed in retraction when counter-extension can obviously be of little use; this note is published in the hope that the splint may receive a trial in France to prevent retraction, and to afford the further advantages to the patient of freeing him from pain and of giving protection to the stump—all important factors during transport.

The splint is improvised from a Thomas splint, as modified by Jones for the arm; its ring will, as a rule, be found to slip comfortably over the thigh. One with a closely fitting ring having been selected, it is forcibly bent at the bars until the end meets the leather-covered ring, to which it is secured by a tape. A blow with a mallet will convert the ring to an oval that will, perhaps, better fit the contour of the thigh. In the rare event of the ring being too small, it may be enlarged by division with a saw close to the outer bar.



Improved thigh stump extension splint. Note: The aluminium ring is made large when indicated by the condition of the wound, and small when direct extension is required.

A length of about twenty inches of aluminium splinting is then bent in the form of a circle, loops within, and this hoop is then inserted and secured by tape or strapping between the ends of the bent bars of the Thomas splint, which are forced apart, if necessary, to receive it. The splint is now complete, and takes but a few minutes in the making.

Extension strapping is next applied to the whole length of the stump at the points of the circumference selected as best suited for effective flap extension. The projecting ends of the strips should be folded so that their adhesive surfaces are effaced, and in each two openings are snipped for the passage of tape that is so passed as, when extension is made, to appose the lateral edges of the plaster to the skin. The coaptation of the plaster strips to the surface is farther secured by a circular band of the same material round them all near the end of the stump. Efficient substitutes for adhesive strapping, and in some ways better, are strips of bandage or gauze affixed in like manner with glue.

The splint is now applied, the padded ring being carefully insinuated upwards until it gets a firm bearing against the tuberosity of the ischium. Being close fitting it gives additional security against slipping of the extension strips.

Extension is now made by drawing upon the tapes or strips and securing them by adequate tension in the direction of their application to their corresponding segment of the aluminium ring by slip-knots, daily attention to which will ensure that a uniform tension is maintained conforming with the give of the soft parts.

The splint is light, and forms a frame that supports and

moves with all movements of the stump, the flaps of which are held in fixed extension, while the splint is self-secured by means of its extension bands. Extension is maintained whatever the position of the stump and whatever its movement, so that the position of the patient can be varied and attendance on him rendered easy. After the application of the splint the patient is freed from pain, and no cradle is necessary, as the splint affords the necessary protection. The open aluminium ring allows access for swabbing and dressing, and from the side a kidney-shaped dish can be introduced beneath the wound.

The dressings being maintained in position by the framework of the splint, no bandage is required, so that access to the wound is ready and provides for prompt attention in case of haemorrhage.

I should like particularly to recommend the use of this splint during transport. The material is available and it requires only a few minutes to be made. In October, 1915, Sir G. H. Makins showed an adaptation of a Thomas knee splint, but not of the same character as mine.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

LONG LIFE AFTER EXCISION OF RECTAL CANCER.

It is well known that freedom from recurrence after complete removal of cancer of the intestine is more likely than in many other situations. As it is not always easy to obtain the history of a case after many years, I am much indebted to Sir William Whitla, of Belfast, for giving me the completed record of a case thirty-one years after operation. Such a case is of much interest, and affords encouragement. In 1887 I operated in Belfast upon one of Sir William's patients, assisted by Mr. (now Sir Anthony) Bowlby and Mr. Sinclair of the Belfast Royal Hospital.

The patient was a lady 53 years of age, who had had symptoms for six months. Examination under an anaesthetic showed that the disease commenced three inches above the anus, and extended upwards about four inches. It completely surrounded the bowel, producing considerable stricture. The posterior wall was more deeply invaded than the anterior. The operation was difficult and prolonged, but eventually, after freely opening the peritoneum, a complete segment of the bowel five inches in length was removed, including half an inch of sound margin both above and below the growth. Microscopic examination showed a typical specimen of adenoid cancer. The patient, under the care of Sir William Whitla and Mr. Sinclair, made a good recovery.

Five years later, owing to some contraction, an inguinal colotomy was performed (not under my advice). I saw the patient thirteen years after the operation. She was in excellent health, and there was no sign of recurrence. The colotomy opening gave hardly any trouble.

Sir William Whitla has most kindly sent me, under date February, 1918, a letter as to the sequence of the case: "I enclose a card informing you of the death of your old cancer case operated on in 1887. She has just died at the age of 84. Surely this is a record."

W. HARRISON CRIPPS,
Consulting Surgeon to St. Bartholomew's Hospital.

THE GUILLOTINE AMPUTATION.

THE number of cases in which a guillotine amputation has been performed at casualty clearing stations and base hospitals in France induces me to ask if some other method of amputating could not with safety be practised. Unfortunately I have not had an opportunity of seeing cases as they present themselves at a casualty clearing station, but I think it is equally unfortunate that so few surgeons working at the front have not had an opportunity of seeing the after-results of the guillotine method.

It may be that the fear of gas gangrene is the important factor which has caused this plan to be adopted so generally. A guillotine amputation invariably necessitates reamputation, but, apart from this, the great disadvantage is that by the time the patient arrives in England the skin has retracted so much that a large granulating and suppurating stump is exposed. The

dressings are often extremely painful, and the subsequent loss of bone, even after prolonged extension to draw the skin down, is sometimes very great.

May I suggest that in a fair proportion of cases flaps might be made and brought together by rubber button sutures, as advocated for reamputation by Major W. A. Chapple in the *BRITISH MEDICAL JOURNAL* of August 25th, 1917, p. 242? Ample provision for drainage is, of course, essential. I have adopted this plan in a number of reamputations with marked success, even in the presence of active suppuration.

I have been working at this hospital since August, 1914, and can recall distinctly the very unsatisfactory results obtained during the early part of the war, when amputations in France were performed in the orthodox way. At that time the flaps were made too close to the injured tissues, were stitched too closely, and adequate drainage not provided for. Now the pendulum has swung so far in the opposite direction that a few weeks after the operation, owing to skin retraction, the appearance of the stump would almost suggest that the patient had been amputated from the limb and not the limb from the patient.

If surgeons in France decide that after all it must be a guillotine amputation, I hope they will so modify it as to leave much more skin, and so dispense with many subsequent troubles, and save the ultimate length of the patient's limb.

I trust these remarks will be read in the spirit in which they are written, for I feel very proud of the excellent work being done by British surgeons at the casualty clearing stations in France, more especially in regard to abdominal injuries and wounds of joints. Why not bring amputations up to the same high level? The fact that we surgeons are all working for the same end—to learn what is true in order to do what is right—will, I trust, be a sufficient excuse for me venturing to criticize the work of others in a particular branch of surgery.

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Fazakerley, Liverpool.

SPONTANEOUS HAEMORRHAGE INTO THE PERITONEAL CAVITY IN ARTERIO- SCLEROSIS.

THE occurrence of spontaneous haemorrhage in cases of arterio-sclerosis with high blood tension is a matter of everyday experience, especially from the cerebral arteries. That such haemorrhages are not entirely confined to these arteries is also well recognized, as cases of severe epistaxis, metrorrhagia, haematemesis, and haematuria arise in the course of arterio-sclerosis. In the description of this disease in textbooks I have not found any mention of haemorrhages into the peritoneal cavity, and on this account report the following case.

Mr. T. M., aged 48, consulted me in March, 1912, complaining of transient loss of power over the lower limbs, headache, dizziness, and depression. He had hard and tortuous arteries, accentuation of second aortic sound of heart, and a blood pressure of 160 to 170 mm. In 1915 his symptoms had grown worse, and the blood pressure had increased to 180 to 190 mm. In July, 1915, he had left hemiplegia, from which he recovered. He also suffered from nasal polypi, and in September, as these were causing troublesome nasal obstruction, I removed them by snare. This operation was followed by severe haemorrhage, which was very difficult to control. In 1918 his condition was such that he found relief from his symptoms only by remaining in bed. On February 5th he remained in bed until the afternoon. He then got up, and, when taking some tea, was seized by a violent pain in the epigastrium. I saw him about an hour afterwards. He was then crying out with pain. His temperature was subnormal, and pulse 80. The abdomen was distended; the abdominal wall was rigid and board-like. There was dullness in both flanks, but no absence of liver dullness. I advised immediate operation.

Operation.—On opening the abdomen the upper part of the cavity was found full of blood. After swabbing this out I found a series of haemorrhagic patches scattered over the mesocolon, but failed to find any actual bleeding point. As his condition was very grave, and the haemorrhage had ceased, I closed the abdomen. Before doing so I examined the liver and the region of the pancreas, but could find nothing abnormal. There was no fat necrosis. He died six hours afterwards.

The interesting points of the case are:

1. The spontaneous nature of the haemorrhage without any history of trauma.
2. The close simulation of the symptoms to those following a ruptured viscus. The clinical picture presented at

the commencement of the haemorrhage was typical of perforated gastric ulcer.

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RESUSCITATION OF WOUNDED.

A good deal is now being done to resuscitate wounded men suffering from shock of wounds and exposure, with a result that is at once successful to the patient and encouraging to his medical officer. The transfusion of gun solution or blood has been so markedly successful in bringing round in a few minutes many wounded men who would otherwise have died, that it suggests the possibility of going a little further. My object is in no way to challenge the methods of resuscitation in use, methods which stand on the firm rock of results, but to deal rather with the soldier at a much earlier period, so as to have certain data in hand which might serve as a guide to the intelligent treatment of cases after the first shock of battle has been tided over. I refer to the taking of the specific gravity and viscosity of the blood of every recruit at some early stage—for instance, when the man is at the height of his training, in the best possible physical condition, and every function well and equally balanced. A true index might thus be found which, if put on his card, might help to regulate intelligent direction of treatment later on if necessary.

Present methods of treatment after operation appear to me to savour too much of groping in the dark. A bridle rein is required to guide us in our movements to the goal we would attain, and this communication is a plea that perhaps Nature has the guide ready to our hand. No two individuals have quite the same diathesis; every one has his own standard. Where in one the specific gravity may be 1 or zero as his normal necessary to perfect health, in another it may be *plus* or *minus* 1 as the case may be, and to raise the *minus* too much or to raise the *plus* insufficiently might just make all the difference.

While in charge of a V.A.D. hospital in England I, in a necessarily incomplete way, put this process into practice early last year, and took the viscosity and specific gravity of the blood of many wounded soldiers. Making the normal at zero, I found very few who came up to this standard or who agreed with each other. At the time I felt very much handicapped in not knowing the specific gravity and viscosity index of the individual in normal health, but even so I met with sufficient success to warrant considering the thing seriously. The taking of the specific gravity of every soldier would entail very little time, and could be done easily, quickly, and fairly accurately with mixtures of known specific gravity (ether, glycerin, etc.) in three or four bottles, and would require no more blood and much less time than is required in an ordinary blood count. Of course much more elaborate processes could be employed, and might be so later on in civil hospitals, but the above, I am sure, would be sufficiently accurate to meet the need, and would, I am convinced, be of immense assistance to the medical officer. By gradually raising the patient to his normal index and maintaining it at that by the use of gun solutions, or saline or other methods, his diathesis could more speedily be brought to an efficient degree, increasing his resistance to septic processes, and thus restoring him to health, and shortening the period of convalescence to that which now obtains. It is in view of the probably large influx into the army in the near future of men different and indifferent alike in physical qualities and standards of health that I with great diffidence send this communication.

ROBERT B. JOHNSTON, F.R.C.S., M.R.C.P.E.,
Lieutenant R.A.M.C.

BARCOO ROT (VELDT SORE).

IN the *JOURNAL* of June 9th, 1917, p. 761, Lieut.-Colonel C. J. Martin has made a very interesting addition to the pathology of barcoo rot, or veldt sore.

To those of us who have lived in tropical Africa any length of time the condition is well known, and is commonly referred to by the layman as "fever sore." Martin lays stress on the infection of the hair follicles being primary; with this I am inclined not completely to agree. I believe in many cases the initial lesion is a trauma through which the infection takes place, otherwise how is the distribution—backs of hands, extensor surfaces of

forearms and shins, that is to say those parts exposed to trauma—to be explained? Why are not other parts of the body, though admittedly generally less hairy, not affected? With an affected area the size of a three-penny piece on the back of the hand, naturally one or more hairs will be found passing through the lesion, and one would expect to find the follicles infected, but I am not convinced that this is primary. On the other hand, I do believe that hair follicles in the neighbourhood are secondarily infected by organism-containing discharges from the primary sore, just as happens in any pyogenic skin infection with the production of secondary lesions.

With Harman's view of the etiology, quoted by Martin, most of us will doubtless agree—namely, that the skin cocci are able to infect the epidermal structures of a man whose defences are weakened. The loss of resistance may be from many causes. The most marked case I have seen was in a European with symptoms of scurvy, but malaria, as is indicated by the local name, is often the predisposing cause. Want of cleanliness and attention I believe assist in the spread of the lesions, but not necessarily in the production of the initial lesion.

One other point. I am not convinced that similar infections do not take place in natives; the reason that they are not observed being that every skin lesion becomes immediately secondarily infected with pyogenic cocci, and its character thus changed.

With regard to treatment, I have had uniform success with a 20 grains to the ounce salicylic acid ointment after preliminary cleaning up of the ulcer and snipping away any overlying epidermis. Tropical practitioners will be, however, greatly indebted to Colonel Martin for pointing out the part the hairs play in delaying the healing, and in being responsible for the spread of the ulcer at its margins.

H. S. STANNUS, M.D.,
S.M.O., Occupied Territory, G. E. A.

Reports of Societies.

TREATMENT OF TUBERCULOUS MESENTERIC GLANDS.

At a meeting of the Medical Society of London on February 11th, the President, Sir ST. CLAIR THOMSON, being in the chair, Mr. HERBERT CARSON, in a paper on the clinical aspects of tuberculous mesenteric glands, expressed the opinion that the resistance of the glands was lowered by septic invasion from the intestinal tract and subsequently infected with tuberculosis from the same source, the tubercle bacilli reaching the intestine in milk. He analysed a series of 50 cases submitted to operation, describing three stages—that is, simple enlargement, caseation, and calcification; 37 of the patients were below and 13 above 15 years; many patients had been ill for two or three years. In giving a description of a typical case he referred particularly to pain, which he considered diagnostic. It was a true colic, and due to (1) contraction of the circular muscular coat of the bowel. The condition had to be distinguished from chronic appendicitis, ureteric stone, digestive disorders, intestinal parasites, and lead poisoning. Complications were almost all of the type of intestinal obstruction. There were three cases of intussusception in the series, which Mr. Carson considered to be due directly to spasm of the affected segment of intestine. With regard to treatment, the necessity of correcting diseases of the nose, pharynx and mouth was emphasized and laparotomy advised even in typical apparently uncomplicated cases. Mr. Carson advocated removal of the glands rather than euretting in the uncomplicated cases. Where there was obstruction he advised the removal of the glands and the freeing of adhesions or enterectomy rather than short-circuiting or the formation of an artificial anus. The paper contained an analysis of the after-results in the 47 cases of recovery.

Dr. LEONARD GUTHRIE said that in his experience calcified tuberculous mesenteric glands were usually found only after death. They were very difficult or impossible to palpate. He thought colic was not sufficient for diagnosis. He was not accustomed to ask for operation for free fluid. Intussusception, of course, and obstruction

from whatever cause, must have surgical aid. In his own hospital the recoveries with medical treatment amounted to 80 per cent., and with surgical treatment to 50 per cent., the latter including surgical complications.

Mr. V. WARREN LOW thought that colic was not evidence of uncomplicated tuberculous mesenteric glands, but was definite evidence of obstruction of the intestine, due probably to a kink or adhesion. When he operated he usually left the glands alone, and prescribed rest, small doses of tuberculin, and open air. A large proportion of cases got well. He had always found the colic associated with a rise of temperature which was out of proportion to the clinical symptoms. He had not regarded tuberculous mesenteric glands as a clinical entity.

Dr. WALTER CARR thought it impossible for tuberculosis of the glands to go on to calcification without fever. Were tuberculous mesenteric glands found in every case in which the typical symptoms occurred? Calcareous glands were often found in the abdomen *post mortem*; they did not usually give rise to tuberculous peritonitis, this being caused by (1) blood infection and (2) local extension of infection from the intestine. Tuberculous mesenteric glands might give rise to miliary tuberculosis. In London the bronchial glands were more often the source of infection, whereas in Scotland the infection appeared, as a rule, to come from mesenteric glands.

Mr. H. J. GAUVAIN agreed that tuberculous mesenteric glands existed without tuberculosis elsewhere. Of 2,000 cases of the bones and joints the mesenteric glands were affected in some. He had never come across the colic described by Mr. Carson as typical of these cases. He did not operate to remove the glands. The treatment he used was open air, and, when the glands were getting smaller, he endeavoured to assist calcification by administering calcium salts.

Dr. EDMUND CAUTLEY thought that the symptoms described were not evidence of tuberculous mesenteric glands. He considered that many of Mr. Carson's cases were not instances of purely tuberculous mesenteric glands, for there were complications which showed extension to the peritoneum. Operation was not profitable unless there was a complication indicating the necessity for it.

Mr. CARSON, in reply, said that he regarded colic as a constant symptom, and without it a diagnosis of tuberculous mesenteric glands should not be made. The children he had described were all on the down grade, getting thinner and more ill. In his experience pain was not usually associated with the complications.

SYPHILIS AND STILLBIRTHS.

At a pathological meeting of the Liverpool Medical Institution on February 14th, Mr. W. THELWALL THOMAS, President, in the chair, Professor J. M. BEATTIE read a note on the examination of 409 stillbirths for evidence of syphilis. Spirochaetes were found in the organs (liver, spleen) in 49. The blood of 35 fetuses showed a positive reaction in 26 and a negative in 9. Related to these 9, the mothers showed the following results: 4 were positive, 4 were indecisive, and one was negative. Absence of spirochaetes was noted in one fetus, in which, however (and in the mother), the blood test was positive. The negative result of the blood test in 9 fetuses was ascribed by Professor Beattie to probable bacterial infection of a saprophytic nature, interfering with haemolysis. His conclusion was that the prevalence of syphilis in regard to stillbirths was 15 per cent., and his results corroborated those of other observers. He considered it most desirable, in the absence of other obvious causes of stillbirths, that the blood should be examined with the object of ascertaining the presence or absence of syphilis. Dr. BRIGGS, professor of midwifery and gynaecology, agreed with the findings of Professor Beattie and said that the clinical evidence supported them.

VOGEL of Breslau has found that though the total incidence of venereal disease in the German army was comparatively low (about 0.3 per cent.), syphilis, as compared with gonorrhoea, had become more common. The incidence ratio of syphilis to gonorrhoea, which was as 1 to 3 or 4, had risen to 1 to 2. Another disquieting fact was the high proportion of married men—a third of the total—among infected soldiers.

Rebichus.

BRITAIN'S HERITAGE OF SCIENCE.

WE welcome the appearance of *Britain's Heritage of Science*,¹ by Professor SCHUSTER and Dr. SHIPLEY, for the public has remained too long in ignorance of the commanding part played by the British in extending the boundaries of scientific knowledge. Until within recent years little or no attempt has been made to elevate the great record of scientific achievement in this country to the dignity of history; politics, the church, and the law have been investigated from every point of view by the historians, but the wider and more important field of science has been left uncultivated. To this is due an abyss of ignorance concerning the most fundamental scientific facts which largely govern the world at the present time. For this the men of science must be held in large measure to blame. Knowing the grand heritage of science in this country handed down by their ancestors, they have rarely troubled to give the glowing story to their fellow men. They have not considered it necessary to devote their powers to the task of describing, so that all may understand, the value of the scientific efforts of men who were often intellectual giants.

But this book does much to remove the reproach, and here we have unfolded by experts a comprehensive account of the activities of science in this country. The authors have successfully piloted their narrative between the style of the *Popular Science Educator* and that of the writer of scientific matter, which is too often technical and cumbersome. Any man of ordinary intelligence can, and should, understand this book, and we make bold to say that after reading it he will be amazed at the great scientific results obtained by his countrymen. So far as we know, this is the first attempt to give a comprehensive view of the history of British science in all its branches by men who occupy the position of authorities, and we congratulate them on the success of their efforts.

Having said so much, we may advance some criticisms concerning the plan and scope of the work. For the account given of scientific endeavour and its results, coming as it does first hand from experts of known ability, we have nothing but high praise and thanks to them for having conferred upon us a great benefit. More than any other branch of writing, the history of science can adequately be dealt with only by the expert, and it is no easy matter to present the subject, as the authors have, in such a form that the fundamental principles of historical writing are not violated. In this book it could not be expected that the whole history of science in these isles could be dealt with in the space of some 300 pages without considerable condensation, and we think, in the attempt to mention the names and work of so many who during the last 300 years have advanced science, the book has become overloaded.

The biographical matter contained in the volume is scanty, and no doubt the requirements of space have forbidden the attempt to give anything like full biographical details. But what is given is in such bare outline that we are constrained to believe that the book would have gained had the biographies been almost entirely eliminated. By far the larger part of the volume is devoted to a consideration of physical science, and this part may be described as a masterly review of that subject. The accounts given of the work of Newton, Cavendish, and Clerk-Maxwell are particularly competent, and, with this example before us, we could wish that Dr. Schuster would devote himself to writing a complete history of physical science, where he would be emancipated from the cramping influences of consideration of space. Such a book, we feel sure, would take rank with Whewell's *History of the Inductive Sciences*.

The last hundred pages of the book deal with biological science, and it was almost inevitable that the account would suffer from compression. With the chapters on botany and geology we have no complaint, nor with that on zoology, which contains an admirable review of Darwin's work. We think, however, that scarcely full justice has been done to the work of John Hunter, and

that mention might have been made of the work of Edward Tyson.

In the chapter devoted to the history of physiology the attempt has been made to combine accounts of physiology, medicine, and pathology, and the result has not been altogether successful. Even had the history of physiology alone been attempted, a short chapter of twelve pages would scarcely have sufficed to give even a bare outline of the work accomplished by British physiologists. Many omissions occur; not a word is said about the work of Matthew Baillie, of Richard Bright, and of William Prout, while others receive only a passing word. If Sydenham, whose great work was mainly clinical, finds a place, surely the same honour should be accorded to Heberden, Willan, Sir Thomas Watson, and others. In another edition this chapter might well be remodelled, not only in the direction of amplification but also in arrangement, for it gives the impression of having been thrown together rather loosely. We should also have welcomed a chapter on anatomy, for this country possesses a great heritage in that subject, and the work of Douglas, Parsons, Monro, the Hunters, Baillie, and Wilson, together with many of their successors, should receive due recognition.

But these points do not greatly mar the general excellence of the book, and we again thank the authors for having described the effort of Great Britain in such a way that all may know the part our countrymen have played in the realm of science.

TREATMENT OF CEREBRO-SPINAL MENINGITIS.

PROFESSOR DOPFER, in his book on the diagnosis and treatment of cerebro-spinal meningitis,² gives, in a preliminary description of the clinical aspects, an account of the latent cases and of the manifestations in old people, who show little fever and very well marked contractions. In some anomalous cases the cerebro-spinal fluid is clear, and contains a predominance of lymphocytes (76 to 80 per cent.); but if the patient survives, the ordinary polymorphonuclear predominance soon follows. After considering the diagnosis from meningism, the distinction from other forms of meningitis is shown to depend on bacteriological examination. How entirely up to date this work is may be gathered by the reference to the occurrence of meningitis due to infection by the *Spirochaeta icterohaemorrhagiae* without jaundice. Clinically cerebro-spinal fever may be confused with typhus, but in meningococci infection the purpuric rash appears on the first or second day, whereas in typhus it is not seen before the fourth day of the disease. The laboratory tests are fully dealt with, and illustrated by figures.

The subcutaneous and intravenous injections of serum Dopfer considers useless. He recommends washing out the subarachnoid space with normal saline before the injection of serum. The injection of serum into the cerebral ventricles is described both in infants and in adults after trephining. The beneficial effects of antimeningococci serum are insisted upon, and its failure from factors such as insufficient treatment, meningitic adhesions, blocking of the communications between the subarachnoid space and the cerebral ventricles, and the presence of Dopfer's parameningococcus, is discussed. Serum disease is not more frequent after intrathecal than after hypodermic injection of serum. The occurrence of meningeal symptoms due to serum treatment is described and explained. This handy volume gives an excellent account of the diagnosis and treatment in a short space.

HEWLETT'S "PATHOLOGY."

THE fourth edition of Professor HEWLETT'S book, *Pathology, General and Special, for Students of Medicine*,³ maintains the general standard of excellence of the preceding editions. The text has been subjected to revision and several of the old sections have been expanded and new matter particularly in connexion with the war, has been added, as, for instance, on trench foot, trench fever, trench nephritis, toxic jaundice of munition makers, gas gangrene, and gassing.

Without wishing to be hypercritical, we would have

¹ *Diagnostic et traitement de la méningite cérébro-spinale*. By Dr. Dopfer, médecin principal de 2^e classe, professeur à l'École du Val-de-Grâce, 1918. Paris: J. B. Baillière et fils. 1918. (Cr. 8vo, pp. 96; 17 figures. Fr. 2.)

² *Pathology, General and Special, for Students of Medicine*. By R. Tanner Hewlett, M.D., F.R.C.P., D.P.H. Fourth edition. London: J. and A. Churchill. 1917. (3vo, pp. 631; 37 plates, 15 figures. 12s. 6d.)

³ *Britain's Heritage of Science*. By A. Schuster, F.R.S., and A. E. Shipley, F.R.S. London: Constable and Co. 1917. (Cr. 8vo, pp. xv + 334; 15 portraits. 8s. 6d. net.)

liked to see a rather more generous treatment of the subject of pigmented moles or melanomas with a brief account of their structure; and some reference to the more modern views on the subject of chronic endometritis, to the haemolytic forms of jaundice, and, perhaps, a modification of the phrase on p. 428, "Recent work has shown that haematogenous jaundice probably does not exist." This work can no longer be classed as "recent." Further, on p. 582, under the section on tumours of the brain, aneurysm seems out of place. A word or two on the occurrence of aneurysms of the branches of the circle of Willis might well have been added, especially in view of the frequency with which they occur and of the possibility of leakage tinging the cerebro-spinal fluid, which is so often examined nowadays.

The book is illustrated by thirty-seven plates and fifteen figures. Some of the plates with figures of microscopical sections might be better. They are reproduced in very much too dark a tone, so that the detail is obscured.

The book remains an admirable one for students of medicine; it is concise and clear and contains a sufficient summary of the various theories concerning some of the more complex phenomena to form a sound basis on which to build further study.

NOTES ON BOOKS.

DORLAND'S well-known *Medical Dictionary*,⁴ first published in 1900, has now reached its ninth edition, and contains more than 2,000 new terms, mainly due to the war, and over 40 pages more than before. There is such an extraordinary amount of information contained in this encyclopaedic dictionary that it is impossible to imagine any brain that could carry all the details given on the various subjects. The lists of diseases, tests, syndromes, operations, and methods supply the answer, sometimes hard to obtain, as to what So-and-so's disease or test is. Most readers agree that the use of the describer's name in the nomenclature of disease is generally undesirable, but as it appears that the habit cannot be suppressed entirely, it is well to have an unfailing source of reference. It has often been said that on the whole it is just as useful to know where to find a piece of information as to have it at the tip of the tongue, and those who share this belief will find Dorland's dictionary, with its illustrations, an invaluable source of reference.

⁴ *The American Illustrated Medical Dictionary*. By W. A. Newman Dorland, A.M., M.D., F.A.C.S. Ninth edition, revised and enlarged. Philadelphia and London: W. B. Saunders Co. 1917. (Pp. 1179; 317 illustrations, of which 115 are coloured. 21s.)

HOSPITAL FOR LIMBLESS MEN, CARDIFF.

THE Prince of Wales Hospital at Cardiff for men who have lost limbs, opened by the Prince on February 20th, is designed to meet the needs of sailors and soldiers who have lost limbs in this war, but it is intended to be a permanent institution for the benefit also of men crippled by accidents in agriculture or other industry. It is the gift of citizens of Cardiff to Wales and Monmouthshire.

The movement for its establishment was initiated by Colonel Lynn Thomas, C.B., C.M.G., who, from his experience as one of the consultant staff of the Roehampton Hospital for limbless men, had become impressed with the need for establishing corresponding institutions in each part of the country. His proposal was supported by the then Lord Mayor, Dr. R. J. Smith, and before any public appeal was made funds were found for the initial expenditure by two Cardiff merchants, Mr. J. P. Cadogan and Mr. W. Percy Miles. A large house which had been the Mansion House of Cardiff was purchased in September, 1916. It had a garden and outbuilding. Beyond the garden were two other smaller houses, and both of these were purchased; the one has been converted into an officers' block containing 12 beds, and the other into a home for the female staff. The main building provides accommodation for 53 men, and a ward with the necessary attached offices has been reserved on the ground floor for those who have lost both legs. In October, 1916, Commander Lord Tredegar, R.N.V.R., presented the freehold of the whole property.

The house is entered by an inclined plane, and another leads into the garden. On the open ground between the main building and the quarters for the officers and staff, workshops for the making of artificial limbs, a parade hall, and billiard rooms for officers and men have been estab-

lished. Experience having shown that it is very necessary in such an institution to have arrangements for testing artificial limbs in actual use, special provisions have been made in the parade hall and in the garden. The aim has been to enlist the man's interest and co-operation all through. When a man first wears his permanent artificial leg he is taken to the parade hall, a long room with terrazzo floor and two sets of parallel bars to suit men of different heights; he makes his first steps resting his hands on the bars and walks towards a mirror, in which he can see for himself any error he may make in his first attempts, and is shown by an instructor how to correct it. An artificial limb cannot be considered perfectly adjusted until it is of exactly the right length, and of this the man himself is the best judge. Sometimes, however, he finds difficulty in judging; this is overcome by a very simple expedient. The parade hall is provided with long, loose narrow boards varying in thickness from an inch to a quarter of an inch; the man tries walking with his artificial limb on one board after another until he finds the board which exactly suits him. The leg is then elongated by the thickness of the board.

The garden has been laid out with taste and skill, so that in his next stage the man can get accustomed to variations in the pitch of roads and paths, which pass almost unnoticed by a man with two sound legs. This "miniature Wild Wales" has rough stone paths, some on the level and others presenting gradients varying in pitch up to 1 in 3½; moreover, the paths are laid so that as the man walks his right foot is in one stretch higher than the left, and in another the left higher than the right.

For a man who has lost both lower limbs the difficulty of learning to walk is very great; in order to get into the artificial apparatus he has had to depend on two people to lift and steady him, and it was not easy for him to gain confidence. This difficulty has been overcome by a special appliance, an "aërial-transporter crutch," consisting of pulleys and tackle, by which a man can lift himself from his wheeled chair into his artificial limbs and allow so much of his weight to rest upon them as he feels he can bear.

The training of men in the use of artificial arms is superintended by an armless collier, himself the inventor of an ingenious worker's arm (the Welsh arm) which he has used successfully for over twenty years. In the garden there are pits for the men to practise shovelling, and the use of the pick, axes and saws, and wheelbarrows. In addition to outdoor work there are shops for steel workers, carpenters, glass-blowers, and leather workers, which are carried on under the supervision of the Cardiff Technical College.

The artificial limbs are made on the spot, so that it is easy to carry out minor adjustments, and no man is discharged until he pronounces his limb comfortable. The workshops are provided with apparatus for testing the breaking strain of steel wires, thongs, and ropes used in the construction of limbs, and provision is made also for experimenting with new inventions and designs for artificial limbs for the upper and lower extremity.

The new hospital serves during the war as a special annexe of the Orthopaedic Centre, Welsh Metropolitan War Hospital, Whitechurch, to which the wounded are admitted either direct from a convoy or after a period in a general hospital. At Whitechurch the patient undergoes such surgical treatment, including operation, as may be necessary, and when he has reached a suitable stage of recovery is fitted with a temporary appliance called a "pilon," first used, we believe, by Belgian surgeons. It is a modification of the old-fashioned peg-leg the bucket being made of plaster-of-Paris bandages. With this temporary appliance he is encouraged to get about, and as soon as possible is sent to an auxiliary hospital at the seaside (Penarth). When he has made suitable progress he is admitted to the Prince of Wales Hospital and provided with an artificial limb and passed through the scheme of training. In a similar manner men who have lost an arm are first admitted to a Red Cross hospital at St. Pierre, Cardiff, with a temporary appliance, and are later sent to the Prince of Wales Hospital. Officers who have lost a limb go during the time for which they are wearing the temporary appliance to another Red Cross hospital in Cardiff. By this arrangement the beds in the Prince of Wales Hospital are kept free for patients who are being actually fitted with a permanent limb.

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SATURDAY, FEBRUARY 23RD, 1918.

FORMS AND REFORMS.

SIR WATSON CHEYNE, in his speech on the address at the opening of the new session of Parliament on February 12th, expressed an apprehension that the moral of the country was in danger of being lowered by the growth of the belief that things which tend to interfere with the earnest prosecution of the war were not being put down with a strong hand; that there was too much yielding to expediency; that there was undue delay in making decisions, and in taking action when decisions were made; that parochial instead of wide views were allowed to prevail; that underhand intrigue, whether in favour of an individual or a section of the community, was not put down with a firm hand; and that incompetence was condoned, and in some cases seemingly rewarded. Sir Watson Cheyne was no doubt speaking quite generally, though the two illustrations he gave referred to medical matters. They both related to delays; in the one case the delay in the publication of the report of the Committee sent to France to inquire into matters connected with the personnel and administration of the medical services in that country, and in the other the delay in the establishment of the Air Medical Service. He did not explain his hint that "incompetence is condoned and in some cases seemingly rewarded," and he may not have been thinking specially of the medical services, but some appointments made in those services cannot but make the judicious grieve.

A fortnight ago we gave some particulars of the extent of the Home Commands, and of the importance of the duties with which the Deputy Directors of Medical Services in these commands were entrusted, instancing as one, and the chief example, the control and inspection of the very large number of military hospitals of various grades, and of the different special institutions which exist in each command. There are officers holding these appointments who, to speak for once quite bluntly, have not given evidence that they possess the knowledge, ability, or adaptability qualifying them to discharge the duties of the offices they occupy; it is, indeed, alleged that the recommendations of competent advisers have been misunderstood, ignored, or obstructed. We shall be glad to be assured that, in making appointments to these influential posts, merit, competence, and mental elasticity to adapt itself to the new conditions have alone been taken into account, and that senior officers have not been appointed merely because, in peace, it has been the habit to appoint senior officers to these posts, and because there were no other posts of lesser responsibility vacant. We should very much regret to think that Sir Watson Cheyne's statement, that in the army "incompetence is condoned and in some cases seemingly rewarded," applied to the medical service.

Leaving out the Aldershot Command and the London District, which are special cases, the whole of Great Britain is divided into five commands. There

are about 88,130 square miles in Great Britain, so that if it were equally divided there would be about 17,620 square miles in each command; scattered over each of these areas there are a very large number of hospitals, it may be as many as four hundred, many military institutions for the treatment of special conditions, and also convalescent camps, command dépôts, and other medical units. But Great Britain is an island of very irregular form, and the areas of the commands are not symmetrical geometrical figures. The Western Command, for instance, is an acute angled triangle with its apex at the Solway and its base at the Bristol Channel, a distance in a straight line of about 240 miles. The map of Scotland, or of the Northern or Southern Command, reveals very similar geographical configuration. If we suppose the principal medical officers of the various commands energetic men, possessed of wide and varied clinical knowledge, so that they could quickly judge the efficiency of the treatment given, having experience in the management of a busy hospital (which an army medical officer trained in peace may never have entered since he was a student), and if finally we suppose them endowed by a fairy god-mother with seven leagued boots, then possibly their administration might be efficient.

We understand that recently the number of Assistant Directors of Medical Services has been increased, in the hope that they might help the Deputy Directors of Medical Services in the commands, especially, we gather, in the inspection of hospitals. There is, we fear, much room to doubt whether these new appointments for senior regular medical officers are likely to produce the desired result. Some at least of these officers appear to suffer from the delusion (which they take no pains to conceal) that anybody can operate, but that it takes a very clever fellow to administer. They do not, however, seem to be proving the proposition in their own persons. There is evidently a risk, at least, that they may attach undue importance to outward forms and be more concerned, for instance, in the correctness of the patient's costume than in the rightness of his treatment. They, or some of them, have succeeded in conveying the impression that in home administration they are still governed by what is said to be the watchword of some of their fellow officers abroad, "Evacuate! evacuate!" Whether this watchword can be applied abroad except by men of good judgement and sound clinical instinct is a matter which may be open to discussion, but, whatever its value with an army in the field, it cannot be transferred directly to hospitals at home, where quite different criterions as to the length of time a man should be retained for surgical or other treatment apply.

The matter of records may be taken as a concrete example of the strange inability of some principal medical officers to understand a new idea. We explained last week the simplified and improved system worked out at the request of the War Office by the statisticians of the Medical Research Committee charged with the compilation and analysis of army medical statistics, and pointed out the many advantages of a uniform system. It might have been supposed that any man of the world possessing business ability would have rejoiced at the change. But the Deputy Directors of Medical Services, or some of them, had not the gumption to take care that the change was made—that orders were obeyed. The result is that in some hospitals, if not in all, the new system has been superimposed on the old, and the two sets of forms, the old and the new, are still required to be made out, no doubt

"in own handwriting." Such a result may seem beyond belief, but some who have had experience of army ways, especially at home, seem to find it quite easy to believe. We are told that not all authorities are equally zealous in the collection of autographs, but their assiduity is irritating enough everywhere. We know of one military hospital where the signatures of orderly medical officers are collected at the rate of 4,000 a day. On a rough calculation the signatures for a year, if arranged in a row, would extend from London to Aldershot or thereabouts. We know of another hospital, not so large, where the number of returns required to be furnished by the officer in charge alone to head quarters averages sixty-three a week. Is any one so simple as to suppose that head quarters reads them? Then in this, as in every other military hospital as at present administered at home, there are all the reports and notes of all the medical officers of all the wards and divisions, and all the diet sheets to be noted daily, the handwriting of no one but the medical officer being permitted to appear, and all the proceedings of boards, and so on, and so on. As was stated last week, we have been informed that there is no army regulation requiring reports of boards to be furnished in triplicate and in autograph. But, though there was no regulation justifying it, the requirement was enforced. Who is to blame for this irregularity entailing so great a waste of medical man power at a time when there is a great shortage of it? Until better informed, we can only reply—the Deputy Directors of Medical Services in the Home Commands, whose business it is to see that instructions are carried out and not exceeded. They are nothing if not administrators, but in this, as in not a few other respects, they seem to have failed as administrators.

The Army Medical Service started this war with a great asset in the goodwill of the civil profession and the confidence inspired by the knowledge that Sir Alfred Keogh, who had planned the Territorial medical organization, would be in charge to watch over its application from the chair which he is about to vacate. The civil profession, through the British Medical Association and other civil professional bodies, had striven hard for the autonomy of the Army Medical Service and to ensure that it should be provided with adequate means and authority for carrying on its duty to the army. It was rewarded by the smoothness with which the plans to meet such an emergency as that of the autumn of 1914 worked, by the success of the schemes for the prevention of epidemic diseases in the armies, and, above all, by the spirit of comradeship and enthusiasm in which the new problems in the treatment of the wounded and sick were speedily tackled and steadily investigated until one by one each has been solved or brought nearer solution, with ever-increasing improvement in results and untellable diminution of suffering and permanent incapacity.

In the articles published in recent issues we have endeavoured to deal with defects which the long continuance of the war and the great accumulations of the wounded, disabled and sick have disclosed, especially at home. We have sought to do so with frankness but with every consideration for individuals. We know that some reforms have been and are being introduced, but we are convinced that many others are necessary and that the demand for their application is becoming irresistible. We believe that the Army Medical Service still has an opportunity of initiating and carrying through these reforms if it will act promptly without fear or favour.

CRANIO-CEREBRAL WOUNDS.

OPINION as to the principles and practice of cranio-cerebral surgery in advanced formations in the field has undergone considerable modification in the past three years. Upon military grounds some still hold that penetrating wounds of the skull demand more time and skill, than can be justified by results, in periods of heavy fighting, arguing that the "walking wounded" and those likely to return to the firing line, should, by preference, receive attention from the most experienced operators. On the other hand, it has been the aim of the medical services, when possible, to save every man who can be rescued by promptitude and skill, whatever his prospects as a combatant for the future; hence the admirable advanced operating centres for "head," "abdominal," "chest," and "femur" wounds established within easy reach of the fighting front. Notwithstanding wide divergence of view in some directions, there is almost unanimous agreement among medical men of all armies, allied and enemy alike, that early operation is imperative, and that all cases not actually moribund should be afforded such additional chances of recovery as operation offers.

The special centres set up in our own armies have done admirable work, not only directly, by saving individual lives, but also, encouraged, supported, and guided by the higher authorities, indirectly, by affording opportunities for regular weekly discussions amongst the medical officers, and for the systematization of records. It was of happy augury for surgery when the friendly arrangements between the medical corps of the British and United States armies led to an American officer with an international reputation in operative neurology being posted to one of these centres. Professor Harvey Cushing brought to a strange field and new conditions a great experience and a finished technique; he was provided with a complete equipment and a trained team of assistants. In his first weeks of work he ascertained that the existing rate of operative mortality was very much the same as that in all other similar centres—namely, 50 per cent. He frankly faced the hard fact that his own earliest results were not quite so good; sought the reasons; discarded whatever in his accustomed methods seemed unsuitable, and adopted novel ones, justifying his departures from his own past practice by a steady reduction of mortality from 55 per cent., in three months, to 29. It was a remarkable achievement, and we can well believe that to watch the evolution of his practice in those three months was a lesson not thrown away upon the centre, especially the operators, and that it has had an effect upon their own results.

Professor Cushing, whose preliminary communication we publish this week, would be the first to admit that while he taught, he also learnt, and that the particular routine and technique he personally employs and now describes, as indeed he expressly states, is not the only one capable of producing results similar to his own. He starts from the ground common to all workers in the field of war wounds: "infection" is the bugbear. All clinical experience points that way; autopsies, such as the consecutive series carried out at the same group centre, particularly by Captain W. Briggs, clinch the argument. The essence of Cushing's as of other successful schemes for the elimination of infection, is a simple but invariable routine carried out with minute attention to details from the earliest moment.

It is, perhaps, worth insistence on some of his chief details. He begins at the field ambulance, with the

suggestion that every "head" case should have a first dressing of spirit soap; this facilitates shaving very materially, and the razor is one of the best "antiseptics" for the skin. He advises local anaesthesia in preference to inhalation, although formerly he was a convinced adherent of the latter mode. His method of removing the damaged area of bone *en bloc*, though it needs suitable instruments, is simple, easy, and purposeful. The finger, that most delicate of probes, is, he says, too clumsy for the brain. Replace it, then, by a very soft catheter, which, employed as he directs, is at once an exploring antenna and an almost perfect means for cleansing a brain track of the detritus which is an already-inseminated culture medium. Then follows the removal of all accessible foreign bodies: bone, by suction, or by delicate forceps after localization, favoured oftentimes by aid from the conscious patient who coughs to order; metal, by the magnet when feasible.

With a wound, then, as clean and dry and free from extraneous matter as possible, but almost surely not free from organisms, is it practicable to inhibit the growth of bacteria, at any rate until the natural defensive forces have rallied? In the use of dichloramine-T, dissolved in oils, Professor Cushing thinks he has found a means for continuous antibacterial action without harm even to the cerebral tissues, and, so far as his clinical series constitutes an experiment, the evidence is in his favour.

After the primary operation all cases should be dressed in the theatre under like conditions—re-cleansing of the track, lumbar punctures, secondary operations if needed, secondary sutures, all should take place as part of the daily routine under the surgeon's own eye, if not always by his own hand. The time spent is amply repaid, and the system has another great advantage, that it ensures completion of the neurological records begun at the moment of admission. It is mainly because the triradiate incision leaves the track more accessible to inspection and cleansing at the dressings that he prefers it to the flap. It was a rule of these centres, before Professor Cushing arrived, that every case must be retained until the danger of post-operative complications was certainly passed—that is, for the best part of a month or longer—so that when he speaks of his cases as having "passed the stage of conceivable complications" before evacuation, he is clearly not referring to late symptoms such as those occurring in the remarkable case we publish to-day, where Captain Rayner and Captain Barclay effected great improvement, both psychological and physiological, by the late extraction of a small foreign body, using an ingenious instrument of their own device.

One of the trials of operators at a "head" centre dealing with cases of which hitherto one in two have died in their hands, is the uncertainty as to how much value in the community those whom they save will eventually have. Are they but preserving their lives to leave them a burden to their friends and to the state? There is a certain amount of information in our own recent literature¹ and a considerable body in continental journals—for access to which we have to thank the unobtrusive and necessarily imperfectly acknowledged but fully appreciated labours of the Medical Research Committee—altogether an accumulation of evidence that late complications are neither so numerous nor so serious as was formerly believed.

It is to the perfecting of early operations and to the refinement of practice in the immediate and remote

after-treatment we must look for the abolition of damaging sequelae. Thanks to Cushing, thanks also to the initial contributions of Gray, Sargent, and many another British surgeon, not to mention our continental brethren, we are on the road to the goal.

MEDICAL STUDENTS IN THE RANKS.

A NEW Army Council Instruction, No. 153 of 1918, has been issued with regard to the release of medical students serving with the colours for the purpose of resuming their professional studies. A medical student now serving with the colours who at the time of his enlistment was engaged in medical studies, and who (a) is in his third year, or (b) at the time of enlistment had passed the whole of the professional examination in chemistry, physics, and biology (or botany and zoology) for a medical degree or licence, is, if eligible and he so desires, to be transferred (regardless of his medical category) to Class W or W(T) of the Reserve, or discharged if ineligible for transfer to the Reserve, for the purpose of resuming his studies with a view to obtaining a medical qualification. A third year student is defined as one who had on or before enlistment completed two years of medical study, and who can within thirty-six months complete his professional curriculum and obtain his medical degree or licence. A medical student desiring to be released from the colours under this Instruction must apply through the usual channels, stating the date on which he wishes to be released, and undertaking to resume his studies with a view to qualifying. Presumably the application should be made in the first instance to the company officer in the case of a soldier, and to the commanding officer when the applicant holds a commission. If a third year medical student, he will be required to produce a certificate from the dean of his medical school (or the official corresponding to the dean), showing (1) whether he has or has not passed his professional examination in anatomy and physiology; (2) that prior to enlistment he had satisfactorily pursued his professional studies during two years, and was then actively studying with a view to qualification; and (3) that he can qualify within thirty-six months. If not a third-year student, he must produce a certificate from his dean showing that prior to enlistment he had passed the whole of the first professional examination, and that at or immediately before enlistment he was actively pursuing medical studies and had been studying as a whole-time medical student for at least six months at a recognized medical school or college. In each case the student will add to the certificate the address of the medical school at which, and the date on which, he is going to resume study. General Officers Commanding at home and abroad are directed to issue the necessary orders for bringing the provisions of this instruction before the notice of the medical students concerned, and to obtain from officers commanding units the names of men who have produced the certificate mentioned above, and who desire to be released. The further procedure is also given in detail. In the case of medical students serving in the ranks the approving authority for their release will be the General Officer Commanding, but where a medical student who comes within the terms of the Instruction is holding a commission a statement of his case, together with the necessary certificates, is to be forwarded by the General Officer Commanding to the Army Council for its consideration and decision. Any student transferred to the Reserve must forthwith resume his medical studies and enrol in an officers' training corps, under penalty of being recalled to the colours. At intervals not exceeding six months he must forward to the officer in charge of records a certificate from his dean stating that he is satisfactorily pursuing his studies and making reasonable progress therein, together with a certificate (except in the case of students coming under A.C.I. 1196 of 1917) from the commanding officer of

¹ Vide, for example, BRITISH MEDICAL JOURNAL, January 5th, 1918, p. 29.

his officers' training corps, stating that he has made himself efficient during the preceding six months. A.C.I. 1196 of 1917 applies only to medical students who have held combatant commissions, and have been returned to their professional studies. These, if not given honorary rank, must undertake and carry out all the ordinary officers' training corps obligations of medical students.

SURGICAL SHOCK.

It will be remembered that at the end of February, 1917, the Medical Research Committee issued a memorandum on surgical shock and some allied conditions, which we published in full on March 24th, 1917. In August, 1917, the Committee appointed a Special Investigation Committee to co-ordinate inquiries into surgical shock and allied conditions, with a view to the correlation of laboratory and clinical observations. It consisted of Professors E. H. Starling (chairman), F. A. Bainbridge, W. M. Bayliss, W. B. Cannon, M.D. (Harvard, Captain M.O.R.C., U.S.A.), A. N. Richards, Ph.D. (University of Pennsylvania), C. S. Sherrington, Surgeon-General Cuthbert Wallace, Colonel T. R. Elliott, Captain John Fraser, R.A.M.C. (of Edinburgh), with Dr. H. H. Dale as secretary. The Medical Research Committee has now received three reports through the Investigation Committee, and these have been printed for official distribution; but as they are of an interim nature they will not be placed on sale until the investigation has proceeded further, when it is hoped that a volume may be issued for sale. The first report, on intravenous injections to replace blood, by Professor Bayliss, brings down to a later date (November 25th, 1917) the results of his researches as detailed by himself in the *JOURNAL* of April 28th, 1917, p. 564, and in his paper to the Royal Society, a note upon which was published in this *JOURNAL* on December 8th, 1917, p. 772. The third report (January 7th, 1918), by Captains Hamilton Drummond and E. S. Taylor, R.A.M.C.(I.), discusses the use of intravenous injections of gum acacia in surgical shock. They used clinically the solution mentioned in the February memorandum of the Medical Research Committee, with the addition of gum; the formula is, sodium chloride 2 grams, potassium chloride and calcium chloride, of each 0.05 gram, powdered gum acacia 5 grams, distilled water 100 c.cm. The solution was made in a mobile laboratory by Major J. W. McNee, and, to remove all particles, was filtered through paper pulp under pressure before being autoclaved. More recently it has been found convenient to make up a solution of five times this strength, and to dilute with sterile water as required. No untoward effects were observed, and at necropsies on cases which succumbed from their wounds after transfusion no pathological lesions dependent on the fluid introduced (thrombosis, etc.) were met with. The fluid must be introduced very slowly, allowing fifteen to twenty minutes for each pint injected. The transfusion has been carried out with the ordinary apparatus used for injection of saline, the solution being kept at 118° F., and a pint being the amount usually given at one time. The best results were obtained in haemorrhage attended by little shock; fair results were met with in haemorrhage with shock of moderate severity; little improvement was obtained in cases of advanced shock dependent on severe damage to hollow viscera. The great importance, in wounds of the extremities, of arresting all possible sources of haemorrhage before transfusion is pointed out; otherwise as the blood pressure rises haemorrhage may at once begin again and leave the patient worse off than before. In some severely lacerated limbs it was found best simply to apply a tourniquet before the transfusion was begun and to deal with the bleeding points at the subsequent operation. In cases of intra-abdominal haemorrhage the practice has been to start the transfusion at the beginning of the operation, losing no time in finding the sources of the bleeding immediately the abdomen is opened. The

second report is the joint production of Captains Cannon, E. M. Cowell, J. Fraser, and A. N. Hooper. It consists of a series of papers on blood pressure in wound conditions, on alterations in the distribution and character of the blood, on acidosis, and on the initiation, nature, and preventive treatment of wound shock, with which we cannot at present deal.

ACTION OF ALCOHOL.

An Advisory Committee was appointed in November, 1916, by the Central Control Board (Liquor Traffic) to consider the conditions affecting the physiological action of alcohol, more particularly the effects on health and industrial efficiency produced by the consumption of beverages of various alcoholic strengths. It consisted of Sir George Newman (Vice-Chairman), Professors Cushny and Sherrington, Dr. F. W. Mott, Dr. H. H. Dale, Mr. W. McDougall (Reader in Mental Philosophy, Oxford), Captain M. Greenwood (Reader in Medical Statistics in the University of London), and Dr. W. C. Sullivan (Medical Superintendent of the Rampton State Asylum for Criminal Lunatics), with a lay chairman. Its report, with a preface by its lay chairman, Lord D'Abernon, has now been issued in a slim volume, entitled, *Alcohol: its Action on the Human Organism*.¹ It is a very balanced document, and will not altogether please the advocates of total abstinence, inasmuch as it shows that some of their habitual statements are exaggerated. At the same time, it does not give the believer in the extraordinary merits of alcoholic beverages any ground to rejoice. The most it can say in his favour is that the temperate consumption of alcoholic liquors, in accordance with certain rules of practice, may be considered to be physiologically harmless in the case of the large majority of normal adults, and that this conclusion is fully borne out by the massive experience of mankind in wine-drinking and beer-drinking countries. But it adds that it is true that alcoholic beverages are in no way necessary for healthy life, that they are harmful or dangerous if the precautions advised are not observed, and that they are definitely injurious for children and for most persons of unstable nervous system, notably for those who have had severe injuries of the head, or who have suffered from attacks of mental disorder or from nervous shock. The Committee points out that the main action of alcohol, apart from the effects of its continued excessive use, is confined to the nervous system, that it is narcotic rather than stimulant in action, that its nutritional value is strictly limited, and that its habitual use as an aid to work is physiologically unsound. On the vexed question of the formation of the alcohol habit and the existence of craving the Committee expresses the opinion that the person who is in the habit of taking alcohol takes it primarily for the sake of the agreeable effects produced through the nervous system, because he finds that it relieves the sensations of fatigue, and because he believes that it gives him increased energy for his work. It is held that while the return or persistence of these motives undoubtedly contributes to the regular use of alcohol it differs from such habit-forming drugs as opium and morphine in the fact that its sudden withdrawal causes less severe symptoms and that no high degree of tolerance is acquired by its prolonged use, but it is pointed out that these are differences in degree rather than kind. In regard to the common use of alcoholic beverages in moderate quantities, such as the habit of many people to take wine or beer with meals, the Committee expresses what we conceive to be the sound view—namely, that these beverages are taken because to the majority the taste and immediate effects are agreeable, and that the pleasure derived therefrom outweighs their estimate of remoter harm, if any thought be given to such ulterior considerations. "To the abstainer either the taste or the immediate effects are not agreeable, or the

¹ London: H.M. Stationery Office. Price 2s. 6d. net; 2s. 10d. post free, or through any bookseller.

remoter ill, whether real or imaginary, seems more important. Each class manufactures arguments in favour of its own line of conduct." The report does not deal with the social evils or moral problems which result from the excessive use of alcoholic liquors, but solely with the physiological aspects of the alcohol question. The precautions the report recommends are that the ordinary use of alcohol should not only be moderate but that it should be taken at intervals of time sufficient to prevent the persistent presence of a deleterious amount of the drug in the body, and that to avoid direct injury to the mucous membrane of the stomach alcohol should not be taken in concentrated form and without food. There are two or three useful appendices; one of these shows what we have found it difficult to come by—namely, the amount of proof spirit and of absolute alcohol in the usual retail measures of the ordinary alcoholic beverages. The report is a very guarded statement, but as an impartial presentment of the case will be found extremely useful and informing.

COMPULSORY RATIONING.

THE rest of Great Britain has not had to wait long for the extension of the Meat Rationing Order, which comes into force for London and Home Counties on Monday next. In a number of other districts committees already have in force registration or rationing schemes for meat which have had the effect of abolishing or diminishing queues, and the committees in districts where meat queues are still prevalent are being urged to adopt temporary registration schemes before the compulsory scheme comes into force on March 25th. In France the order to which we have already referred also comes into force on Monday next. It forbids the manufacture of fancy breads, and requires that flour used for the manufacture of bread shall consist of whole flour with or without certain authorized additions. The weight of bread to be allowed will eventually be regulated in accordance with the occupation of the consumer. The order forbids altogether the manufacture or sale of pastry, or fancy biscuits, or sweetmeats prepared with sugar or honey, or with milk or cream; or ices made with milk (fresh or condensed), cream, eggs, sugar or flour. In hotels, restaurants, clubs, buffets, and tearooms, butter, milk, cream, or cheese may not be supplied, and at a hotel, restaurant, or club, when the charge for a meal is more than 6 francs, two dishes only, with a modicum of bread, soup, and a *hors d'œuvre* or oysters may be served, but dessert may be taken provided that it contains nothing made with cream, milk, sugar, eggs, or flour. No grain suitable for human food may be used for the manufacture of alcohol, nor given to any animal. The use of chocolate for making sweetmeats will be stopped after March 2nd, and on that date regulations will come into force as to the sale of gluten bread and similar products. The seller must have a licence, and every package must bear his name, and particulars as to the composition of the special bread.

AN OLD EXPERIMENT IN RATIONING.

IN these times of short supplies it is right to profit by the experience of our ancestors, but, in drawing conclusions, it is as well to be sure we know what that experience was. These reflections were prompted by hearing the remark that the famous case of the Millbank penitentiary established the importance of a meat ration for prisoners. The Millbank experience is, indeed, highly instructive, but, as we shall proceed to prove, the lesson to be learnt is not quite that deduced by our interlocutor. We suppose that the, perhaps, not very large number of medical men who have even heard of the Millbank case derive their knowledge of it (possibly not at first hand) from a little treatise published in 1825 by Dr. P. Mere Latham, physician to St. Bartholomew's Hospital, under the title, *An Account of the Disease Lately Prevalent at the General Penitentiary*.

In this work Dr. Latham sets forth how in July, 1822, the penitentiary diet underwent a change which "reduced the animal part of the diet almost to nothing." In lieu of solid meat, the prisoners were given soup made of pease or barley in which ox heads were boiled in the proportion of one ox head to 100 male prisoners. Latham estimated that this allowed an ounce and a quarter of meat to each person. By the late autumn the "general health of the prisoners began visibly to decline. They became pale and languid, and thin and feeble. Those employed in tasks requiring much bodily exertion were unequal to the same quantity of work as formerly. Those at the mill could grind less corn; those at the pump could raise less water. From time to time several of the laundry women fainted under their work; and the business of the laundry could only be carried on by continually changing the hands engaged in it." By February both scurvy and dysentery had a grip of the prisoners. The scurvy was soon checked when the diet was improved, fresh meat and oranges being given, but the dysentery was not to be denied, and in the end "the only measure which remained was to set at liberty all the female prisoners, without exception, for the sake of preserving their lives." The bulk of Latham's work is devoted to a careful and extremely interesting study of the clinical features of the epidemic of dysentery, and the casual reader might certainly infer that the only change at Millbank in 1822 was the reduction of meat; hence the natural inference that fresh meat must be given. But Latham, writing so near the event, did not think it necessary to enter into details which he might reasonably assume to be familiar to his readers. Even in 1823:

Non obtusa adeo gestamus pectora Poeni,

at any rate to the extent of ignoring altogether the sufferings of these malefactors, particularly when urged by the verdict of a coroner's jury to the effect that one of them was starved to death. A Select Committee of the House of Commons reported on the incident. The report is a voluminous document; many pages are devoted to the question of whether the prison doctor had or had not on a certain night drunk too much wine; others record the badgering to which the temerarious deputy coroner and his jury were subjected; while on the slightest provocation, or without provocation, members of the committee or witnesses delivered speeches the phrasing of which would turn a modern parliamentarian green with envy. But amid all this verbiage is embedded useful physiological information. Meat was not the only article of diet reduced. In addition to giving the ox-head soup instead of 24 oz. of cooked beef, without bone (6 oz. four times a week), a daily allowance of 1 lb. of boiled potatoes was cut off and nothing given in exchange; less gruel was also provided. The result, so nearly as we can calculate, was that a diet providing 116 grams of protein and 3,498 calories was replaced by one yielding 86 grams of protein and only 2,644 calories. Further, the only vegetables regularly supplied were celery, carrots, turnips, and parsnips, with potatoes now and then, in the proportion of 1 lb. to five persons, added to the soup, and probably kept at near the boiling point for some hours. Again, the heating of the prison was extremely defective, it being in evidence that during the winter the temperature of many cells did not rise above 46° F. We see that the mere energy content of the diet was utterly insufficient for anything but sedentary work, while the deprivation of potatoes and the exiguous supplies of other vegetables courted an outbreak of scurvy. Hence this grim experiment does not establish the necessity for meat in the diet, but is instructive in other ways. We have a sequence of events which may be regarded as pathognomonic of the effects of food shortage. First, a gradual failure of energy, then, accelerated by exposure to cold, surrender to the most accessible infectious disease, which here happened to be

dysentery—whether dysentery had been present in the gael before the change of diet, formed the topic of an animated controversy between Latham and the chairman of the committee, of which we hold Latham to have had the better. It is also to be noted that, when the mischief had been done, improving the diet did not suffice to limit the disease. Colonel Hehir, in his account of the Kut-el-Amara disaster (third appendix to the Report of the Mesopotamia Commission), records similar observations. Among other points of interest in the Select Committee's report are dietaries of marines and seamen, of prisoners of war in 1797, and of convicts on passage to Botany Bay. The seamen received, we reckon, 4,083 calories, allowing nothing for a daily gallon of beer; the prisoners of war had 1,898 calories—which explains some incidents in Stevenson's *St. Ives*—while the Botany Bay convicts received 2,362 calories on their journey.

ANTITYPHOID LIPO-VACCINE.

THE method of preparing an antityphoid vaccine, about which Mr. Lynch recently questioned Mr. Macpherson in the House of Commons, was described in 1916 by Le Moignie and Pinoy to the Biological Society of Paris, and is spoken of as lipo-vaccine T.A.B. Le Moignie, or Le Moignie-Pinoy, by Tribondeau,¹ principal medical officer of the French navy, who investigated the serological reactions of 150 new entries vaccinated therewith on June 13th, 1917, at Toulon. The cases were followed for thirty-seven days, and showed that after the sixth day agglutinins for typhoid and paratyphoid A and B bacilli appeared in all without exception, the reaction being better marked in the case of typhoid than of paratyphoid B, and of paratyphoid B than of A. After the expiration of a month from the injection some of the serums no longer agglutinated, and on the thirty-seventh day half of the cases failed to agglutinate. As shown by the complement deviation test, the fixation antibodies appear rather later than the agglutinins and disappear about the same time. The activity and multivalency of the vaccine are thus promising, and if its protective powers in man are proved to be as satisfactory as Tribondeau anticipates, its use would have the advantage that one injection only, instead of two to four, as in the case of aqueous antityphoid vaccines, would be necessary; the toxic effects, such as fever and local reaction, it is stated, are very slight. The dose is 1 c.cm. containing seven thousand million of typhoid and paratyphoid A and B bacilli, mixed in equal parts in oil. The experiments of Gautrelet show that toxins and poisons when mixed with oil for the most part lose the power of affecting the nervous system, which they possess when in aqueous solution, and this is quoted by Tribondeau to explain the absence of reactions after the lipo-vaccines.

Medical Notes in Parliament.

Army Medical Promotions.

MR. LLEWELYN WILLIAMS asked Mr. Macpherson, on February 18th, whether he was aware that discontent had been caused in the Army Medical Service by the late list of promotions to the higher ranks of that service, colonels and surgeon-generals, as a result of which a large number of officers, some of whom possessed distinguished records for professional work, had been passed over for promotion; whether these promotions were the result of consideration of the qualifications of the officers by an impartial and formally constituted board of senior officers; and if so, what was the constitution of that board; if such a board were constituted, what instructions were given to it to guide it in making its selection; and, alternatively, if no such board were constituted, on what system was the selection made, and had due attention been paid to scientific and professional qualifications, as apart from purely administrative ability.

Mr. Macpherson replied that the recent promotions were made in some instances among officers who perform purely

professional duties, and in others both professional and administrative capacity were duly considered. The promotions were made specially for the purposes of the war, and officers not so selected are still eligible for promotion in the ordinary course. The recommendations of general officers commanding were obtained and carefully considered, and the selections were made by the Adjutant-General, in consultation with the Director-General, Army Medical Service, after exhaustive inquiry, and were finally submitted to the Secretary of State for approval.

Army Dental Service.—In answer to Mr. Pennefather Mr. Macpherson stated that dental surgeons were available in cases of doubt, and frequently carried out inspections where a special opinion was required as to the condition of the teeth of men joining the service. Inspecting dental officers had been employed in commands at home since December, 1915. They carried out their duties under the instructions of deputy or assistant directors of medical services, who were responsible to general officers commanding for the physical fitness of all soldiers. Subject to such general instructions, inspecting dental officers naturally acted on their own instructions. There was no army order forbidding the transfer of dental surgeons with combatant and other commissions to the dental service; but so long as dental surgeons were available for commissions from the ranks it had not been the practice to transfer commissioned officers. Four motor dental ambulances were in active operation at the front—all in France. Five such ambulances had been offered and accepted, none had been refused; four had been delivered, and, so far as he was aware, were in use. The fifth ambulance had not yet been received.

THE WAR.

TETANUS IN HOME MILITARY HOSPITALS: AN ANALYSIS OF 1,000 CASES.

IN the JOURNAL of October 23rd, 1915, Surgeon-General Sir David Bruce published an analysis of cases of tetanus treated in home military hospitals during the first year of the war, and summaries of four further analyses have appeared in these columns. At a meeting of the Society of Tropical Medicine and Hygiene on October 19th, 1917, he took as the subject of his presidential address an analysis of 1,000 cases of tetanus,¹ in which he brought together the results already published, together with the latest figures which had not hitherto appeared. This comprehensive report follows the lines with which our readers are already familiar, but, in reviewing the figures as a whole, Sir David Bruce discusses certain points at greater length. An attempt was made to amalgamate the cases of tetanus arising in England with those which occurred in France before transfer, but, through lack of sufficient data, this was found to be impracticable. Judging from the information available, the proportion of wounded men attacked by tetanus in home military hospitals may be roughly put down as 1 per 1,000. This, however, is not the true incidence of tetanus among the wounded in this war. The wounded in France and the wounded in England are not distinct and separate populations, for the wounded in England were at one time the wounded in France. Probably about 800 cases have occurred overseas. These, added to the English cases, would give the true incidence if every wounded man came over from France, but many return to duty without being evacuated to England. It is therefore not possible at present to give the true incidence for this war, but, roughly, it may be put down as about 2 per 1,000.

The working definitions of general and localized tetanus given in previous analyses are repeated. Among the thousand cases it was found that 896 could be placed in the general and 99 in the local group; in 5 it was doubtful to which group they belonged. Trismus was recorded in 607 cases. In each succeeding analysis the proportion of cases of local tetanus became larger; this may be set down to the introduction of prophylactic injection, and also in a less degree to the greater number of localized cases being diagnosed as tetanus.

The incubation period is again carefully studied. Analysis of the whole number of cases confirms the law already laid down that the shorter the period of incubation the higher the rate of mortality. The remarkable lengthening out of the period of incubation which has taken place during the war has changed the whole picture of tetanus from being an acute disease

¹ L. Tribondeau: *Compt. rend. Soc. Biol., Paris*, 1917, lxxx, 782-3; and *Arch. méd. et pharm. nav.*, Paris, 1917, civ, 276-282.

¹ *Transactions of the Society of Tropical Medicine and Hygiene*, November, 1917.

almost always fatal to a chronic disease with a case mortality of some 20 per cent. This result may fairly be taken as a measure of the action of prophylactic inoculation of antitoxin.

Of the thousand cases, 594 recovered, giving a mortality rate of 40.6 per cent. This rate is, however, too low, since it does not take into consideration the cases which occurred in France, and which were naturally of a more severe type than those occurring in England. Including the figures for France analysed by Sir William Leishman and Major Smallman, the total mortality in 1,339 cases comes to about 50 per cent. The death-rate in pre-serum days was about 85 per cent. Sir Charles Bell, in his diary, written after the battle of Waterloo, describing a case of severe tetanus, wrote: "There are but two cases living of all that had this affection." The lowering of the death-rate from 85 to 50 per cent. is doubtless due in great part to the introduction of prophylactic inoculation, and it must be borne in mind that during the first months of the war, so far as prophylaxis was concerned, we were still practically in the pre-serum days. The progressive fall in the rate of mortality during the war was well shown in a table printed in a summary of the last analysis in the *JOURNAL* of December 1st, 1917. In the first year it was approximately 58 per cent., and has since then steadily fallen to 19 per cent. in 1917. Whatever may be the cause, or causes this result is highly satisfactory.

Among his negative findings, Sir David Bruce states that the figures furnish no evidence of any seasonal prevalence of tetanus. Nor do wounds of the trunk seem to be followed more often by fatal tetanus than wounds of the limbs—in fact, it is rather the other way. Again, from the full figures no case can be made out either for or against the intrathecal route for therapeutic injections of antitoxin, and no useful deduction can be drawn as to the influence of dosage on the curative action of antitetanic serum.

While it is clearly of the greatest importance to arrive at a true estimate of the curative value of antitoxin, the difficulties are at present insurmountable. Thus the greatest variety is found in the mildness or gravity of the cases; complications are frequent and often very severe; while the method of treatment varies according to the predilections of the different medical officers. With so many factors coming into play it is unwise to dogmatize from the figures available, but it should be noted that among the 40 cases not treated with antitetanic serum after the onset of symptoms, 32 died, giving a mortality of 80 per cent., against a mortality of 38.8 per cent. among the 960 so treated.

Summing up the position as it now appears, Sir David Bruce writes:

Antitoxin has no power of neutralizing toxin fixed in the nervous system. If a fatal amount has been absorbed, then no amount of antitoxin will save the man's life. If there is any free toxin circulating in the blood or lymph the antitoxin can neutralize it, and so possibly prevent further mischief. If, then, a fatal amount has not been absorbed the injection of antitoxin may be of use. By animal experiment it is proved that the intrathecal route is the best. It is believed that the intravenous route is also good, but more dangerous on account of the liability to anaphylactic shock.

While the incidence of tetanus among protected and unprotected soldiers respectively cannot at present be determined, through the absence of the necessary data, there is very strong presumptive evidence that prophylactic inoculations lower the incidence of tetanus among the wounded. A diagram of the ratio of the number of cases of tetanus to the number of wounded shows the great drop in November, 1914. No doubt there were several factors at work, but almost beyond question the introduction of prophylactic injections of antitetanic serum at that time was the preponderating cause. It was not until about the middle of October that prophylaxis was introduced on anything like an adequate scale, and it was precisely at this time that the remarkable fall in the incidence took place. From about mid October the supply of serum became equal to the demand, and thenceforward its use became practically universal. But beyond this the figures show conclusively that prophylactic injection lengthens in a marked degree the incubation period, and, as has been stated many times, the longer the incubation period the lower the death-rate. Among the thousand cases, almost one half certainly received a prophylactic injection. Of

these 363 recovered, giving a mortality of 26.6 per cent. Of the 239 cases who almost certainly had no prophylactic dose of any kind 100 recovered, giving a mortality of 58.1 per cent.

As to the value of multiple injections, the evidence is at present scanty, for it is not long since the Tetanus Committee laid down that four prophylactic injections should be given to every wounded soldier at intervals of seven days. The figures, such as they are, seem to justify the Committee in making the rule, since the incubation period tends to lengthen as the number of inoculations increases, and the case mortality to fall. "All that can be said is that there is justification for going on with the experiment until more evidence is accumulated."

Sir David Bruce's efforts to elucidate the problems of causation and cure have been greatly aided by the voluntary labours of Lady Bruce, who, at vast expense of time, entered up the items of information under the various headings, giving to this work an average of some five hours a day during the past three years.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON PROBATIONER D. J. WHITTON, R.N.V.R.

Surgeon Probationer David John Whitton, R.N.V.R., was killed in action on February 11th, aged 21. He was the only son of Mr. William Whitton, and was educated at Kirkcaldy High School and at Edinburgh University, where he was a third-year medical student when he joined the navy in August, 1917.

Died on Service.

STAFF SURGEON G. R. MILL, R.N.V.R.

Staff Surgeon George Robertson Mill, R.N.V.R., died on service on February 11th, aged 37. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1901, and M.D. in 1905. He afterwards acted as senior house-surgeon of the Royal Southern Hospital, Liverpool, and then went into practice at Birkenhead, where he held appointments successively as honorary anaesthetist to the Liverpool Dental Hospital, honorary medical officer of Birkenhead Maternity Hospital, and honorary assistant medical officer of Birkenhead Borough Hospital. He was a member of the Liverpool Medical Institution, and Secretary of the Birkenhead Medical Society. On April 8th, 1909, he joined the Mersey Division of the Royal Naval Volunteer Reserve as surgeon, and was promoted to staff surgeon last year. In the early part of the war he served on the hospital ship *Rewa*, which was recently torpedoed in the Bristol Channel.

ARMY.

Killed in Action.

CAPTAIN G. S. ELLIOTT, M.C., A.A.M.C.

Captain George Stephenson Elliott, whose death we announced in our issue of October 27th, 1917, aged 32, was born at West Charlton, Victoria, Australia, the son of the late Thomas Elliott of Ballarat and brother of General H. G. Elliott, C.M.G., D.S.O., of the A.I.F. He was educated at Ballarat College, where he distinguished himself in both study and sport. On deciding to study medicine, he entered Ormond College, Melbourne University, where he continued his distinguished career. He was winner of the 100 yards University Championship and was awarded his blue for athletics and football. He also played for Victoria in the interstate football contests. He graduated M.B., B.S. in 1915 and shortly afterwards left for overseas. After a few months' work in a field ambulance, he was posted to a battalion and remained there until he met his death at Polygon Wood. He was awarded the Military Cross for his services while R.M.O. Few officers enjoyed greater popularity, and his death has cut short a brilliant career. He leaves a widow and one child.

DEATHS AMONG SONS OF MEDICAL MEN.

Cameron, Percy Grant, Lieutenant Royal Garrison Artillery, attached Royal Flying Corps, youngest son of the late Dr. John Cameron, of Lochgilphead, Argyllshire, reported missing August 19th, 1917, now presumed killed on that date, aged 25.

Mackenzie, Ronald Patrick, Captain Royal Scots Fusiliers, elder son of the late Dr. Alexander Flyter Mackenzie, of Glasgow, reported missing on April 19th, 1917, now presumed killed on that date. He attained the rank of captain on June 1st, 1916.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SUPPLEMENT to the *London Gazette*, issued on February 18th, contains a further list of rewards for gallantry and distinguished service in the field. The acts of gallantry for which the decorations are conferred will be announced subsequently in the *London Gazette*. The following awards are made to medical officers:

Second Bar to Military Cross.

Temporary Captain A. Fullerton, R.A.M.C. (M.C. gazetted January 1st, 1917, and bar to M.C. October 18th, 1917).

Bar to Military Cross.

Captains W. Fotheringham, R.A.M.C.(S.R.) (M.C. gazetted August 16th, 1917), F. W. Lees, C.A.M.C. (M.C. gazetted January 1st, 1917), T. A. Townsend, R.A.M.C. (M.C. gazetted November 25th, 1916).

Temporary Captain W. J. Knight, R.A.M.C. (M.C. gazetted May 31st, 1916).

Military Cross.

Captains F. Chadwick, R.A.M.C., G. M. Foster, C.A.M.C., A. McL. Ferrie, R.A.M.C.(S.R.), A. S. Porter, C.A.M.C., R. D. Moore, R.A.M.C., J. G. Morgan, R.A.M.C., G. Young, R.A.M.C.(S.R.).

Temporary Captains E. P. Blasbki, R.A.M.C., T. M. Crawford, R.A.M.C., W. C. Douglass, R.A.M.C., J. H. Legge, R.A.M.C., J. O. Thomas, R.A.M.C., P. H. Wells, R.A.M.C., E. W. G. Young, R.A.M.C.

Temporary Lieutenant F. B. Elwood, R.A.M.C.

Fourth Class Assistant Surgeon J. G. Goodman, I.S.M.D.

Third Class Subassistant Surgeon Ata Muhammad Khan, I.S.M.D., has been awarded the Indian Order of Merit of the Second Class.

Dr. Grace Eleanor Soltan has received the King's permission to wear the Insignia of the Third Class of the Order of St. Sava, conferred upon her by the King of Serbia in recognition of her services to the Serbian sick and wounded under the auspices of the Scottish Women's Hospitals for Foreign Service.

NOTES.

BRITISH RED CROSS AND ORDER OF ST. JOHN.

THE third annual report of the joint finance committee of the British Red Cross Society and the Order of St. John of Jerusalem has just been issued, covering the year ended October 20th, 1917, and including a statement of accounts for the past three years. The administration and management of the great work of the Red Cross at home and abroad during the twelve months under review involved no direct charge upon the funds subscribed by the public for the benefit of the sick and wounded. The income of the Red Cross, however, showed for the first time since the war began a deficiency as compared with the expenditure.

THE "ELSIE INGLIS" HOSPITAL UNIT.

On February 18th the King and Queen inspected in the grounds of Buckingham Palace the "Elsie Inglis" Unit of the Scottish Women's Hospitals, the plans for which had been made in broad outline by Dr. Inglis in the few days immediately preceding her death. The unit and the Jugoslav Division, to which it was attached, were evacuated from Russia in November, 1917, and it was Dr. Inglis's wish that when the division took up work on another front, as it has already done, the hospital unit should rejoin it. The members of the unit assembled in the grounds of the palace, and the six executive officers were presented to Their Majesties. Dr. Inglis's successor in the chief medical officership is Dr. Annette Benson, and the assistant medical officers are Dr. Lilian Chesney and Dr. Gladys Ward. After the inspection, the King paid a tribute to the work performed by the Scottish Women's Hospitals, and wished the unit success in its further labours abroad.

AUTOMOBILE LABORATORY WITH WORKING ANNEXE.

Mr. Henry S. Wellcome, founder of the Wellcome Bureau of Scientific Research, has recently presented to the War Office for the use of the Army Medical Service an automobile bacteriological laboratory, very completely fitted up. A special feature is an annexe which, when the laboratory is halted, can be quickly set up and the apparatus arranged in it. This annexe and the bacteriological fittings are ingeniously designed so that they can be readily assembled and securely packed on the three ton chassis.

INCREASED WAR OFFICE CAPITATION GRANT TO CIVIL HOSPITALS.

In October last the British Hospitals Association held a conference to discuss the need of an increase in the War Office capitation grant for the maintenance of sick and wounded soldiers in civil established hospitals. Four weeks later a deputation waited upon the Financial Secretary to the War Office. This led to the formation of a joint committee of the British Hospitals Association and of the War Office, which visited representative hospitals in various parts of the country and drew up a report. An Army Council Instruction (No. 144 of 1918) has now been issued authorizing an increase of the maximum daily grant from 4s. to 4s. 9d. for each soldier patient under treatment, as from October 1st, 1917. From the same date a grant of 6d. per diem for each unoccupied bed, held at the disposal of the military authorities by their desire, is also sanctioned.

England and Wales.

MANCHESTER AND DISTRICT RADIUM INSTITUTE.

THE report presented to the annual meeting of the Manchester and District Radium Institute on February 15th, when the Lord Mayor was in the chair, stated that during the last year 588 persons had applied for treatment, an increase of 86 over 1916. Seventy were found to be not suitable for treatment, while of those treated 73 were well at the end of the year, 208 had improved, 74 had not improved, 22 had died of the disease, and it was too early to form any judgement of 128. Excluding cases of rodent ulcer, 36 cases of malignant disease (which is about 9 per cent.) were rendered free of signs and symptoms, and 24 cases of rodent ulcer and 13 of non-malignant disease were apparently cured. In the first year of the institute out of 519 cases treated only 45 were reported as well at the end of the year. These figures are significant as showing that with the later and improved methods a far greater proportion of the cases were successfully treated. From the financial statement presented by Sir William Milligan it appeared that the institute had a total credit balance of £1,320, and in addition had £5,000 invested in War Loan. Some discussion arose as to the purchase of a further quantity of radium, Dr. Burrows, the radiologist, pointing to the increased number of persons applying for treatment, and the need for a certain amount for laboratory use.

MILK FOR CHILDREN AND MOTHERS.

The Milk (Mothers and Children) Order, 1918 (dated February 8th, 1918), issued by the Food Controller, acting under the Defence of the Realm Regulations, empowers any local authority within the meaning of the Notification of Births Act, 1907, to arrange for the supply of food and milk for expectant mothers and nursing mothers, and of milk for children under five years of age, and prescribes the conditions under which this power is to be exercised. The quantities of food and milk to be supplied must not in any case exceed the amount certified to be necessary by the M.O.H. or the M.O. of a maternity or child welfare centre working in co-operation with the local authority, or by a person authorized by either of these medical officers, or by some other person appointed by the local authority for this purpose. If one of these duly authorized persons certifies that the provision of food or milk is necessary, food or milk may, in necessitous cases, be supplied free or may be sold at less than cost price. The expression "milk" is to include any preparation of milk prescribed by the M.O.H. or the M.O. of a maternity or child welfare centre working in co-operation with the local authority. A local authority may combine for the purpose of carrying out the order with another local authority or any local food control committee. Power is

reserved to the Local Government Board to require an authority to put the order in force or to combine with other authorities. The medical officers of health may be trusted to see that the milk is good and clean, and in this connexion we may note an interesting address given by Dr. Stenhouse Williams, of University College, Reading, research bacteriologist in dairying, Board of Agriculture, to a recent meeting of the Liverpool Medical Institution. He described the results of experiments concerning the keeping properties of clean and dirty milk under varying conditions. He thought that with attention to, and the inculcation of, hygienic cleanliness from the beginning to the end of milk handling the problem of clean milk would be solved and an enormous amount of spoilt milk saved for the benefit of the community. An appalling number of gallons of milk were, he said, wasted annually through improper and wasteful methods of handling and distribution. For a remedy he looked rather to education of the dairy community in correct methods, than to legislature, especially when it was brought home to the milk producers that clean milk was financially within their reach and as easily obtainable as dirty milk.

A STATE MEDICAL SERVICE UNDER A MINISTRY OF HEALTH.

We have received from Dr. Sidney Barwise, County Medical Officer of Derbyshire, a copy of a leaflet entitled "A Ministry of Health and a State Medical Service," setting out the changes which, in his opinion, should be made in public health administration. With regard to central administration, he considers that the health powers of the Board of Education, Home Office, Board of Trade, and Central Midwives Board should gradually be vested in the Local Government Board, whose president would become the Minister of Health. The Insurance Commissioners' duties should remain as at present, except that medical research work and the supervision of the medical treatment of insured persons should be transferred to the Ministry of Health. As far as local administration is concerned, on the preventive side, the most urgent matter, in Dr. Barwise's view, is to get rid of small local sanitary authorities employing a local part-time medical officer of health. He therefore desires to see an Act framed for England and Wales on lines similar to the Scottish Public Health Act, leaving it to the county councils to prepare and lay before the Ministry of Health schemes for the division of their counties into suitable districts. With regard to a state medical service, Dr. Barwise sees no reason why a scheme should not be evolved for whole-time officers and part-time salaried medical officers which would be acceptable to the profession while getting rid of the panel system. He suggests that the duty be put upon each county and county borough council to prepare and lay before the Ministry of Health a scheme for providing a number of medical institutions to carry out the work of treatment not only for insured persons, but for their dependants. Each institution should have a whole-time medical staff and specialist officers, who would also be the school medical officers of the district. The remainder of the staff would be part-time officers allowed to engage in private practice amongst the non-insured, every practitioner having the right to have his name entered on the roll of part-time doctors. Each institution should have a small clinic fitted up with the latest medical appliances, and a few beds for operation cases. These clinics should, he thinks, serve also as school clinics, and the ophthalmic surgeons, ear and throat surgeons, and dentists employed by the education authorities should form part of the staff, and so be available for insurance persons. He suggests that existing institutions could be taken as the nuclei of this scheme. In the first instance each panel doctor would have transferred to the institution the whole of his panel. The doctors, whether whole time or part time, would be paid fixed salaries, their clerical work being eliminated as far as possible. "The doctor must be placed in such a position that he can tell the patient the disagreeable truth," Dr. Barwise claims that a scheme for providing treatment on these lines would not disorganize the present arrangements under the Insurance Act. For the carrying out of the details of the curative work of insured persons and their dependants joint committees might be formed of the Insurance Committees and the county councils.

Scotland.

THE MORISON LECTURES.

THE Morison Lectures before the Royal College of Physicians of Edinburgh will be delivered this year by Dr. J. J. Graham Brown, lecturer on neurology in the University of Edinburgh. The course will deal with certain disorders of the sympathetic and parasympathetic systems according to the following synopsis:

The general arrangements of the two divisions of the autonomic system, sympathetic and parasympathetic (cranio-bulbo-sacral division); their functions; their antagonism; their synergic action. Certain disorders of the sympathetic division; their signs and symptoms; their treatment. The parasympathetic division; arrangement of neurones; adequate stimuli under normal conditions; causes of over-stimulation leading to hypertonicity; signs and symptoms of that condition; clinical tests; special diseases to which hypertonus may give rise; their appropriate treatment.

The lectures will be given at the College at 5 p.m. each day, the first on Monday, March 4th, and the second and third on Wednesday and Friday.

THE PROPOSED MINISTRY OF HEALTH.

At a meeting of the Fellows of the Royal College of Surgeons of Edinburgh, on February 5th, the council presented a report on the proposals for a Ministry of Health, more especially in relation to Scottish requirements. After discussion, a number of recommendations were unanimously adopted and embodied in a circular which has been sent to the Prime Minister, the Scottish Members of Parliament, the deans of the medical faculties of Scottish universities, medical corporations, Government departments, and other bodies. The College cordially supports the proposal to form a Ministry of Health having full powers (under parliamentary control) to deal with all matters bearing upon national health. It recommends that there should be a separate Ministry for Scotland with direct parliamentary representation, but, in view of difficulties in the way, expresses the opinion that the desired purpose might be secured by an extension of the duties and powers already entrusted to the Scottish Local Government Board, with the Secretary for Scotland as Minister of Health. It submits that before any bill is introduced the College and other bodies representative of the medical profession should be consulted as to its terms, and that it is inexpedient to complete the necessary enactments before the end of the war. It would be deplorable if legislation, hastily introduced without previous consultation with those who must be concerned in giving it effect, should occasion controversy between the medical profession and the legislature. At the present time the medical profession is very largely employed on naval or military duty, or otherwise preoccupied by work arising out of the war. At a meeting of the St. Andrews University Court on February 8th, it was decided to represent to the Secretary for Scotland that before any measure for the establishment of a Ministry of Health is introduced in Parliament the proposals should be submitted for the consideration of the medical profession and of the medical licensing bodies.

South Australia.

MEDICO-POLITICAL.

IN the local Parliaments two interesting Acts have been passed. One has abolished not only the exemptions of the Vaccination Act of 1882 but the compulsory clauses also. The Act had become such a dead letter that the Government was advised that it would get just as good results if it substituted a clause which allowed a proclamation to be issued compelling contacts, in the event of an outbreak of small-pox, to be vaccinated. This is a compromise, and it remains to be seen how it works in practice. The chief feature of the debates, however, was the enunciation of his objections by the new Agent-General.

the Hon. E. Lucas, M.L.C. It is difficult to understand how, in the twentieth century, a man of intelligence can entertain such ridiculous theories as he did, backed up by most quaint references to antivaccination literature. Mr. Lucas was responsible in another bill (the Criminal Law Amendment Act) for a clause which he carried through the Upper House, but which was rejected by the Commons, to the effect that a penalty in certain sexual offences should be "emasculatation." The Act provides for the detention of a criminal found suffering from venereal disease after his sentence has expired and until he is cured. The Government has found time to pass an amended Dental Act, but has been unable to devote a minute to the still more urgent need for an amended Medical Act.

An interesting event was the Medical Referendum held in June last. It yielded an affirmative vote of just under 75 per cent.; a fraction more and the Commonwealth would have been invited to conscript the medical profession for service at home and abroad. It is gratifying to know that the highest percentage in favour of such service was recorded by South Australia, the totals being "Yes" 122, "No" 20. This year (1917) has also seen a *modus vivendi* arranged by a Labour Minister (Mr. Blundell), as representing the Friendly Societies' Medical Association, and the British Medical Association. The arrangement seems to be satisfactory, and apparently the services of those who came some years ago from various parts of the earth to take the place of Adelaide doctors will no longer be required.

THE BRANCH.

The South Australian Branch of the British Medical Association flourishes under the renewed presidency of Dr. J. C. Vero. It has had some severe losses, however, during the past year. Dr. C. E. Todd was a member of thirty-four years' standing. A native of Adelaide, a son of the late Sir Charles Todd, K.C.M.G., F.R.S. (for many years Postmaster-General and Government Astronomer), he started in practice with many advantages. Step by step he attained, though after many years, to the height of his ambition—a hospital surgeoncy. He was beloved by his numerous patients, and was especially useful as president of the branch of the Australian Trained Nurses' Association. In 1901 he was President of the Branch of the British Medical Association. He died suddenly of some obscure brain trouble, possibly abscess associated with frontal sinusitis, whilst away on a holiday. His remains were cremated, and a large attendance at the funeral service in St. Peter's Cathedral bore witness to his popularity. Dr. A. H. Gault was a physician to the Adelaide Hospital, and had practised in a suburb of Adelaide for thirty years. A victim to "horse" asthma he was one of the earliest to run a motor car, especially necessary for his work in the hills, where he established a sanatorium for phthisis. Dr. Hunn of Booleroo Centre seemed to have a great future before him when he succumbed to tuberculosis. The mysterious disappearance of a steamer on its way to Papua accounted for the death of Lieut.-Colonel Strangman and Major Flood. At the front there have fallen Captains Gilbert Harvey, Shierlaw, Lucas, and Burden.

Looking on the brighter side it is to be noted that a shower of honours has fallen on the Branch. Professor E. C. Stirling has received a knighthood respecting which it is difficult to say to what special branch of science it may be assigned. Dean of the Faculty of Medicine and Professor of Physiology in the University, sometime Assistant Surgeon to St. George's Hospital, London, and Surgeon to the Adelaide Hospital, though he never engaged in private practice, ethnologist, biologist, palaeontologist, Fellow of the Royal Society of London, it may be said of him, *nihil telegit quod non ornavit*.

Colonel Hayward's work at Harefield Hospital, and Colonel H. A. Powell's at the front have been rewarded with the C.M.G., whilst Lieutenant-Colonel de Crespigny, Lieutenant-Colonel Fry, and Major Jeffries have gained a D.S.O.; several have been mentioned in dispatches, including Lieutenant-Colonel Newland, whilst Captains Beard, Birch, Kenilham, Wall, Wyllie, and Steele, have received the Military Cross. Of the last batch of fifteen graduates three have joined the Australian navy and the rest the army.

Correspondence.

ARMY MEDICAL RECORDS.

SIR,—I was glad to read in the BRITISH MEDICAL JOURNAL of February 16th your comments regarding the vexatious clerical work involved in the making of army medical records. You refer to the new system lately devised for the Army Medical Service by the statistical department of the Medical Research Committee. I distrust these new army systems. My experience is that they mean the retention of the old evils with the addition of extra burdens. As regards the overseas records, it must be admitted that the adoption of the field medical cards is all to the good. But how about the home hospitals? As far as I can see, the only change we have under the new system is the addition of the troublesome index card, with its wholly inadequate questions. When will the authorities learn that it is often impossible to give an accurate description of a case by question and answer? What is required is a short summary in the medical officer's own words; this, as a matter of fact, he already has to make on the medical history sheet, and now we have, "in order to spare us clerical work," the index card superadded.

Of course, the obvious way to deal with the matter is to have two documents, and two only—(a) for overseas, (b) for England. The field card already in vogue would form (a). Notes of the case whilst in English hospitals (either on the present case sheets, or on suitable cards, or in a booklet) followed by a summary would constitute (b); (a) and (b) could then be attached at the termination of the case and would form a complete record. The statisticians would in this way have their summaries, and when they wished to do so could refer to the fuller notes. This appears to me to be very necessary if the statistics are to have any value. If the booklet form were adopted, a pocket might be provided to contain the field card.

Another matter arising from this—diet sheets, the bugbear of the M.O. at home hospitals, who frequently is doing heavy civil work in addition to his military duties. In France at base hospitals, under exactly similar conditions, the individual diet sheets are abolished and one diet sheet kept for each ward. Why cannot this be done here? No one can have any intelligent use for the individual diet sheets, which consume vast quantities of paper and usually end their life ignominiously in a lumber cupboard. All the details required for the quartermaster's department are supplied by the daily summaries from each ward. The fetish of the diet sheet has reached such a pitch that recently in a large war hospital a two months' collection of these documents was returned by order of the higher powers to the M.O.s. to be added up. This is not so simple as it looks when one is dealing with broken periods and fractions in avoirdupois and fluid measures. Even if it has to be done, surely a clerk whose work it is to deal with figures will make a much better job of it than the average medical man; moreover, he will cost considerably less.—I am, etc.,

February 19th.

HOSPITAL SURGEON.

"CRAVING" FOR DRUGS.

SIR,—In the BRITISH MEDICAL JOURNAL of February 9th, in the leading article, you state that I said that there was a craving for morphine and bromide in my evidence in the insurance case. What I particularly stated was that there was no craving for bromide like there is for chloral and morphine.

My experience of veronal is too limited to enable me to state whether there is a craving or not, but I have seen many patients who have taken it and found no desire to go on taking it.

But my experience in bromide is very extensive, and I have particularly observed the question of craving, and I can say with absolute confidence that there is no such thing as a craving for bromide. Time and again I have had patients taking it for many years, and they have stopped it abruptly, and have not had the slightest desire to resume it.

I would not think it necessary to trouble you with this letter but for the fact that I know that there are some

people who have warned patients of the danger of taking bromide lest they should create a habit, and I have seen many patients who have been prevented from having the benefit of the drug because of this fear.—I am, etc.,

London, W., Feb. 19th.

J. MACKENZIE.

** We are glad to publish this explanation, for the reports of the case in the newspapers were concordant as to the reference to morphine, but were discordant as to attributing to Sir James Mackenzie the opinion that the craving might exist for bromide.

DIET, STARCH, AND SUGAR.

SIR,—In answer to Dr. H. Campbell's question respecting the diet of diabetic patients previous to the onset of the disease, I think we have grounds for considering that excess of sugar and sweet food is probably injurious, but that a diet of starchy food is not specially injurious as a predisposing cause, or, at least, is much less injurious.—I am, etc.,

Manchester, Feb. 18th.

R. T. WILLIAMSON.

POSSIBLE DEVELOPMENTS OF TRANSFUSIONS.

SIR,—Anyone who has carried out a series of transfusions by the multiple syringe method must be impressed by the total absence of injury to the donors. One man has given blood from the same vein upon eight occasions, and expressed himself willing to continue at intervals of fourteen days for an indefinite period. The patient, too, suffers little or no inconvenience. A register of suitable donors, classified under their blood groups, is being prepared at the London Hospital, in order that all cases in which transfusions are indicated may be treated without delay.

These advantages led me to suggest that in cases of severe infection, in which the patient derives no benefit from injections of vaccine, it would be wise to obtain a donor of the same blood group as the patient, and give him injections of the patient's autogenous vaccine. When an immunity has been developed a series of transfusions might be given. The dose would be multiples of 600 c.cm. and not of 10 c.cm., so that even if the concentration of the antibodies in the blood be low, nevertheless a considerable quantity would be introduced.

It must be borne in mind that rabbits and horses do not develop much antibody for streptococci, but it does not follow that man, too, is unable to make these substances.

The procedure is so simple that it must have occurred to many, and perhaps those who have carried it out would be willing to record their results, giving every detail, so that time need not be wasted repeating experiments if they have already proved unsuccessful.

The idea is capable of further development, and perhaps some day we shall reduce still further the mortality due to diphtheria and tetanus by having donors immunized against these bacilli, and using their blood for transfusions in cases of very weak children, and when previous injections of horse serum would lead to anaphylaxis, or serum sickness to fatal results.—I am, etc.,

London, W., Feb. 15th.

O. LEYTON.

PROPHYLAXIS IN VENEREAL DISEASE: ITS FALLACIES.

SIR,—The experience of Mr. E. B. Turner, F.R.C.S., which you published last week, is most helpful, and his conclusions are exactly those to which I have been driven.

Incalculable evil will be done both to the army and the civil population if we profess to be able to divest indiscriminate intercourse of its inevitable dangers.—I am, etc.,

J. C. McWALTER, M.D. Captain,

February 17th.

Specialist Sanitary Officer.

THE AUXILIARY R.A.M.C. FUNDS (OFFICERS' BENEVOLENT BRANCH).

SIR,—May I correct an error in your note on this subject on p. 217 of the JOURNAL for February 16th? There is no rule that orphans of officers who are non-subscribers shall have no claim on the benefits of the Fund. The orphans of any of the specified R.A.M.C. officers are eligible to receive benefits.

During 1917, 125 officers whose orphans would be eligible were killed, and there must have been large numbers in 1916 and 1915. Claims on the Fund will be gladly considered if addressed to the Honorary Secretary at the offices of the Funds, 11, Chandos Street, Cavendish Square, W.1.

The Fund (Officers' Benevolent Branch) is for the benefit of orphans of R.A.M.C. officers in the Special Reserve, Territorials, and those holding temporary commissions.—I am, etc.,

W. HALE WHITE, Colonel R.A.M.C.(T.),

London, W., Feb. 18th.

Honorary Secretary.

** We are glad to know that this rule, which appeared in the draft scheme, has been deleted.

Obituary.

THE death has occurred of Dr. WILLIAM JOSEPH SEWARD, formerly medical superintendent of Colney Hatch Asylum. He received his professional education at University College Hospital, and obtained the M.R.C.S. and L.S.A. diplomas in 1875, graduating M.B.Lond. in the following year. In 1878, immediately after completing house appointments at the Bristol Royal Infirmary, he was appointed assistant to Mr. W. G. Marshall at Colney Hatch. Later he became assistant to Dr. Edgar Sheppard, one of the first lecturers on psychological medicine at a London medical school. In 1882, when barely thirty years of age, he succeeded Dr. Sheppard as the medical superintendent. When the London County Council assumed the government of the London (then the Middlesex) Asylums under the Local Government Act of 1890, Dr. Seward was appointed, upon the retirement of Mr. Marshall, to be the administrative medical head of the whole institution, taking over the care of both the male and female sections, and thus ending what had until then been a dual control. During his period of service was inaugurated the After-care Association for the rehabilitation into social life of those patients who had been discharged recovered, and he continued throughout his life to take the deepest interest in the society's welfare, as he also did in the Asylum Workers' Association, of which he was a member of the executive committee. In January, 1903, a destructive fire occurred in the new wooden annexe, adjacent to the main buildings of Colney Hatch, which was demolished in about an hour. In this fire fifty-one female patients lost their lives and the rest were saved with difficulty. This disaster cast a deep shadow upon Dr. Seward's life, and he never recovered from the shock.

Sir ROBERT ARMSTRONG-JONES, to whom we are indebted for the foregoing particulars, writes as follows:

The treatment of the insane under Seward's régime was always one of enlightened and disinterested progress, and the writer of this article is under the greatest obligations to the memory of his old chiefs, Marshall and Seward, for their high example of devotion and attachment to their patients, whilst the welfare of the staff never escaped either of them. Alcohol, in the shape of beer, was abolished as an article of diet under Seward; the Turkish bath for restoring mental patients was first used there; organo-therapy was encouraged by him, and the aid of clinical pathology with the application of the microscope were all adjuncts in treatment which were of intense interest to Seward, and they continued to be aspects in the practice of medicine which engaged his leisure and retirement, for he was a frequent visitor at the meetings of the Royal Society of Medicine, of which he was a Fellow. Seward was an "intermediary" between the old school and the new research one first started in the London asylums by Sir William J. Collins. Nothing was irksome to Seward, and his mind may be described as healthy in the best sense. He was a Mason, and a member of the London County Council Lodge. He was a keen angler, and was devoted to Norway, where he used to fish, and to Switzerland, where he made many walking tours. He liked a game of whist, and he was a real cricketer—preferring rather to play in a small match than to watch the great ones—although he was often seen at Lord's. He was fond of pictures, and rarely missed an exhibition in Bond Street; he was

devoted to his garden, and he delighted in the cultivation of roses, whilst he derived great pleasure from the meetings of the Royal Horticultural Society. Seward's mind was not that of a controversialist, indeed he rather disliked debated questions, but he always expressed his opinions—which were well considered—both critically and fearlessly. His great charm was his complete detachment from bias—he had cultivated the bias of anti-bias more than any other man of the writer's acquaintance, and he was a most genial, well-informed and cheerful personality. He always maintained the complete confidence and friendship of his committee as well as of their officials.

DR. GEORGE STOKES HATTON, who died on January 15th at Wimborne, Dorset, was for many years a well-known practitioner in North Staffordshire, until failing health caused his retirement to the South of England. After studying medicine at St. Thomas's Hospital and at Newcastle-on-Tyne, he obtained the diplomas of L.S.A. in 1879 and M.R.C.S. in 1880, and graduated M.B., M.S. Durh., proceeding M.D. in 1882. In 1894 he became F.R.C.S. Edin. Dr. Hatton held resident posts at the North Staffordshire Infirmary, and, on his leaving there, joined Dr. Orton in practice at Newcastle-under-Lyme. He was soon appointed to the assistant staff as surgeon to the infirmary, and in turn became full surgeon, and then was appointed consulting surgeon on leaving the district. Dr. Hatton was a successful practitioner and possessed surgical skill and dexterity to a marked degree. His death will be regretted by a large circle of patients and friends in North Staffordshire.

THE death occurred on January 28th of Dr. GEORGE HENRY ECCLES, aged 76, who had practised in Plymouth for over fifty-five years. After studying at St. Bartholomew's Hospital, Dr. Eccles obtained the M.R.C.S. diploma in 1862, the L.R.C.P. Edin. and the L.S.A. in 1865. Having held the post of house-surgeon at St. Bartholomew's Hospital, he set up in practice at Plymouth, where he held a considerable number of appointments as surgeon to charitable institutions. Dr. Eccles was a man of remarkably strong character and sacrificed much for his religious convictions. He leaves three sons in the medical profession: Dr. G. Tolcher Eccles, of Hove; Captain H. Nisbet Eccles, R.A.M.C.; and Captain G. Dunlue Eccles, R.A.M.C.

DR. WILLIAM CARDIFF HOSSACK, port health officer of Calcutta, died in Calcutta on January 5th. He was the eldest son of Mrs. Garden Milne Hossack, of St. Catherine's, Banff, and was educated at the University of Aberdeen, where he graduated M.B. and C.M., with honours, in 1894, and M.D. in 1898. For the last twenty years he had served in Bengal, where he had held the posts of special plague officer, health officer to the Corporation of Calcutta, district medical officer, and health officer of the port of Calcutta. He was the author of a monograph on the rats of Calcutta.

BRIGADE SURGEON JOHN LAW, Madras Medical Service (retired), died at Guildford on February 6th, aged 83. He was the second son of the late Thomas Hooper Law, of Barnstaple, and entered the I.M.S. as assistant surgeon on May 28th, 1858, becoming surgeon on May 28th, 1870, and surgeon major on July 1st, 1875, and retiring, with a step of honorary rank, on February 1st, 1882. During the later part of his career he held the important appointment of residency surgeon, Hadarabad.

BRIGADE SURGEON WILLIAM JAMES WILSON, R.A.M.C.(ret.), died at Southsea on February 8th, aged 80. He was educated at Queen's College, Belfast, where he graduated M.D. in 1860, and took the diploma of M.R.C.S. in the same year; he entered the army as assistant surgeon on April 1st, 1861, became surgeon on March 1st, 1873, surgeon major on April 1st, 1873, and retired as brigade surgeon on May 2nd, 1888. In the old regimental days he served in the 28th Foot, now the Gloucestershire Regiment, and later he commanded the station hospitals at Portsmouth in 1855-86, and at Mhow in 1887. He served in the Afghan war, in 1880-81, in the Southern Afghanistan Field Force; and in the Soudan in 1885, commanding No. 1 Bearer Company in the Suakin Field Force and receiving the medal with a clasp and the Khedive's bronze star.

DEPUTY INSPECTOR-GENERAL JAMES CRAWFORD DOW, R.N. (ret.), died recently at Bath of congestion of the lungs, the result of an accident, when he fell and broke his leg in a rough sea, returning from Australia last May. He was educated at Glasgow University, where he graduated M.B. and C.M. in 1870, and entered the navy soon after, attaining the rank of fleet surgeon on June 4th, 1893, and retiring, with a step of honorary rank, on September 21st, 1904.

Universities and Colleges.

UNIVERSITY OF OXFORD.

At a congregation held on February 16th the following medical degrees were conferred:

D.M.—W. R. Reynell (*in absentia*), G. T. Hebert.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examination indication:

FINAL M.B., CH.B.—*Part I, including Forensic Medicine and Toxicology*: Elizabeth Casson, A. D. Symons. *Part I only*: B. A. Astley-Weston, A. G. Bodman, R. F. White.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on February 14th, when Colonel Charters Symonds, Vice-President, was in the chair.

Diplomas of membership were granted to eighty candidates found qualified at the recent examinations. Diplomas in Public Health were granted jointly with the Royal College of Physicians to two candidates found qualified.

The Begley Studentship was opened to women as well as to men.

A resolution having been passed by the College of Physicians for the omission of biology from the first professional examination, the subject was referred by the Council to a special committee for report.

The Secretary reported that, in pursuance of the provisions of the new by-laws, the date of the next Council election would be announced by advertisement and by circular on March 8th, and that March 18th would be the last day for the nomination of candidates.

COLLEGE OF MEDICINE, NEWCASTLE-ON-TYNE.

THE council of the college has elected Dr. David Drummond to be president of the University of Durham College of Medicine, Newcastle-on-Tyne, in succession to the late Sir George Philipson, and the chancellor has appointed him pro-vice-chancellor of the university. Dr. Drummond graduated M.D. (Dubl.) in 1876, became physician to the Children's Hospital shortly afterwards, and in 1878 became physician and pathologist to the Royal Victoria Infirmary, and is now consulting physician. He is also joint professor of the principles and practice of medicine in the University of Durham. At the annual court of governors of the college he was elected vice-chairman. At the same meeting it was announced that the number of students at present in attendance was 168, or 26 more than a year ago. The number of women students has increased by 50 per cent., and they now form 25 per cent. of the total. Dr. P. H. A. Clayton has been appointed lecturer in bacteriology, and Dr. Helen G. Clark part-time assistant. The routine work of the department has been increased, as it has been arranged to conduct for a number of urban and local authorities the bacteriological investigations required by the Local Government Board under the venereal disease regulations. Additional accommodation has been provided at the cost of about £600.

CONJOINT BOARD IN ENGLAND.

THE diplomas of L.R.C.P. and M.R.C.S. have been conferred upon the following:

G. V. W. Anderson, Mary Andrews, H. C. Apperly, C. W. W. Armstrong, K. E. Attenborough, Loveday S. Banes, M. Baranov, E. R. Batho, C. C. Beney, P. F. Bishop, J. C. Blake, J. S. Boruchowitz, R. B. Britton, H. S. Bryan, F. Caldecott, G. T. Calthrop, J. D'A. Champney, H. A. Chodak, W. B. Christopherson, A. E. Clark-Kennedy, C. B. Cohen, W. Collins, R. N. Craig, T. L. Crawhall, H. T. Cubbon, Jatindra Kumar Datta, C. Depla, A. R. Doyle, F. B. Dutton, F. N. V. Dyer, Abdel Aziz Hassan El Zenieny, W. Feldmao, A. F. M. Fuoss, G. H. Gidlow-Jackson, Eryl Glynn, W. N. Goldschmidt, W. H. Grace, R. B. Green, W. S. Gross, W. M. Heald, J. M. Higginson, E. A. Holmes, J. Hope, H. B. Jackson, W. A. Jolliffe, D. M. Jones, J. W. Jones, M. E. Jones, T. P. Kilner, D. M. Lalá, F. W. M. Lamb, J. G. Lawn, Marguerite F. J. Lowefeld, G. E. MacAlevey, H. M. Menage, Daisy K. P. Michael, H. Millett, L. M. Moody, D. M. Muir, Annie S. Mules, P. M. Neighbour, Vijaya Shankar Rao Padit, E. J. Papenfus, A. L. S. Payne, T. M. Payne, A. V. Pegge, A. Peioe, Sybil M. G. Pratt, Joyce B. Reed, H. T. Rymer, H. M. Savery, C. K. Seales, G. A. S. Shacklock, B. S. Sharp, A. G. Sherrlock, G. H. Sims, A. R. Totthill, J. T. Wall, A. S. Westmould, E. Wolff, F. G. Wood.

Medical News.

THE fourth meeting of the Inter-Allied Surgical Conference will be held early next month. The last conference took place in Paris in November last, and an account of its conclusions was published in the JOURNAL of January 5th, p. 28.

THE Home Secretary announced in the House of Commons on February 20th that summer time for 1918 would commence at midnight, Sunday, March 24th, and terminate at midnight, Sunday, September 29th.

THE Parliamentary Secretary to the Ministry of Food (Mr. Clynes) has stated that the number of standard barrels of beer brewed for consumption in the United Kingdom during 1917 was 16,133,800, and that the quantity of materials used for the first nine months of the year was 23,620,800 bushels of malt, 61,200 cwt. of rice, 6,200 cwt. of maize, and 1,613,700 cwt. of sugar or its equivalent. He stated also that the quantity of spirits retained for consumption as beverages in the United Kingdom in the year ending December 31st, 1917, was 18,549,406 gallons.

THE delivery of the Hunterian lecture on the pathological aspects of certain war injuries of the eye, announced to be given at the Royal College of Surgeons of England by Colonel W. T. Lister, on February 25th, has been unavoidably postponed until May 8th.

DR. ROBERT A. LYSTER, lecturer in public health and forensic medicine at St. Bartholomew's Hospital, and county medical officer for Hampshire, has succeeded Sir Shirley Murphy as editor of *Public Health*, the official journal of the Society of Medical Officers of Health.

AT a meeting of the Shakespeare Association at King's College, Strand, on Friday next, at 5 p.m., Dr. Ralph W. Litchfield will read a paper on Doctor John Hall, Shakespeare's son-in-law.

THE Fire Brigade Committee has brought to the notice of the London County Council the work of Mr. Somerville Hastings, surgeon-in-charge of the ear and throat department of the Middlesex Hospital, in connexion with a fire caused by bombs from hostile aircraft. In rendering medical attention to a man who was pinned under some debris, Mr. Hastings shared the risks of members of the Fire Brigade, regardless of the fact that he had no helmet or other protection, and that debris were falling.

AT the annual meeting of St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum, City Road, London, when the Lord Mayor was in the chair, it was stated that soldiers suffering from rectal diseases and injuries were being treated, and that so far all had been discharged cured, although it had been necessary to keep some in the wards for as long as four months. An opportunity has occurred to purchase a vacant site adjoining the hospital and an appeal for £4,000 to complete the amount needed is being made.

STATISTICS for the year 1916 of the twenty-six German towns with a population of over 200,000 each show a decline of 38.3 per cent. in the birth-rate as compared with 1914. The figures for August and September, 1916, were, however, better than for the preceding July, a result, it is supposed, of the facilities given to soldiers for Christmas leave.

THE Reichstag debate, in which the patrons of salvarsan were accused of suppressing salvarsan fatalities, and in which the medical journals were said to be accomplices to the unscrupulous exploitation of this drug, has had a sequel. In an order from the Prussian Minister of the Interior, dermatologists, specialists in venereal diseases, and the heads of medical institutions are required to give a return showing the number of patients treated and of injections given, and the nature and number of the ill effects observed. Information is asked as to the benefits resulting from the treatment of syphilis with salvarsan and its derivatives.

THE first general meeting, since the war, of the German Medical Association was held in Leipzig on September 22nd and 23rd, 1917. It was stated that about 24,000 German doctors were engaged on war work, and that about 1,000 had fallen in the field. The attacks of the insurance societies on the medical profession, and the prospect of loss of independence by the adoption of a state medical service were discussed. Bitter conflicts with the insurance societies after the war were foreshadowed. With regard to the establishment of dispensaries for the treatment of venereal disease it was agreed that the medical profession should be adequately represented. Unanimity was also shown in a resolution calling for higher remuneration in every branch of the medical profession in view of the depreciation of the currency.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology*, Westrand, London; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES AND ANSWERS.

VOLUNTEER TRAINING CORPS.

M.O. asks for information as to the conditions of service applicable to the medical officer appointed to a Volunteer battalion. "Everyone," he writes, "seems to agree that the time is not far distant when the Volunteer Force will be mobilized. A medical man is gazetted as 'temporary lieutenant and medical officer.' In his case does length of service qualifying for promotion count from the date of the *Gazette* notice or from the date of mobilization, and is his pay that of the temporary officer or of the Territorial officer?" Authentic information on these points would, he thinks, be of benefit to those who have joined or are about to join the V.T.C.

"LAMBETH DEGREES."

S. N. asks what powers or privileges the Archbishop of Canterbury has with reference to conferring the degree of M.D.

*. The power of bishops to grant licences to practise medicine doubtless originated in the claim of the church, whose authority was embodied in the Pope, to control all matters relating to education. Some historical notes were published in the BRITISH MEDICAL JOURNAL of December 28th, 1912, p. 1766, where an Act of Henry VIII (1511) defining the mode of exercise of the right was quoted. Some twenty years later an Act was passed empowering the Archbishop of Canterbury to grant degrees in divinity, medicine, and arts. These degrees have commonly been known as "Lambeth degrees." Dr. S. D. Clippingdale informs us that the holders wore the same robes as those holding the corresponding degree of the university to which the Archbishop himself belonged. The Archbishop of Canterbury voluntarily surrendered his right to confer the M.D. when the Medical Act of 1858 was passed. In the BRITISH MEDICAL JOURNAL of December 21st, 1912, p. 1718, a licence granted by the Bishop of Norwich in 1561 was quoted in full.

LETTERS, NOTES, ETC.

NEW DIET RESTRICTIONS.

R. J. R. writes to express the opinion that while most people approve of the rationing principle in general they expect an exemption for any particular case in which they are interested, and believe that all that will be necessary is to apply to their doctor for a certificate. "Unless," he continues, "the regulations for special certificates are made very strict and very definite, there is a risk of very extensive evasion of the orders of the Food Controller. The case of milk is, perhaps, the most important, the case of cream and butter being considered with it; but a particularly flagrant example is that of beef-tea. Taking into account the very small food value of this pleasant extract and the proportionately large amount of the best meat sacrificed to make it, it is to be hoped that in this instance the Food Controller's ruling will be almost prohibitive of certificate."

THE ADVANTAGES OF tepid BATHS.

DR. GERALD W. MAW (Bedford) writes to recommend the use of tepid baths both as a war economy and because he believes that many people injure their physical condition by frequent and prolonged bathing in hot water. He quotes the case of

a middle-aged man who consulted him on account of "a feeling of general lassitude, disinclination for exertion, and tendency to take cold." He had complained of this state of affairs for six months, and attributed it to a change of residence from a bracing to an enervating climate. He had always led a regular life, spending a great deal of time out of doors, and had not had an illness for years. His heart was found to be healthy, and so, apparently, were his digestive and excretory organs. The urine was normal. The lungs were slightly emphysematous. The patient stated that until the last six months he had always had his bath cold or tepid. Latterly, having an unlimited quantity of hot water, he had been in the habit of taking a hot bath nightly and staying in it about fifteen minutes. He was recommended to discontinue the hot baths entirely, to sponge rapidly with tepid water at night, and in the morning to immerse himself in a tepid bath, and then sit up in it for three minutes with the cold water tap running. This change soon restored him to his old state of physical well-being.

TONSILS AND ADENOIDS.

MR. H. CLAYTON FOX, F.R.C.S.I. (London, W.), writes to express the opinion that in the correspondence one point as to the etiology of hypertrophied tonsils has been overlooked, or at least not discussed. "I refer to the influence of nasal obstruction, due to any cause, congenital or acquired. Every child with nasal obstruction is a mouth breather, and this means that air laden with microbes (especially in the poorer dwellings) are continually infecting the tonsils, with obvious results. As to treatment, my own experience leads me to believe that nasal obstruction is the prime factor—adenoids should be removed as early as possible, chronic rhinitis treated and followed up by careful and persistent breathing exercises. With a healthy nose and nasopharynx, and, of course, having excluded other sources of oral infection, most tonsils will, unless enlarged by specific fevers, undergo involution in their own good time."

SACCHARINE AND DIGESTION.

COMPLAINTS having been made in Germany of digestive disturbances following the use of saccharine as a substitute for sugar, Professor Best (*Muench. med. Woch.*, September 18th, 1917) has investigated the matter by giving comparative test meals consisting of tea and bread with sugar, or one tablet of saccharine. Analysis of this material taken from the stomach at the height of digestion showed that the total acidity of the gastric juice was considerably greater when saccharine was given instead of sugar. Investigations also showed that, in addition to stimulating the secretion of gastric juice, saccharine probably delayed the passage of food from the stomach. Best concludes that saccharine should be withheld in cases of hyperacidity, and that gastric and duodenal ulcer should certainly be regarded as contraindications for the use of saccharine, which in other respects cannot be regarded as injurious.

MALTHUSIANISM AND MORALITY.

DR. BINNIE DUNLOP (London, S.W.), writes: Is it, as Mr. E. B. Turner states (p. 208), "a fact well known to all social workers that the standard of what I may call practical morality among young women of every class of society has gradually deteriorated since, some twenty years ago, the Malthusian propaganda began and the public display and advertisement of Malthusian appliances followed"? Although for years I have been constantly discussing this propaganda with social workers I rarely before the war heard the suggestion that it had increased promiscuity. Can Mr. Turner produce any evidence that promiscuity had been increasing? Malthusian propaganda began forty years ago.

THE NIGHT SCREAMING OF CONGENITAL SYPHILIS.

THE *Brazil-Medico* of October 20th, 1917, contains a communication from Dr. Cassio de Rezende of Guaratinguetá pointing out that the nocturnal wakefulness and fretfulness with almost continuous screaming which is an indication—often the only one—of congenital syphilis in infants is generally designated in South America as Sisto's symptom, after a distinguished Argentine physician who is believed to have been the first to describe it. Dr. Genaro Sisto, professor of paediatrics in the Medical Faculty of Buenos Aires, wrote much about what he called a new symptom of hereditary syphilis. His first paper on the "syphilitic scream" appeared in *Archivos Latino-Americanos de Pediatria* in 1906; in 1909, in his clinical lectures on infant pathology, he related a case in which he identified the disease by this symptom alone and effected a rapid cure by antisiphilitic treatment. Those lectures were translated into French in 1910, under the title of *Conférences de pathologie infantile*, by Professor V. Intelin, who contributed a preface in which he endorsed Professor Sisto's claim of priority in the description of the symptom. Dr. Cassio de Rezende, however, shows that the symptom was fully described by Eustace Smith in the second edition of his *Practical Treatise on Disease in Children* which appeared in 1870. The symptom is coupled with the name of Eustace Smith by Dr. Robert Hutchison in his *Lectures on Diseases of Children*, published in 1904. Apart from actual attacks of screaming, great restlessness, and irritability at night, often attended by drowsiness by day, ought, if persistent, to arouse a suspicion of syphilis. The cause is probably pains in the bones.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending February 18th:

	£	s.	d.		£	s.	d.
Dr. John Orr	...	1	0	The Society of Apothecaries of London	...	100	0 0
Dr. Theodore Thompson	...	5	0	Dr. R. Stanley Thomas	...	1	0
Sir Felix Semon	...	2	0	Mr. E. Spencer Evans	...	0	10 0
Dr. W. F. Haslam	...	2	0	The Countess of Leven	...	25	0 0
Mr. W. S. Turner	...	0	6	and Melville	...	25	0 0
Mr. F. P. Sergeant	...	0	10	The Lady Betty Leslie	...	25	0 0
Mrs. Des Vœux	...	5	0	Melville	...	3	0
Surgeon-General F. J. Lilly, R.N.	...	2	2	Mr. H. Gaselee	...	3	0
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Dr. Boodle	...	0	7	Mr. H. James Kluge	...	3	3 0
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PRESCRIPTION WRITING IN THE METRIC SYSTEM.

DR. SYDNEY WHITAKER (Liverpool) writes: This method of expressing the dosage of drugs has happily come to stay, but at present it is hindered by lack of uniformity. For example, students of the Liverpool University are taught to express quantities by certain symbols; in Bruce and Dilling's *Materia Medica and Therapeutics* one finds other symbols, while in H. A. Hare's *Textbook of Practical Therapeutics* yet other symbols are used. Thus, for example, the following prescription would be written in the following ways:

	Imperial Measures.	Metric Measures.		
		Liverpool University.	Bruce and Dilling.	H. A. Hare.
R. Vin. colch.	m xv	1 mil	Ml 1	Cc 1
Mag. carb. p.	gr. x	6 deg	Dg 6	Gm 0.6
Mag. sulph.	gr. xv	1 grm	G 1	Gm 1
Aq. menth. pip.	ad 5 i	30 mls	Ml 30	Cc 30
Mitte	5 viij	240 mls	Ml 240	Cc 240

As if to add to the confusion, it is customary in most countries in which the metric system is used to express the dose of liquids by weight, while many French physicians would, I believe, express the above dose of heavy magnesium carbonate thus, 0.6 décigram. It would be well if English and American teachers of and writers on materia medica and therapeutics could come to some agreement, and bring the matter before the next International Medical Congress for settlement.

A DISCLAIMER.

LIEUT.-COLONEL C. S. MYERS, F.R.S., R.A.M.C.(T.C.), (Moss Side Military Hospital, Maghull, near Liverpool), writes: My attention has been called to an appeal for funds now being circulated by the Medico-Psychological Clinic, Ltd., in order that it may deal with "the tens of thousands of our bravest heroes . . . discharged from the navy, army, and air service, useless and helpless, suffering endless torture from such maladies as insomnia, states of anxiety and exhaustion, uncontrollable emotions, . . . etc." In this circular I am described as one of the two consulting physicians to the clinic. Will you allow me to state that this use of my name is wholly unauthorized, and that only once—four years ago—have I had any relations or communication with the clinic, when I was invited by letter to join the staff, and sent a written reply declining to do so?

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Observations ON THE NATURE AND SYMPTOMS OF CARDIAC INFECTION IN CHILDHOOD.

BY
I. J. POYNTON, M.D., F.R.C.P. LOND.,

PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; SENIOR PHYSICIAN TO
JULIENHUIS, THE HOSPITAL FOR SICK CHILDREN,
GREAT ORMOND STREET.

I.—INTRODUCTORY.

THE study of cardiac infection in childhood has appealed to me as the best introduction to the problems of cardiac disease in man. It is, in my opinion, a drawback to our excellent manuals upon heart disease that they do not sufficiently throw into prominence this aspect, and lack that close analysis of the early stages of these infections which makes us realize their great significance and impresses upon us that rational treatment must lie in prevention. The result has been to lay overmuch emphasis upon mechanical problems and to place in the background the more important consideration of the behaviour of the heart in response to infection compared with the response of the other organs. In childhood we can study the commencement of a class of cardiac diseases which often leaves lifelong scars, and both histological and experimental investigations have made it possible to outline clearly the steps in its pathological progress.

From such an introduction as this the student can rapidly grasp the great principles involved, and thus more easily fit into their proper position the many difficult details of cardiac disorders in the adult. Some of these, no doubt, are not concerned with cardiac infection, but none the less they are seen more clearly when these processes are understood.

There are many kinds of cardiac infection, to mention only the rheumatic, tuberculous, septic, diphtheritic, and pneumococcal forms, but for my purpose none is so suitable as the rheumatic. It is in this country the commonest. It attacks all parts of the heart and produces every sort of cardiac disability. The fatality is sufficiently great to furnish accurate pathological knowledge of the injuries, and these have been confirmed by experiment. The student will accordingly start from a broad and solid basis of fact. From the outset two chief considerations will claim his attention: the cardio-vascular apparatus itself, the mechanism of which has been injured, and the correlation of the cardiac disorder with that produced in other organs by the same disease in its various stages.

In the first direction he will be continually acquiring special knowledge of the symptoms and signs of cardio-vascular injury; in the second he will be working on broader lines and studying the cardiac lesions as particular results of the general disease, and will consequently be led to inquire into the life-history of the infection as it concerns the entire system. Thus from the outset he will recognize that much heart disease is the result of the scars of healed infective processes.

During the years I have served as an out-patient physician at the Hospital for Sick Children I have accumulated a large number of clinical facts upon the early phases of cardiac infection, and have, I think, been able to keep them in their right perspective by a simultaneous experience of adolescents and adults in general hospitals. The point of view in these two institutions is not quite the same. In the hospital for adults it is heart disease which is predominant, if only for the valuable teaching it provides. In the children's hospital it is the particular infection that is dominant. Each aspect has its value.

The following examples will indicate the direction in which I am aiming. In this country there is, I suppose, no more serious affection of the heart than mitral stenosis. It is frequent in occurrence, incurable, and a common cause of death under 45 years. The suffering entailed is often extreme, and many married women of the poorer classes are rendered helpless invalids at an age when young families are dependent upon their activities. In a general hospital we usually see these cases with the symptoms well established, and they are looked upon as cases of primary heart disease—that is, as cases of mitral stenosis.

In a children's hospital we see the early stages and attendant circumstances, and we trace their evolution. Again, we may see a case of valvular disease which at the moment is of no particular interest, but if we have followed the history we may have noticed that the lesion followed upon clear evidence of a sore throat. We are thus led to recognize the relation of angina faucium and rheumatic heart disease, and get a glimpse of one of the most valuable lines for preventive treatment that modern medicine has established. Here I would emphasize the value of studying not only the cardiac signs but all the events that may coincide with a first attack of rheumatism in childhood. If we wish to prevent cardiac infection every detail concerning the lesions in other organs becomes important.

There is a warning concerned with nomenclature that should be given to a student who would follow along these lines. The disease is variously called rheumatic fever and acute rheumatism. Both these terms were in use before the disease in the young was understood, and they are sanctioned by long usage. Nevertheless they are misleading. If we consider for a moment tuberculosis in the child, we recognize an acute miliary form, rapidly fatal, acute bronchopneumonic forms, and a large group in which the invasion is so gradual that none can name the exact date of onset. So, too, with rheumatism, there are acute fulminating cases, acute cardiac cases in which the heart takes the position of the lungs in tuberculosis, and cases very gradual in onset.

The terminology of tuberculous fever, or acute tuberculosis, does not cover that disease in the young, and the same is true for rheumatism. This imperfection, however, is not academic in its drawbacks, for the faulty nomenclature leads to surprise being expressed by parent and student that a case of obvious rheumatic disease has never been acutely ill. Moreover, a false notion exists in the lay mind that rheumatic fever is dangerous and that insidious rheumatism is not. One of the difficulties in the prevention of rheumatic heart disease is the unobtrusive onset of some of these illnesses. We can best combat the difficulty by a careful study of the manifestations of rheumatism uninfluenced by the nomenclature.

MANIFESTATIONS OF RHEUMATISM.

There are many admirable articles upon the manifestations of rheumatism in childhood which must be looked upon as introductory chapters to the study of cardiac infection, and some of these manifestations I take here to illustrate what I mean by the correlation of cardiac symptoms with those in other organs. There is, however, one generalization to be made first: *The severity of the cardiac affections is dependent upon the virulence of the infection.* Severe valvular disease may certainly result from repeated attacks of rheumatism, but the deadly menace to the heart lies in the grave toxic forms which from the first irreparably damage the neuromuscular tissues. In such cases this element of virulence is of more importance than the physical signs of cardiac disease for arriving at the immediate prognosis.

A. The Throat and Nose.

In 1900 Dr. Paine and I isolated from the tonsils of a patient suffering from acute rheumatism and tonsillitis a strepto-diplococcus identical in characters with one we had already isolated from the blood, valves, pericardium, joints, and nodules of cases of rheumatism. This produced carditis arthritis, and the various other experimental results we have fully described elsewhere. Some years later we continued these investigations in cases of recurrent rheumatism with diseased tonsils, and confirmed the accuracy of our observations.

The conclusion from these results is obvious: *The infection may gain access to the body by way of the tonsil.* These investigations were novel, but the inference had been suggested and commented upon by clinicians for over a century. As for the clinical evidence, I am convinced it is final. Over a period of nearly twenty years I have assured myself of its truth, and I can recall cases in childhood in which acute rheumatism has followed tonsillitis as clearly as it has followed an experimental intravenous injection in an animal.

Difficulties have been raised, but the chief of them appear to me dependent upon a too rigid interpretation of the processes of disease in man. It has been pointed out

that a sore throat is frequently absent, and this is certainly true. Does any one, however, suppose or claim that no other site of entrance is possible? Again, is it necessary that the throat should be painful? It would be clearly unscientific to claim the tonsils as the site of entrance when nothing points in this direction, but, on the other hand, it would be equally so to deny that structures of which we can only see the surface may not be diseased in their depths, or that a virulent infection may start from a minute and apparently painless local lesion.

When the treatment of infective cardiac disease is discussed, the operative indications in rheumatic tonsillitis require consideration; but here I would point out that with this question also an over-rigid view of human disease is liable to appear. No operation will altogether prevent a recurrence of active rheumatism, and we cannot expect that it would, seeing that we do not know all the various paths of infection or the possibilities of the lighting up of foci of previous infection within the body.

One lesson in the history of heart disease, however, can be safely learnt. *An acute tonsillitis in a child should always call for careful examination of the heart.* A second, equally important, is that recurrent sore throats in childhood are not only in themselves painful and disabling, but are a menace to the heart, and must be a consideration in advising upon operative measures.

In accord with our experience of other infections, there is no condition of the tonsils that can be claimed as specifically rheumatic. In various diseases we recognize clinical forms of sore throat which represent a classical type, but we also recognize that there are variants. In rheumatism we see the painful red glazed tonsils and fauces, and where the process has sunk deeper small follicular deposits; but we also find membranous tonsillitis, sometimes not very unlike the diphtheritic; and again, deep collections of unhealthy secretion in large tonsils which, except for their size, may show little change. It is reasonable to believe that the micrococci are present in the healthy and that they acquire their special virulence under circumstances of lowered resistance, particularly in those who inherit that peculiar constitutional tendency which we call the rheumatic.

These unhealthy conditions of the throat are, we know, often coupled with adenoid vegetations, and it is very probable that in these vegetations the micrococci may retain their virulence. Chronic nasal affections, too, I think, require more observations than are at present at our disposal. The nasal mucous membrane may well be another site of infection, as also the internal ear, and I am convinced there is a rheumatic otitis of acute nature. Enlargement of the cervical glands is common, as would be expected since tonsillar disease is so frequent in the rheumatic, and this must be looked upon as evidence of the entrance of infection into the system. I am a little surprised that more attention has not been directed to the glandular enlargement in rheumatic children, for, though it is naturally to be expected, it accords so closely with the history of other tonsillar infections that its occurrence strengthens our confidence in the infective nature of the disease.

B. Arthritis.

Arthritis in childhood, with which I associate muscular pains, is, as we know, very frequent in rheumatism, and on this account a very valuable danger signal. Although arthritis at this age is not usually severe, the value of it as a symptom is very great, particularly if it is realized that the pain may be considerable owing to implication of surrounding tendon sheaths, with no detectable changes in the joint affected. The rule has been long established that *obscure pain in the joints and muscles in childhood should call for a careful examination of the heart*, and it needs no labouring.

C. Chorea.

Chorea and the allied nervous symptoms deserve the closest attention. I believe there is much to be learnt from their study that has bearing upon some of the most difficult problems in cardiac disease. Later, when touching upon mitral stenosis, I shall illustrate the close association that exists between chronic and repeated chorea and the evolution of this lesion, but now I only wish to draw attention to the great influence that the rheumatic infec-

tion exerts upon the nervous tissues. Chorea is the classical and striking manifestation, but there are other remarkable results. The older clinicians realized that the rheumatic child was the nervous child of a family, and we may look upon this peculiarity from two aspects: The child of rheumatic parentage may have, as one evidence of the constitutional weakness, an unstable nervous system, or, on the other hand, a child who has been attacked by this infection may as a result become unduly nervous. Of this latter occurrence I have no doubt, and I have seen repeated examples in children who have never developed a frank chorea. Such children become prone to migrainous headaches, night terrors, emotional attacks, and general nervousness. They may develop a condition which in adults we might term neurasthenia. Again, striking evidence upon this point is sometimes given by rheumatic adults both male and female. They may volunteer the statement that they know they are highly nervous and have noticed this to increase so greatly when they have signs of active rheumatism that they are then almost unable to control themselves. Such patients possess often enough great will power, and are perfectly aware of their weakness, and their statements convince me of the powerful effect of the rheumatic poison upon the higher nerve centres, and I think it worthy of the careful attention of neurologists. It is well known that every case of chorea requires careful examination of the heart; but the point which I am anxious to insist upon here is that the peculiar effect of rheumatism upon the nervous system tends to produce disturbances of the heart, such as tachycardia, preërdial sensations, irregularity of action, and even arrhythmic symptoms. I believe that above all affections rheumatism is liable in the adult, under suitable circumstances, to produce a condition of the heart akin to that met with so often in the soldier, and that we must keep before us this difficult problem of the factor of nervous instability in the study of organic heart disease. We shall then realize how very difficult it is to distinguish between functional and organic disturbances of this organ, and how inadequate any set tests for the mechanical power of the heart must be in dealing with the practical issue. The problem involved is not only whether the heart is mechanically sound, but whether the individual possesses a heart which will answer to physical and nervous strain by a healthy and confident response.

I have met with rheumatic cases in which the heart has seemed to physical examination but little if at all damaged, and yet such is the neuro-muscular response to sudden physical strain or excitement that they are totally incapacitated for any prolonged exertion, speedily collapsing with palpitation, general prostration, and even syncope.

Rheumatism probably gives us the best clue to unravelling functional nervous disturbances of the heart that we at present possess.

D. Cutaneous Manifestations.

The various rashes and cutaneous manifestations of rheumatism are, I think, of particular interest in that they give us a hint as to the nature of the rheumatic poisons of which we have no accurate knowledge. The urticarial, erythematous, and purpuric lesions suggest an altered state of the blood producing undue fragility or permeability of the capillaries. So narrow is the margin that a hot compress placed over an area of erythema may cause it to become purpuric, and an erythema on the upper limbs may be followed by a purpura on the lower. I have seen an erythema, purpura, and early psoriasis in the same patient—and an erythematous patch with a nodule in its centre. The latter occurrence is of interest, for the nodule is a local infection.

Akin are Filatow's or Osler's spots—on the pads of the fingers or toes, on the dorsum of the hand, or even in the palms and on the wrists. These may be the first definite signs in childhood of a progressive or malignant endocarditis. They are very likely to be overlooked, for they are minute and often so little painful as to escape the child's attention.

In this section I am also inclined to place epistaxis, so frequent in the rheumatic child, as Dr. Sidney Phillips has observed. The attacks may be frequent and severe, but personally I have not met with a dangerous case. It may occur during an acute attack, or be a first warning, or be an isolated event between attacks of general rheumatism.

E. Abdominal Symptoms.

The occurrence of abdominal symptoms in the rheumatic is an obscure subject, but one of considerable interest in heart disease, for we recognize how gastric and other abdominal disturbances influence the action of the heart when it is organically diseased or functionally defective. Reliable evidence upon these symptoms is scanty, for in rheumatism, except in very unusual cases, they do not cause a fatal result. The exceptions are rare examples of acute gastric dilatation and appendicitis. Occasionally extreme pain and distension may be complained of in the line of the colon, producing great distress and embarrassing the damaged heart, and troublesome colitis may occur. Apart, however, from these, we repeatedly meet in rheumatic children with what are called "bilious attacks." The appetite fails, the sclerotics become icteric, and the tongue coated; the motions are pale and there may be vomiting, fever, and severe headache. Such attacks may usher in an exacerbation of rheumatism. Experiment has thrown a little light upon the subject. The diplococcus has been demonstrated in large numbers in the bile of infected animals. Recently, in an unpublished case of fatal chorea in a woman, Dr. Paine isolated the diplococcus from the gall bladder and cerebral tissues. Jaundice, too, is not very uncommon in rheumatic children, and it may complicate the course of a severe chorea.

The bearing of these few observations at present is, I admit, problematical, but we are well aware of the close connexion between hepatic disturbances and the nervous system, and it is quite possible that they take some part in the unstable nervous state of the rheumatic, and that the metabolism of the liver may have a closer relation to the cerebral processes than is realized.

My chief intention here, however, is to draw attention to the occurrence of this triad of symptoms in the rheumatic: *Instability of the nervous system, abdominal disturbances, and faulty action of the heart.* The student of heart disease will repeatedly meet with this combination of symptoms, and he will find it often enough difficult to decide which system is primarily at fault. Such cases are sometimes conveniently termed "neurasthenia," but we should try to search behind the mystery of this somewhat all embracing term.

F. General Wasting.

This also is a symptom needing close attention. It is not very unusual for a child to be brought to hospital for wasting coupled with a history of indefinite illness, and to find the explanation an insidious rheumatism. Again, during a severe attack general wasting may proceed rapidly. Lastly, this symptom in a child with severe organic heart disease is of great significance, for it may mark the beginning of the last stage of the illness, and indicates failure of the circulation to maintain nutrition even when the child is carefully guarded.

The converse to this is also of value; it is a sign of good augury when a child with rheumatic heart disease begins to gain in weight although the physical signs in the heart may convey no such favourable impression.

A student intent on the study of the heart alone, is in danger of losing sight of such homely evidence as this unless he remembers that the heart cannot be considered apart from the frame to which it is supplying blood.

G. Anæmia.

Anæmia in rheumatism affords valuable evidence of the virulence of an attack. There are few more striking clinical signs than the ghastly greenish pallor of a deadly carditis.

I have always attached much importance to this sign both in children and young adults, and my experience has led me to believe that neglect of the treatment of anæmia in young rheumatic adults favours the development of the malignant form of endocarditis which is most liable to make its appearance in early adult life.

H. Fever.

Fever in rheumatism is generally agreed upon as a sign of activity of the process, but there are cases of great obscurity in which fever persists for weeks and yet no definite explanation is forthcoming. When there is active carditis we naturally suppose that there is progress in the lesions, but there are examples of mysterious fever which

seem to leave no indication of their meaning. I mention them here because they greatly perplex us in our arrangements for convalescence, and remind us that in forming a judgement upon this point we must fall back upon the general condition of the patient and not be swayed overmuch by one symptom.

I. Rheumatic Subcutaneous Nodules.

The last manifestation I shall consider here are the rheumatic subcutaneous nodules. Dr. Cheadle long ago properly insisted upon their grave significance as associated with severe cardiac lesions. There are exceptions—rare cases in which nodules are almost the predominant manifestations, and the heart little if at all affected—but these only serve to accentuate the value of the general rule. It would seem that the occurrence of nodules points to lowered power on the part of the cells to destroy the infective agent, and that the friction of exposed areas and of the movements of tendons suffices to enable the micrococci to overcome this lessened resistance and produce local lesions. It must be remembered that these lesions at one time in their life-history contain the infective agents, and also that the same changes may occur in the subcutaneous tissues without producing an actual nodule.

PATHOLOGICAL CHANGES IN RHEUMATISM.

One of the most useful things to be learnt from the rheumatic nodule is the light it throws upon the pathological changes in rheumatism which must now have some consideration. This is not the place for a minute pathological account, but there are some fundamental facts which are a necessity in the study of infective heart disease.

First of all, the human frame resists the infection with great energy; the tissue cells rapidly destroy great numbers of the micrococci. This can be observed most clearly in the tissues from experiment, but when once these have been studied it becomes equally apparent in the human tissues. When the micrococci escape from the blood vessels into connective tissue spaces, the leucocytes and tissue cells rapidly destroy them; the lesions in rheumatism are fundamentally local lesions, a general septicaemia being unusual. The nodule is of such value because it gives a picture of these local changes. The blood vessels are dilated, the connective tissue becomes swollen, leucocytes invade the damaged area in the centre of which are patches of necrosis. A fortunate section of an early nodule cutting through the margin of a necrotic area will show the micrococci. The lesions are so small and necrotic tissue is so sparse that healing often occurs without leaving any trace of the original swelling behind.

If we study the pericardium, the valves, or the joints, we find the same events happening and differing only in their anatomical surroundings, the extent of the areas of infection, and function of the damaged tissues. Wherever there is necrosis there must be scar formation, and wherever there is great virulence there must be great hyperæmia and rupture of fragile vessels with consequent multiple minute hæmorrhages.

Where the tissues involved are secretory in function the exudations that result differ with the virulence—they are sometimes hæmorrhagic, sometimes clear, and sometimes sero-fibrinous. Much difficulty has arisen over the question of pus formation, but this is in reality mostly artificial. The essential question is this: Are we to use pus as a specific term? For example, is the thick yellow fluid from a staphylococcal abscess to be called pus, and no other similar fluid to bear that name? If so, rheumatism is certainly non-purulent. No one, however, uses the term in this restricted sense, but, on the contrary, we speak of pneumococcal pus, of the thin pus of streptococcal infections, and so on. If we use the term thus, as a description of a phase in an infective process, then there is a rheumatic pus, and it is found in advanced cases of rheumatic pericarditis. It is not in nature identical with the fluid of a staphylococcal abscess, for the chemical changes are doubtless different, but it is probably akin to the pus in some cases of pneumococcal pericarditis.

SUMMARY.

Some further pathological details will be given in later articles under the individual cardiac lesions, but here the

essential points in this cardiac infection may be summarized as follows:

1. There is a great resistance by the tissues to the infection.
2. The general toxæmia varies greatly in different cases.
3. The tendency is to multiple focal lesions.

4. Hyperæmia with increased permeability or fragility of the blood capillaries is frequent.
5. There are swelling of connective tissue, cell proliferation, leucocytic infiltration, and necrosis.
6. Scar formation and adhesion follow necrosis.
7. Exudations vary in character with the virulence and nature of the surface involved.

THE USE OF A DIVIDED MATTRESS AND PELVIC ELEVATOR.

By SIR WILLIAM MACAWEN, C.B., M.D.,
GLASGOW.

When we have so many seriously injured men as at present the following adjuncts to our surgical technique may be useful.

There are two simple contrivances which, on suitable occasions, if used together, or separately, will contribute to the comfort of the patients, to the ease of the nurse,

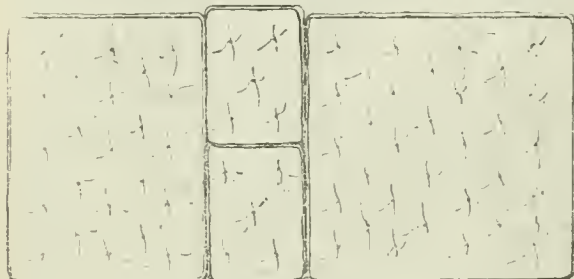


FIG. 1.—Mattress in four pieces.

and will facilitate the work of the surgeon. These are—(1) a mattress divided into four pieces, and (2) a pelvic elevator. They are of use for fractures of the lower limbs, excision of joints, in paraplegias, sacral bedsores, dressing of pelvic wounds, etc.

When fractures are plated the same necessity for rigid fixation of the parts above and below the fracture does not exist; but even here the comfort of the patient will be increased by the use of a divided mattress and elevator.

In cases of fracture of the femur where it is of importance to maintain the fractured bones in rigid apposition, elevation of the patient for cleansing of the back and pelvis and the introduction of the bedpan are seriously disturbing. This is especially so when treating patients placed on ordinary mattresses, as the pelvis has to be raised and lowered on each occasion, and consequently the fractured fragments, when not plated, are apt to be displaced.

DIVIDED MATTRESS.

For the purpose of keeping the pelvis on the same level with the femur a mattress is arranged divided into four pieces, an upper portion measuring 28 in. in length, a lower piece 34 in. in length, and two centre pieces, each measuring 12 in. in length, with a handle at each end (Fig. 1). (The two latter portions may be made in one piece, but this makes a long part, the breadth of the bed,

not so easily handled). The length of top and bottom pieces may vary according to the height of the patient to be provided for.

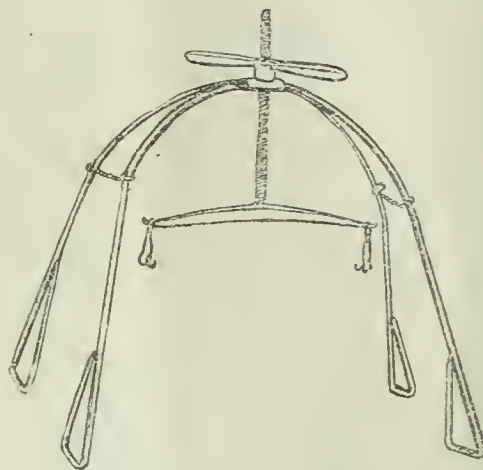


FIG. 2.—Pelvic elevator.

Quotation from Ward Sister.

"When preparing this mattress for a patient each of the two larger mattress pieces is covered with a separate sheet, and the small portions placed in position uncovered between the two larger ones. The binder, mackintosh, and draw sheet are then placed across the bed to cover the small portions of mattress, and the ends of the sheet, etc., are tucked in on either side underneath the mattress

as in an ordinary bed. When the bedpan is about to be introduced these two centre pieces are withdrawn, one from either side, and the under sheet adjusted."

The pelvis, however, is apt to sink somewhat when the supporting middle pieces are withdrawn, though a skilful nurse can prevent this. In order to prevent this sinking a pelvic elevator is used.

THE PELVIC ELEVATOR.

The pelvic elevator consists of two strong wire uprights,

which form a frame joined at the top by a piece of metal through which a screw passes supporting a cross piece, to which is attached a pelvic band (see Fig. 2).

When in use this elevator is put across the patient at the level of the pelvis, and, when it is used along with a cut mattress, one limb of the elevator rests on the lower segment of the mattress and the other limb on the upper. When not in use the pelvic band is detached and may be left *in situ*, lying flat under the patient.

When required, the pelvic band is attached to the cross bar of the elevator and the screw revolved until the desired

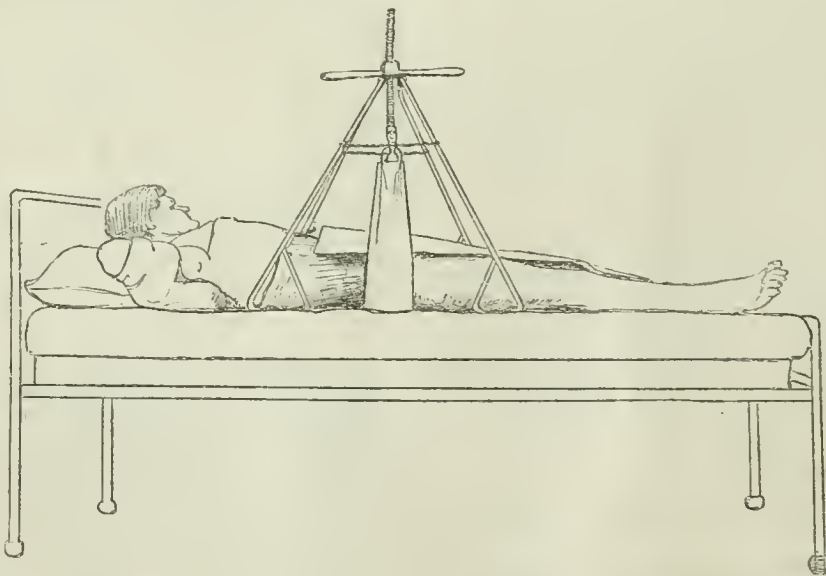


FIG. 3.—Pelvic elevator in position—the weight being now on pelvic band—preparatory to withdrawal of centre pieces of mattress.

elevation of the pelvis is attained (Fig. 3). The weight of the pelvis is transferred to the pelvic band sufficiently to enable the middle portions of the mattress to be withdrawn without disturbing the pelvis. The sacrum may then be washed or the bedpan introduced without movement of the pelvis, and, consequently, without disturbing its relations with the femur. The elevator is so arranged that it may be wrought by the nurse or by the patient. The latter may assist himself while lying supine by elevating or lowering his pelvis, and so adjust the level to suit his convenience (Fig. 4).

Do not overdo the elevation of the pelvis, as an over-enthusiastic nurse might do; just elevate sufficiently to suit.

Such pelvic elevators may be used for many other purposes: For elevating the pelvis during the application of bandages or surgical dressings; washing and cleansing the patient; for the prevention of bedsores and for the dressing of them when they have occurred; for fracture dislocation of spine, paraplegia, and for bedridden persons who have few attendants, especially as many of the patients could thereby assist themselves by working the elevator to any desired extent. The pain or aching in the back so often complained of during the first days after operation, when patients are compelled to lie supine, can be greatly relieved by the pelvic elevator, which can be adjusted and readjusted, raised and lowered as often as required.

It may also be employed as an elevator for any

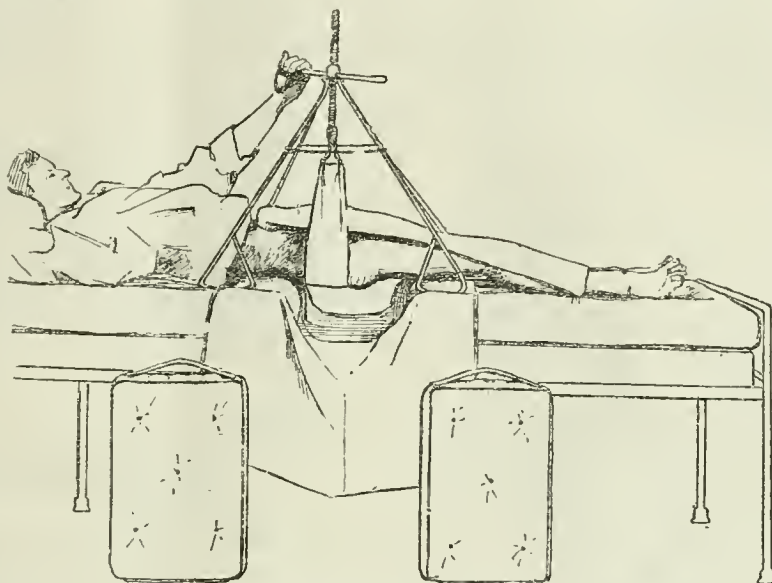


FIG. 4.—Pelvic elevator sustaining weight of patient; centre piece of mattress withdrawn.

other part of the body, and, with the addition of extra slings, may act as a support for an arm or a leg. When not in use it may be employed as a cage for keeping the weight of the bedclothes from a fractured limb, or as a fracture cradle.

The divided mattress, as illustrated, was introduced by me in the early seventies for patients who had femoral osteotomies performed on them on both limbs at one time, and in whom it was necessary to main-

tain the limbs rigidly in proper relation with the pelvis until ossification was completed. Since then it has been in use for patients with fractures of the femur, and for other injuries and ailments. It has been found of much convenience to the nurse and comfort to the patient.

The pelvic elevator in one form or other has been used by me for a considerable period, but the newer, lighter forms here depicted have been introduced of recent years. One of these, made of wood in forty-eight hours by the mechanic at Mount Stuart Hos-

pital, Lute, has served its purpose very well.

Desiring, however, to get an efficient and cheap mechanism, stout iron rod was used, the superstructure being made of a single rod bent as illustrated, with a joining plate at the top, where the arches meet, through which the elevating screw goes.

Mr. Hilliard carried out the instruction, and, as shown in Fig. 2, he has introduced a modification which occurred to him, and which allows of the collapse of the mechanism for carriage to a distance.

Further Observations

ON

THE HAEMAGGLUTININ REACTION.

WITH SPECIAL REFERENCE TO THE OPERATION OF
BLOOD TRANSFUSION AND TO NEPHRITIS.

BY

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IN THE BRITISH MEDICAL JOURNAL of December 8th, 1917, I drew attention to the use of the haemagglutinin reaction as a method of testing the toxicity of different antiseptic reagents to human blood serum.

A further study of the haemagglutinin content of the blood serum in a series of 250 patients when tested with my own washed red corpuscles and those of the sheep has shown:

I.

That different human serums vary very much in their haemagglutinin content when tested with the same standard red cells. This grading of haemagglutinative capacity is independent of the specific power of different serums to agglutinate the red cells of different individuals according as they fall in one or other of the established groups. Individuals whose serums belong to the same agglutinative group differ in haemagglutinative capacity. Some have a very low and some a high capacity for agglutinating the same washed red cells. The result of the serum test has been recorded on the same plan in all cases; thus +++ indicates a high, ++ a moderate,

and + a slight degree of haemagglutinin effect, while — indicates the absence of any reaction. In all cases the macroscopic method was used (see BRITISH MEDICAL JOURNAL, December 8th, 1917).

This means, of course, that incompatibility of donorship in the operation of blood transfusion is also a graded character, and it is therefore desirable, when testing incompatibility, to express not only the presence but the degree of agglutinative reaction. I have also previously shown that 1 part of non-agglutinative to 4 parts of agglutinative serum is sufficient to neutralize haemagglutination *in vitro*, but before applying this fact to the human subject it is desirable to ascertain by experiment on animals whether the same holds good in the living body. But this grading of agglutinative capacity is also important from the biological point of view.

It is supposed that the familial incidence of a haemagglutinative capacity of blood serum in parents and children follows Mendelian laws. It is, however, evident that a character—for example, haemagglutinin content—which varies from zero to a high positivity is much more difficult to handle as a method of testing inheritance than a sharply defined character of more constant value.

II.

But not only does the specific haemagglutinative capacity vary in degree in different serums, it also varies from time to time in the serum of the same patient. This fact is even more important than the first. I mentioned in my earlier communication that there were reasons for thinking that a non-agglutinative serum may become agglutinative in a patient who has passed successfully through a systemic infection. As the result of a study of 140 patients whose serums have been tested against my own red cells before

and after recovery from wound infection, I have records of 13 cases in which, on a subsequent test, some change was detected in the haemagglutinin content of the blood serum. In all cases the change was either from a negative to a positive reaction, or from a low to a high degree of haemagglutinin content. This generally coincided with a healthier condition of the wounds and with improvement in the general health of the patients.

Nephritis.

I have also tested the haemagglutinative capacity of the blood serum against my own red cells and those of the sheep in 50 cases of nephritis. Of these a second examination has been made, after an interval, in 25 cases, and a change in haemagglutinative capacity was observed in 15. In 7 cases a negative was converted into a positive reaction, and in 8 from a lower to a higher haemagglutinin content as far as my own corpuscles were concerned. With the sheep's corpuscles 5 cases showed a change from — to +, and one from a lower to a higher degree of agglutinative capacity. In three cases only was the change in the other direction. In the first of these a ++ was converted into a — reaction with my corpuscles, the action with the sheep's corpuscles remaining the same—namely, negative. In the second the reaction with my corpuscles remained constant, namely, ++, but dropped from a positive to a negative reaction with sheep's cells. In the third case the human cell reaction fell from ++ to +, but with the sheep's cells the reaction rose from + to ++. The two blood examinations were made in nearly all cases at about a month's interval, and most of the patients were improving generally, with a diminution in the amount of albumin in the urine.

The interesting problem arises in these albuminuric cases whether any leakage of haemagglutinin goes on from the kidney along with the leakage of serum-albumin and globulin.

A somewhat extensive examination of the action of these albumin-containing urines on washed red cells failed to show any distinct evidence of haemagglutinative effect. Certain changes, however, occur in the red cells which I regard as initial stages in agglutination, but the reaction does not become complete owing possibly to physical or biochemical factors in the urine. A control experiment in which a known volume of agglutinating serum was diluted with urine in different proportions showed that distinct evidence of agglutination could be obtained in serums diluted up to 1 part in 10 with urine, even after standing for twelve hours. Different samples of healthy urine also vary in the degree to which they destroy the agglutinative capacity of a given serum. This variation in the urine of different individuals to degrade the blood serum is undergoing further investigation, and may possibly provide a test of urinary toxicity.

Patients suffering from albuminuria consequent on nephritis show, on the whole, a lower haemagglutinin content of blood serum than is found in a corresponding group of partly healthy persons. A series of fifty cases of soldiers suffering from nephritis and a series of fifty male patients whose blood was examined for the Wassermann reaction, in many negatively, gave the following results. The cases are arranged in series showing the haemagglutinative strength:

	+++	++	+	—	Total.
Nephritis cases ...	3	16	20	11	50
Wassermann cases...	13	12	22	3	50

If this reduced haemagglutinin content in nephritis cases is considered in conjunction with the rise in haemagglutinin content which takes place as the albuminuria diminishes and the patients recover, we are led to the conclusion that a leakage not only of serum-albumin and globulin but also of haemagglutinin does take place from the kidneys in nephritis. This is important, because if the blood serum is drained of haemagglutinin it may also be drained of other substances of the antibody group, and this loss may be associated with the lessened resistance to infection which is known to exist in these patients.

Conclusion.

In a considerable number of cases under conditions which require further analysis, but which seem to be associated with recovery from albuminuria in the nephritis cases, and successful resistance to general infection in the wound cases, a definite alteration has been found to occur in the blood serum, for the most part in the direction of an increased haemagglutinin content. The bearing of this fact on the problem of blood transfusion now becomes apparent. If the blood serum of a recipient may be at one time compatible with the red cells of a given donor, and at another time may agglutinate those cells, the donor's serum may also, as the result of recovery from infection or other illness, change in the same way.

Cases have been recorded by Major Robertson, Major Lee, and others, in which transfusion of blood from the same donor to the same recipient had no harmful effects on one occasion but was followed by death on a second. I venture to suggest that changes in the haemagglutinin, and probably in the haemolysin, content of the blood serum of the recipient or donor or both occurred in the interval between the two transfusions, which were responsible for the unfortunate result.

GENERAL ANALGESIA BY ORAL ADMINISTRATION.*

BY

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AND

CAPTAIN HOWARD T. KARSNER, M.R.C., U.S. ARMY.

This report is in the nature of a preliminary communication based on animal experiments and a sufficient number of clinical cases to support the conclusions of the animal work. It will be seen that general analgesia in which there is loss of sensation, with or without loss of consciousness, can be established for otherwise painful dressings and for short operations. The desirability of such a procedure becomes apparent immediately on entering a military hospital, and it has also a definite place in civil surgery.

Many war wounds are accompanied by fractures of bones, and the importance of keeping such patients quiet is universally recognized. If the dressing of such a wound is accompanied by severe pain, it is customary at this base to produce nitrous oxide-oxygen or light ether anaesthesia for at least the first few dressings, necessitating in most cases, because of limitation of apparatus, removal of the patient to the operating room. This usually means pain and the danger of misplacing the bone fragments before and after dressings, as well as loss of time to surgeons, nurses, and orderlies. General analgesia, produced simply and quietly without taking the patient from his bed, is the logical solution of this difficulty, and the technique evolved as the result of this study makes it possible to administer the analgesic by mouth in perfect safety. It is, of course, applicable to practically all forms of painful dressings, and is being developed to embrace short surgical operations, such as resection of a rib, removal of foreign bodies, revision of wounds. In such operations, however, it may be necessary to supplement the analgesia with novocain for the skin incisions, a hypodermic injection of morphine, or even by light inhalation anaesthesia.

Local conditions made it seem advisable to select rabbits as the animals for the preliminary work. The animals were tied to a board and the various substances given by stomach tube, after which the animals were immediately released and placed under observation.

Quinine and Urea Hydrochloride (Nikalgin):

Weight of Animal.	Amount.	Result.
2200 gm. ...	4 c.cm. }	No systemic effect.
2105 " ...	8 c.cm. }	
2250 " ...	16 c.cm. }	
1795 " ...	30 c.cm. }	
2215 " ...	60 c.cm. }	Unable to stand after 10 minutes and died in 8 to 17 hours.

* Aided by grants from the American Red Cross.

Trional (dissolves in alcohol, 1 grain to 1.5 c.cm.):

Weight of Animal.	Amount.	Result.
2230 gm. ...	1 grain	Reflexes active.
2470	3 grains	Reflexes abolished in 1 hour; still on feet.
2175	6 grains	Reflexes abolished in 45 minutes, remaining so for 5½ hours; full recovery in 8 hours.
2460	9 c.cm. alcohol (control)	Reflexes partly abolished.

Morphine Tartrate (in water):

1810 gm. ...	½ grain	No appreciable effect.
2560	2 grains	
2000	3 ..	
2050	4 ..	

Paraldehyde:

1710 gm. ...	2 c.cm. ...	Dropped in 15 minutes, slept 4 hours; not analgesic.
2220	4 c.cm. ...	Dropped in 15 minutes; analgesic 6 hours; complete recovery.
	6 c.cm. ...	Died in 15 hours.

Ether in Olive Oil, 50 per cent.:

2430 gm. ...	5 c.cm. ...	Reflexes only partially inhibited, never off feet.
2170	15 c.cm. ...	Reflexes partially inhibited.
2420	30 c.cm. ...	Reflexes completely abolished; apparently full recovery. On repeating dose next day, animal died in 30 minutes. Necropsy showed dilated stomach, with congestion, erosion, and sub-mucous petechiae.
2050 gm. ...	20 c.cm. ...	Reflexes abolished in 6 minutes; apparently complete recovery in 1 hour 16 minutes. Killed after 24 hours, and necropsy showed same findings as in preceding animal.
2095 gm. ...	25 c.cm. ...	Reflexes abolished in 5 minutes; apparently complete recovery in two hours. Killed after 24 hours, with same result as in preceding animal.
—	30 c.cm. olive oil without ether	No effect. Killed after 24 hours, and showed same condition in stomach as preceding animals.

Ether in Olive Oil, 25 per cent.:

Animal.	Amount.	Result.
No. 1 ...	30 c.cm. ...	Down in 12 minutes; reflexes not abolished.
No. 2 ...	20 c.cm. ...	Inco-ordinate.
No. 3 ...	10 c.cm. ...	No apparent effect.

All three animals were killed after twenty-four hours; stomach not dilated, fridus much congested and covered with much adherent mucus.

Paraldehyde plus 25 per cent. Ether in Olive Oil:

Weight of Animal.	Amount.	Result.
2100 gm. ...	1 c.cm. paraldehyde	No effect.
1880	10 c.cm. ether in olive oil	Down in 5 minutes; reflexes partially inhibited; practically restored in 10 minutes. Recovery in 25 minutes.
2170	Combination of above	Down in 5 minutes. Reflexes practically abolished in 10 minutes. Recovery in 30 minutes.
1950	Paraldehyde 2 c.cm. and 25% ether in olive oil 20 c.cm.	Down in 5 minutes; slept for nearly 2 hours.
2060	25% ether in olive oil 20 c.cm.	Down in 5 minutes; slept for 1 hour.

Other Combinations:

Weight of Animal.	Amount.	Result.
2000 gm. ...	Morphine tartrate 1 grain	All inco-ordinate, but no other effect.
	Ether ... 2.5 c.cm.	
	Albolene ... 7.5 c.cm.	
1965 gm. ...	Morphine tartrate 1 grain	
	Paraldehyde 1 c.cm.	
	Albolene ... 2 c.cm.	
2110 gm. ...	Paraldehyde 1 c.cm.	
	Ether ... 3.75 c.cm.	
	Albolene ... 11.25 c.cm.	

These experiments were not conducted as experiments on the detailed physiology of analgesia, but simply for the purpose of demonstrating that analgesia can be produced by oral administration of proper agents. As will be seen, various combinations of drugs were not especially successful, and in rabbits the best results were obtained by the use of ether in oil. It was found, however, that this mixture produced acute gastritis in the animals, but further investigation showed that olive oil alone produced quite as severe a gastritis as when combined with ether. Knowing that olive oil is practically non-irritant to the human stomach, it was considered safe to proceed with the investigation on man. It was thought, however, that some mineral oils might be even less irritant in man, and accordingly the menstruum was changed to either liquid paraffin (albolene)

or Russian mineral oil. The fact that there are said to be ether drinkers in Ireland and France who apparently suffer no more than alcoholics, made it seem additionally safe to try the mixture of the two for clinical work. Additional support was drawn from the fact that in many hospitals ether is being applied as a local dressing without deleterious results. Finally, a 65 per cent. solution of ether in oil has been used in many thousands of cases of oil ether colonic anaesthesia without any sign of local irritation to rectum or colon, as has been proven by proctologic examination, as well as by the fact that no case of dysentery or bloody diarrhoea has been observed.

Clinical Data.

The following combinations have been tried clinically:

I. Ether	...	...	...	...	...
Liquid paraffin	...	...	...	...	...
Aq. menth. pip.	...	...	...	...	...
II. Paraldehyde	...	...	...	...	...
50 per cent. ether in albolene	...	...	...	...	...
Aq. menth. pip.	...	...	...	...	...
III. Ether	...	...	...	...	...
Albolene	...	...	...	...	...
Aq. menth. pip.	...	...	...	...	...

The mixtures containing paraldehyde were disagreeable to the taste and smell, the ether oil very much less so, but the difficulty was soon overcome by following a suggestion by Major W. E. Lower. One ounce of port wine is placed in a glass and the analgesic in another glass. The patient takes a mouthful of wine, holds it for about thirty seconds, rinsing the mouth so as to get the aroma in the upper air passages and the taste well established, and then swallows the wine. The ether mixture is then taken and is followed immediately by the remainder of the wine. Several wines and liqueurs were tried but port wine was found to be the most satisfactory. One of us (J. T. G.) and several other physicians have taken this "Lower sandwich," and have found it not disagreeable and to produce analgesia. As will be seen from the following notes, numerous patients have been given it with excellent results. Only one patient has been nauseated, a man who was violently opposed to taking the wine. As opposed to that case it was given to another man, who had repeated attacks of vomiting, immediately after an attack. His dressing was done without pain, and his vomiting ceased permanently. All the cases have been able to take food and water shortly afterward, and even in patients much exhausted by infection there have been no deleterious after-effects. It was soon found that the paraldehyde served no useful purpose, and most of the dressings have been done with Formula I. While it is well not to give the analgesic immediately after a meal, no especial preparation of the stomach is necessary.

Under the general direction of Major W. E. Lower, the following cases were dressed in No. — (Lakeside, U.S.A.) General Hospital, American and British Expeditionary Forces, by Lieutenants B. I. Harrison and W. R. Barney. All the dressings were done without removing the patient from the ward.

CASE I.

Soldier, aged 36. Gunshot wound of right thigh, and infected compound comminuted fracture of femur. Previous dressings had been very painful, and the splint could not be changed without general inhalation anaesthesia. Given: Paraldehyde fl3 j, ether fl3 iij, liquid paraffin q.s. ad fl3 j. In fifteen minutes fell into a light sleep. The wound was dressed, splint removed, through-and-through wound irrigated with ether, gauze drain inserted down to femur, and Thomas splint applied with extension. The patient talked during the dressing, felt practically no pain, and suffered no nausea or other ill after-effects. The dressing was repeated in a similar manner every other day for four dressings, and in none of them was there pain or any alteration of pulse or respiration.

CASE II.

Soldier, aged 28. Gunshot wound of left thigh, with compound comminuted fracture of femur. He was given same mixture as Case I, and fell asleep after twelve minutes. The Thomas splint was removed and replaced, gauze packing removed, wound irrigated with ether, and another gauze pack reinserted. The patient groaned when the pack was reinserted, but after regaining complete consciousness said that he had felt no pain during the dressing. Three subsequent dressings were done on alternate days with no nausea or other after-effects, nor alteration of pulse or respiration. The patient complained of the taste of the mixture, but said it was far to be preferred to the extreme pain of the dressings.

CASE III.

Soldier, aged 23. Gunshot wound of left leg—compound comminuted fracture tibia and fibula; through-and-through infected wound. He was given the same mixture as Case I, fell asleep after fifteen minutes and slept for thirty minutes, during which the dressings were done. Thomas splint repadded, packing removed and reinserted; ether irrigation. Two dressings were done without ill after-effects.

CASE IV.

Soldier, aged 39. Gunshot wound of left thigh, through-and-through, with compound comminuted fracture of head of femur. All previous dressings extremely painful. Given paraldehyde H_5ij , ether, alcohol, $\text{an } \text{H}_5\text{ij}$. Wound cleansed, packing removed and reinserted. The patient groaned at one time, but had no later recollection of having had pain. The pulse increased from 108 to 110 and respirations from 26 to 28. No nausea. Three subsequent dressings on alternate days were equally painless and without ill after-effect.

CASE V.

Soldier, aged 23. Gunshot wound of right leg, infected; compound comminuted fracture of tibia. Dressings very painful. He was given same mixture as Case I; dressing done with much less pain than before; the pulse rose from 100 to 116, and respiration from 24 to 26. A few days later the dose was repeated, and the patient slept through the dressing. No ill after-effects.

CASE VI.

Soldier, aged 27. Gunshot wound of thigh; streptococcus infection. No fracture. Given morphine tartrate gr. $\frac{1}{2}$, ether H_5ij , alcohol H_5ij , paraldehyde H_5ij . Multiple superficial incisions were made for drainage with very slight pain, probably because of dressing following too soon after administration of mixture. The pulse rose from 110 to 120. The patient was vomiting before the mixture was given, but retained it and did not vomit afterwards.

Several other dressings are briefly summarized in the accompanying table.

Following the above experiments, one of us (J. T. G.) was ordered to a casualty clearing station. The following cases from the service of Captain D. C. Taylor, R.A.M.C., illustrate some of the possibilities of the method:

Two almost parallel cases of penetrating wounds of the knee occurred on November 15th. Case I was given the usual inhalation ether anaesthesia with the Slipway apparatus; Case II was given 1 oz. of 50 per cent. ether in liquid paraffin. Thirty minutes later a supplementary 2 drachms of chloroform were given by inhalation during the operation. The knee-joint was opened, pieces of comminuted patella removed, the joint irrigated with saline and closed. Both cases rested quietly for one hour after operation. Case I then complained, and required a hypodermic injection of morphine for the control of restlessness and pain. About the same time Case II awakened, drank some milk, and fell asleep again. Both patients slept until breakfast time. Case I drank some tea, but refused other food. Case II had tea, porridge, and bread-and-butter. Neither vomited afterwards, and both were evacuated to a base hospital in about four hours.

Two other cases of Captain Taylor's were given each a double dose of the mixture (2 oz. 50 per cent. ether in liquid paraffin). Each required only a few additional drops of inhalation anaesthesia. The resultant analgesia after operation was a little more prolonged than with inhalation anaesthesia. One of these patients was ready for operation in ninety seconds, and required 1 drachm of chloroform, given drop by drop, to "carry on" an operation lasting thirty minutes.

The substitution of chloroform for paraldehyde has been found to make even a more satisfactory mixture than the

preceding. The following formula has been used in approximately thirty cases:

Chloroform	...	...	...	...	$\text{H}_5\text{ss to j}$
Ether	...	...	...	...	$\text{an } \text{H}_5\text{ijss}$
Liquid paraffin	...	...	...	...

It is not recommended at the present time to exceed this. It is our opinion that the toxic effect of this small amount of chloroform can be disregarded in military surgery.

Discussion.

The physiology of "general analgesia" by oral administration has not been subjected to an exhaustive investigation, but certain important facts should be borne in mind by those who contemplate using the method outlined. The oil and ether mix perfectly, and do not separate into layers. Baskerville has shown the rate of evaporation from minute to minute to be constant, so as to form a straight oblique line when plotted out. This holds true with different percentages of ether in the oil, in all cases assuming a constant temperature and exposed surface. It is therefore impossible for the patient to get an overdose at one time and an insufficient amount at another time. The total amount is not absorbed at one time; if it were, the administration of 2 ounces of 50 per cent. ether in oil would produce complete anaesthesia, as there would be liberated 1 ounce of ether. Only a light analgesia is obtained which, for operative procedures, must usually be supplemented in some way. Naturally, the surface for evaporation is greater in the stomach than is the case in the colonic method, and the absorption of ether more rapid. The total amount that may be given with safety by this method has not yet been determined. It is considered advisable for the present to supplement the method either by local anaesthesia or the administration of small amounts of anaesthetic by inhalation. But it is important to remember that the patient is as safe by this method as if the ether were in a container outside the body. All anaesthetics are analgesics, and before the danger zone is reached the patient must become anaesthetized; hence the patient in the analgesic stage is separated from the danger zone by the period of anaesthesia. We consider analgesia by this method as safer than any method of anaesthesia. If the anaesthetist carries his patient to the "blear-eyed" snoring stage, he defeats the object for which this special method was devised, the object being to take advantage of the analgesic stage of any and all anaesthetics used. If adopted it would release from the routine of administration of anaesthetics a certain number of physicians who now, in military hospitals, devote their entire time to that work.

CONCLUSIONS.

It is felt that in so far as one can do so in a preliminary communication of this sort the following conclusions are justified:

1. General analgesia is safer than general anaesthesia.
2. Fifty per cent. ether in liquid paraffin or other bland oil is probably the safest general analgesic, has apparently no deleterious effect upon the stomach, and is not followed by the nausea and vomiting that frequently accompany inhalation anaesthesia. Its effect may be enhanced by the addition of a small amount of chloroform ($\text{H}_5\text{ss to j}$). It may be given without unpleasant taste when "sandwiched" between mouthfuls of port wine.
3. The method is especially indicated during the dressing of painful wounds without taking the patient from his bed.

Nature of Dressing.	Admini- stration.	Time of Dressing.	Result.	Pulse.	Respiration.	Pupils.	After-effects.
Deep wounds of both legs; debridement.	2.32 p.m.	2.50 p.m.	Good	B. 81 A. 81	B. Normal A. Normal	No effect	None.
Large excised painful back wound	2.32 p.m.	2.48	No pain	92 ... 112	"	"	Nauseated and vomited.
Stump, adherent dressings (three times)	3.05	3.30		120 ... 100	32 ... 20	"	None.
T. and T. wound leg, with drain	10.00	10.20	Good	No change	No change	"	None.
Abscess leg, multiple in- cisions	10.00	10.20	Good	"	"	"	Patient cried out but remained flaccid. Had little pain.
T. and T. drain leg	11.00	11.15	Poor	"	"	"	Only half dose given. Patient jumped and had pain.
Stump dressing	11.15	11.30	Fair	90 ... 99	"	"	Patient cried out, but had less pain than when done before.
Wounds, foot	H_5ss^*						

* Had no effect whatever.

B. = Before; A. = After.

or ward, and, when supplemented, can be employed for surgical operations.

Note.—Our thanks are due to the medical director and members of the staff of No. — (Lakeside, U.S.A.) General Hospital, who have co-operated in this work. Major Alexander Lambert, Medical Director of the American Red Cross in France, on whose personal staff one of us (J. T. G.) had the pleasure of serving, has in many ways stimulated the working on this problem, and we take pleasure in expressing our warm appreciation of his interest and help.

THE EFFECT OF A DEEP HELD INSPIRATION ON THE MURMUR OF SLIGHT AORTIC REGURGITATION IN YOUNG SUBJECTS.

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I wish to draw attention to what I believe to be an undescribed clinical phenomenon—namely, the marked diminution or complete disappearance of the diastolic murmur of aortic regurgitation (in young subjects with only slight regurgitation) when a deep breath is taken and held.

The well recognized disappearance of a systolic murmur at or near the heart's apex under similar conditions has often been regarded as evidence in favour of such a murmur being exocardial—"cardio-pulmonary" as it has been called—rather than endocardial. Certainly some murmurs, reasonably diagnosed as "cardio-pulmonary," because most audible over areas in which lung tissue overlaps the heart, varying obviously in intensity with the phases of respiration, ceasing in recumbency, not following the usual rules of "conduction" of mitral murmurs, although heard at or near the heart's apex, do disappear when a deep breath is taken and held. But recently I have been led to wonder whether other murmurs, due to real mitral lesions, may not also disappear in similar fashion. Of such I cannot now speak with any confidence, but it is at least interesting to discover that an actual organic murmur like that of aortic regurgitation may also lessen or vanish during deep sustained inspiration. The three following cases have all been seen, and my conclusions verified, by valued colleagues, so that the truth of my observations does not rest on my own unsupported statements.

CASE I.

Pte. G., aged 19, had a well-marked aortic regurgitant murmur

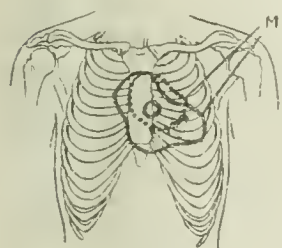


FIG. 1.—M, Approximate area of audibility of murmur—straight line, standing; dotted line, recumbent. o, Position of stethoscope during observations.

was rather diffuse. The limits of the cardiac dullness were:

Standing.	Recumbent
Right edge: 1 in. to R. of midline	2 in. to R. of midline.
Left edge: 4½ in. to L. of midline	4½ in. to L. of midline.

There was no other murmur in any position. Curiously, the weather seemed to make a difference in the effects of inspiration, as I note below. On December 30th, during very cold weather, I noticed that the murmur was almost obliterated when the patient took and held a very deep breath, whether examined in the erect or recumbent position. On expiration the murmur returned. On December 31st, the weather being warm and mild, the deep held breath entirely obliterated the murmur. On January 1st, a warm day, the murmur at the sternal junction of the fourth left rib cartilage was entirely lost on taking and holding a deep breath; in recumbency a sharp reduplicated second sound remained. On January 9th, a warm

day, the murmur was quite lost in the erect position, but not quite lost in the recumbent position, when the deep breath was taken and held.

CASE II.

Driver W., aged 26, admitted August 19th, 1917, with slight aortic regurgitation, and slight double mitral murmur. Fig. 2 shows approximately the area of audibility of the aortic murmur. There was no doubt of the nature of the murmur, there being no murmur heard over or to the left of the pulmonary artery. The lesion was slight, judging by the almost complete absence of pulsation in the neck and the character of the radial pulse.

The diastolic murmur quite disappeared on taking and holding a very deep breath in the erect position, and nearly disappeared in the recumbent position.

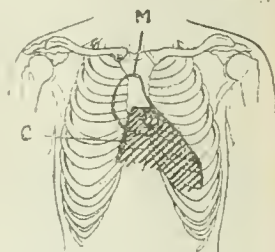


FIG. 2.—M, Approximate area of audibility of murmur, standing. c, Cardiac dullness, standing. o, Position of stethoscope during observations.

CASE III.

Pte. R., aged 20, admitted November 18th, 1917. I found presystolic and systolic mitral and a soft diastolic aortic murmur. The pulse was not water-hammer, and there was no pulsation to the ear in the neck.

On taking and holding a deep breath the diastolic murmur diminished distinctly, not immediately but by degrees, and, on releasing the breath, returned, but more quickly. I believe the same gradual disappearance of the murmur occurred in the other cases also. On November 25th, at the level of the fourth left costal cartilage (showery stormy day) the diastolic murmur quite disappeared on holding a deep breath. On December 1st it quite disappeared, equally in erect and recumbent positions. The condition is illustrated in Fig. 3.

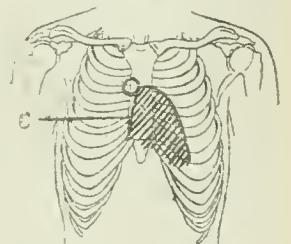


FIG. 3.—c, Cardiac dullness, standing. o, Position of stethoscope during observations.

Case I was seen by my colleagues, Dr. Clapp and Dr. Gates; Case II by Dr. Williamson and Dr. Gates; Case III by Dr. Williamson and Dr. Gates.

With regard to possible explanations, mere extra overlapping with lung could not have concealed the murmur, for the second sound, which preceded it, remained quite clear. My idea has been that perhaps the negative pressure set up in the thorax by the deep inspiration partly neutralized the elastic recoil of the aorta, thus lessening the force producing the regurgitation; and that, further, seeing that the effect developed not at once but gradually, the increased volume of the pulmonary capillaries in deep inspiration delayed the entry of blood into the left side of the heart, and produced a rather less full aorta. If these theories are correct they will help to explain the influence (if real) of weather, since on a cold day the aortic tension may perhaps be higher, owing to constriction of surface vessels, than on a warmer day.

It is, however, not to this attempt at explanation, but to the phenomenon itself, that I desire to draw attention.

THE CONSERVATIVE SURGERY OF THE HAND AS ILLUSTRATED BY A CASE OF TENDON GRAFTING.

BY

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It will readily be granted that although the work of the instrument maker in making artificial limbs is excellent, nothing yet invented can take the place of the human hand or even of a thumb and one or more fingers. There are at the present time many cases coming before surgeons doing military work in which the possibility of saving even one finger has to be seriously considered.

The purpose of this paper is to show the possibility of tendon grafting, which I think must have escaped the memory of orthopaedic surgeons, as I have not seen it made use of in any of the hospitals I have inspected

during the war. On May 24th, 1889, I read a paper on the subject before the Clinical Society of London and at the same time showed a successful case. In a leaderette in the BRITISH MEDICAL JOURNAL for June 1st, 1889, occurs the following statement:

Among the papers read last Friday, at the Clinical Society was one which chronicles another advance in conservative surgery, showing that another tissue of the body (tendon) can be successfully grafted as skin, bone, and nerve have been.

The following is a history of the case referred to:

I was asked in November, 1888, to see J. L., a weaver, aged 32, with a view to amputating his right arm for an injury caused by machinery.

The whole of the inner side of the forearm up to the elbow was hopelessly crushed and lacerated, exposing the ulna from one end to the other, but not opening the elbow-joint. The muscles were torn and the bone was rasped bare of periosteum. The wrist-joint was opened and the inner row of carpal bones was crushed. The three inner fingers were hopelessly smashed and the whole dorsum of the hand was swept clean of skin and tendons except the extensors of the thumb, which were bare but not otherwise damaged.

The index finger, excepting that its metacarpo-carpal joint was opened and that its extensor tendons had been completely torn away, was not further injured. After a little consideration, I decided to try to save the radius, the radial half of the carpus, and the thumb and index finger, and, in order to give the possibility of a useful index, to make an extensor indicis from the flexor tendon of the smashed middle finger.

The whole limb was scrubbed with soap and carbolized water, well rubbed with benzol and then thoroughly washed with 1 in 1,000 perchloride of mercury solution.

As the skin of the inner side of the forearm was destroyed and the bone injured, the ulna was excised to within a short distance of the elbow. The inner side of the carpus was removed, together with the three inner fingers, the skin of their palmar aspects being saved to lap over and cover the dorsum of the hand. The flexor tendon of the middle finger was taken out of the sheath, and four and a half inches of it detached and placed over the site of the extensor indicis, the proximal end of the tendon being stitched to the fleshy belly of the extensor communis digitorum, the distal end being fixed to the small portion of tendon left near its insertion into the phalanx. The skin was brought over to cover as nearly as possible. No drainage was employed. The wounds pursued an aseptic course, and there was no sloughing of tendon or skin. The patient returned home within a month, and was advised to try to use his finger and thumb.

He returned to his work in February, and when shown to the members of the Clinical Society he said he could perform his work as a weaver as well as ever. The movements of the fingers were very good, both in flexion and extension; the wrist-joint was movable, and both pronation and supination could be effected. During extension of the index finger the new tendon could be felt to move freely under the integument of the dorsum of the hand.

The man expressed himself as perfectly satisfied with his hand, which enabled him to earn his living as well as ever he could.

My apology for bringing to light this work after thirty years is that I venture to think an unsightly hand with a thumb and a finger is much better than any artificial limb, however perfect it may be.

ACUTE INTESTINAL OBSTRUCTION DUE TO JACKSON'S MEMBRANE.

BY

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It has been doubted by some whether the membrane covering the proximal portion of the ascending colon causes obstruction to the passage of the intestinal contents. It has been my belief that such was the case, and that to this might be ascribed the symptoms associated with this condition. In cases where the pericolicitis (so called) manifests itself as a filmy membrane little or no obstruction can be demonstrated on examination of the colon. Where, however, the Jacksonian membrane is associated with fibrous bands crossing the colon, varying degrees of constriction may be noted. It is possible that this partial obstruction may also account for the dilatation and elongation of the caecum associated with such cases. The clinical symptoms would also suggest this, for the colicky pain, occasional vomiting, gurgling over the caecum, and tenderness on pressure, point to a temporary obstruction. This syndrome forms a common type of dyspepsia

which can be recognized, but which too frequently, even now, is regarded as appendicitis and for which simple appendectomy is performed. That such a band can cause greatly exaggerated symptoms and result in acute intestinal obstruction the details of the following case show. I believe it an uncommon type of acute obstruction and so venture to place the case on record.

Mrs. S., aged 41, was admitted to the Royal Victoria Infirmary on January 18th, 1916, with symptoms of acute intestinal obstruction.

History.

For some years she had had attacks of abdominal pain and also marked constipation, the bowels only moving after an aperient. Three weeks before admission the pains had become worse, she vomited occasionally and had increased difficulty in getting the bowels open. For a week the pain had been severe, vomiting incessant and there had been no action of the bowels, while flatus had not been passed for three days. She had passed blood and slime by the rectum during the last three weeks.

On admission the temperature was 99.8°. The patient looked ill, and although fairly well nourished had a sallow complexion and had few teeth left. The abdomen was moderately distended, a distinct tumour being visible in the left iliac fossa. This tumour was composed of distended intestine; peristalsis could be seen and felt, while borborygmi could be heard during the contraction of the intestine, which caused the patient evident pain. Rectal examination was negative. A diagnosis was made of chronic intestinal obstruction become acute due probably to carcinoma of the pelvic colon.

First Operation.

On January 18th, 1916, the abdomen was opened in the left iliac fossa. Free fluid escaped on opening the peritoneum. A tense cyst was found occupying the left iliac fossa and extending to the bottom of the pelvis. The swelling had the appearance of a thin-walled ovarian cyst, but was tympanitic, and the taenia coli at once distinguished it as the caecum. No part of it could be drawn out of the wound, so it was punctured and a Paul's tube tied in. After evacuating part of its contents the caecum was sutured to the margin of the incision.

The patient improved greatly after the operation. The distension subsided and the bowels were moved normally on several occasions.

Second Operation.

On February 2nd, 1916, the abdomen was opened in the middle line below the umbilicus. The collapsed caecum was found crossing the abdomen from the right side to the caecostomy opening in the left iliac fossa. The lower part of the ascending colon was mobile and was covered by a thin membrane, at the upper border of which was a tight band passing from the parietal peritoneum to the inner border of the colon. The band was the thickness of a match stalk, it tightly puckered the ascending colon, and it was with difficulty that two fingers could be inserted beneath it. The band was removed and part of the membrane stripped away. The caecostomy opening was dissected free from the skin and closed, the caecum being returned to the abdomen, which was then closed. The appendix was normal and no trace of inflammatory adhesions were present.

After-History.

The patient was discharged from the hospital, well, on February 17th, 1916.

In November, 1916, the patient remained in good health, though she still had to take opening medicine.

On two occasions, in August and October, 1916, she had attacks of abdominal pain and vomiting, which necessitated her staying in bed for a few days. Should these attacks persist, further treatment of caecostomy or short-circuiting may become necessary.

REDUCTION EN MASSE OF A STRANGULATED DIRECT INGUINAL HERNIA.

BY

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This case impressed me as a remarkable one in several respects, and I venture to think that it should not be allowed to drift into one's personal experience without a record.

Early in September, 1917, I was asked by Dr. Taggart, of Heaton Moor, Stockport, to see a lady who three days previously had begun suddenly to have pain in the abdomen and right groin; a few minutes afterwards she vomited several times, and noticed a lump in the right groin; she had never previously suffered from hernia.

Dr. Taggart saw her some two hours after the onset and found a tense rounded swelling in the right inguinal canal, about the size of a Tangerine orange, which did not yield an impulse on coughing; the swelling was clearly a strangulated hernia, and

with gentle manipulation it was easily reduced. Dr. Taggart was struck by the fact that the reduction was sudden and complete, giving him an impression like that of pushing a button through a buttonhole. The patient felt relieved for a time, but during the night and next day she was uncomfortable and had occasional attacks of slight colic, and vomited twice; the following day (the third) she still complained of occasional abdominal pains, and again vomited twice.

During the time between the reduction of the hernia and my seeing her the patient had not been given any opium or sedative because the pain was not severe; the bowels had not been moved, nor had she passed flatus, except in small amounts, despite enemata; very wisely, no purgative medicine had been permitted.

Her condition when I saw her on the fourth day of her illness was as follows: A well-developed woman, spinster, aged 45; her general condition and appearance was good. Temperature normal, pulse 92. Abdomen slightly distended, but showing no visible evidence of peristalsis during observation over several minutes. When handling the abdomen, splashing sounds could be heard, and I got the impression of feeling distended coils of intestine. The hernial orifices were normal, and a pelvic examination did not yield any evidence.

Operation.

Laparotomy, some hours later, through the right pararectal incision disclosed a loop of small intestine, 4 in. in length and about three feet above the ileo-caecal junction, tightly strangulated in a peritoneal pouch; the origin of the pouch was not at first clear, but it proved to be a direct inguinal sac displaced from the inguinal canal into the abdominal cavity. By dividing the orifice of the sac the loop of strangled intestine was easily released; at its point of entrance into the sac the loop showed a narrow annular strip of gangrene; it was simply covered over by an invaginating suture.

After suture of the peritoneum and muscles, the right inguinal canal was exposed, the sac pulled out into the canal and its relations as a direct (external direct) hernia clearly established. The sac was removed and the canal obliterated.

The patient left the nursing home within three weeks, and is now in good health and leading a normal life.

The noteworthy features of this case, apart from the reduction *en masse*, were:

1. The rarity of true direct inguinal hernia in the female.
2. The infrequency of strangulation of a direct inguinal hernia. Given strangulation of such a hernia, it is probable on anatomical grounds that reduction *en masse* is more likely to occur than in the case of the ordinary oblique type.
3. The subacute—in fact, quiet—character of the symptoms of obstruction which the patient presented considering the severity of the lesion; this I ascribed to the deliberate abstention from any aperient medicine and the restriction of her nourishment to the plainest fluids.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A HELPFUL DIAGNOSTIC SIGN IN RUPTURED DIGESTIVE ULCERS.

MR. WILLAN'S article in the JOURNAL of February 2nd is of great interest, and he is to be congratulated on his masterful description of the condition. The tight constricting band at the level of the lower ribs, the vertical obtuse angle, and the rigidity, present a complex diagnostic sign of great value. I believe it will be found of real use in some cases of subphrenic abscess, and will help in the diagnosis of this condition, which almost always is attended with difficulties.

A few weeks before Mr. Willan's description appeared, a patient admitted to the Cheltenham General Hospital presented this sign in a very marked degree. I will not enter into detail, but will be content to state that at the *post-mortem* examination, eleven days later, dense adhesions were present in the upper abdomen, with pus. An ulcer of the stomach had perforated, not in the usual acute way, and nature was attempting to shut off the diseased area. There is good reason to believe that adhesions were present before the last catastrophe, which did not present itself as an acute emergency.

I do not think the sign is present in a marked degree, if at all, in most cases of acute perforation, for the picture is so marked, when present, that it would have been described long ago.

It is one of those "pathognomonic" signs to which, nowadays, too little value is attached in the art of diagnosis. The present tendency to confine the diagnosis of abdominal

conditions to whether or no the abdomen should be opened, and to complete the diagnosis afterwards, is woful. The great majority of abdominal conditions, acute and chronic, can be correctly diagnosed after an average experience by the use of common sense. The sign Mr. Willan has described will form part of the armament of the thoughtful diagnostician.

Cheltenham.

S. M. HEBBLETHWAITE.

PREVENTION OF WATER-BORNE DISEASE IN THE TRENCHES.

A TYPE of water-borne diarrhoea observed in the winter in Belgian trenches was characterized by a tongue generally clean or moderately furred, and by marked temporary intractability to either sedatives or purgatives. Its course was rather under a week, as a rule, without fever, or with a temperature under 100°, without blood in the stools, but with very considerable pain and tenesmus. It could be clearly distinguished from the diarrhoeal form of trench fever by the tongue, which in that disease, as I have previously described, has a clean margin a quarter of an inch broad, and later by the lack of pain other than abdominal, and by the temperature chart. The incubation period was eight days. A prophecy made after some experience, to the effect that diarrhoea would break out at the end of the period as a result of a movement of the water-carts which was not communicated to the company officers, was accurate to the day, when some half-dozen cases appeared though the battalion had been free from this disease for a considerable period. The special methods of prophylaxis adopted may, in view of the ubiquity of water-borne diseases in all armies in greater or less degree, be of some interest.

1. The use of chlorinated water is all-essential. The statement that "the water is always boiled before use" is certainly not true as far as the preparation in the trenches of many a stew and many a dixie of tea is concerned.

2. The discipline of the company commander must be such that his orders that no water is to be taken except from the water-cart must be obeyed to the letter.

3. The water corporal must keep a record of every gallon supplied from the cart, and to whom it is supplied. It is best to take the name of each man and the platoon or section which he supplies, and, in the case of isolated strong points, the names of the men he supplies. The amount of water taken per company is compared with the trench strength of the company, and from this the number of pints per man is obtained. By obtaining the amount of water used by the cooks for stews, tea, etc., by observing the tempting streams crossing the routes of weary water carriers and the efficiency of water guards, if any, set over them, remarkably accurate deductions can be made as to the source of some or all of the water used. To obtain the records the water men must work on double shifts; water, at all times, if possible, should be available for the carriers as they arrive, or, at any rate, the sergeant-major warned daily as to the exact hours at which it is available. The labour of carrying adequate supplies up the trenches is very great, yet the importance of this is obvious.

It was observed in one instance that the surface water derived from an area within the trenches was apparently as pure as that derived from the tanks miles behind, requiring less than a single measure of chloride of lime. By bacteriological examination and by repeated daily examination with the Horrocks cabinet, it is possible under certain geological and other conditions that a very large amount of labour could be saved by a battalion in the line.

It is hoped that the simple methods here described might, under conditions where it is feasible to supply water at all in the trenches, go far practically to eradicate water-borne disease from an army fighting under modern conditions.

E. R. GRIEVESON, M.B., Ch.B. Edin.

THE United States War Department has decided to extend the system of psychological examinations to all enlisted men and newly commissioned officers. Specially equipped buildings will be provided in each army cantonment, and a school of military psychology established at Fort Oglethorpe, Georgia. The object of the tests is to help in weeding out the mentally incompetent and classifying men according to their mental capacity.

Reports of Societies.

AUTOLOGOUS GRAFTING IN MALIGNANT AND NON-MALIGNANT CONDITIONS.

In a paper read at the meeting of the Pathological Section of the Royal Society of Medicine on February 19th, when Dr. WILLIAM BULLOCK, F.R.S., President, was in the chair, Dr. J. A. MURRAY said that the results of the long series of auto-transplantations made by Haaland had been confirmed by Apolant, F. C. Wood, and himself, and it might safely be said that there was no type of undoubted malignant new growth in which auto-transplantation had not been successful; consequently, in all investigations necessitating the most rigorous demonstration of the malignant nature of new growths, auto-transplantation should be included in the tests applied. His paper dealt with an attempt to apply this test to the discrimination of an ill-defined group of new growths, namely, those of lymph nodes—lymphomata. A great variety of growth-like enlargements of lymph nodes occurred in the mouse, and might affect any one of the three component tissues to the exclusion of the others. For the present the new growths of the endothelium and of the reticulum had been ignored, and attention restricted to those arising from the lymphocytes and their mother cells in the germinal centres. In a tissue which subserved the cellular reactions of the body to extraneous agencies, a considerable degree of proliferation with increase in size might occur and present all the appearances of a progressive proliferation. The ease with which the lymphocytes left their usual channels and passed between the elements of the other tissues likewise rendered it impossible to distinguish a non-malignant sharply from a malignant invasion of the surroundings. The ubiquity of the cells throughout the body threw difficulties in the way of recognizing true metastasis formation. After repeated failures with a considerable number of lymphomata involving homologous inoculation into many hundreds of normal mice it was decided to relinquish this direct attack, and, in the first place, to attempt a segregation of those growths which could conform to the behaviour of malignant new growths of other tissues by growing progressively when inoculated into the spontaneously affected mouse itself. The astonishing result was that even when local recurrence and progressive involvement of other lymph nodes occurred the autologous grafts failed to grow. Usually the latter were found as opaque white necrotic nodules, smaller than the piece of tissue introduced. The cells might still be alive, and in a few cases mitoses were seen in them, in others the process of absorption was in progress or complete. This striking contrast between the failure of the graft and the natural progress of the disease distinguished the new formations dealt with from the ordinary carcinomata and sarcomata, and made it difficult to believe that they were true malignant new growths. They were apparently in the majority of cases reactive hyperplasias, most probably of toxic origin.

Professor S. G. SHATTOCK observed that the difficulty of diagnosing a lympho-sarcomatous neoplasm from a lymphatic pseudoplasm was admittedly great; metastasis might, of course, arise in connexion with an infective process as well as in a sarcomatous. The test adopted by Dr. Murray was important, and the speaker saw no reason why it might not be applied in the human subject. For the excision of a small piece of a doubtful neoplasm, and its transplantation beneath, say, the loose skin of the dorsum of one of the fingers, would not be of serious moment; if the graft commenced to grow, it could be excised whilst still a local lesion. Theoretically it was not easy to understand why the transplantation of a lymphatic pseudoplasm should not, in Dr. Murray's experiments, have been followed by growth, seeing that any virus present in the tissue would necessarily have been transferred with the latter. In the human subject the evidence of autologous implantation might be naturally furnished by contact infection from one part of a serous cavity to another. The speaker had, for example, examined a diffuse thickening of the pericardium which histologically consisted simply of lymphatic tissue, but the opposite surface of the epicardium was the seat of a nannular and smaller nodular formations, highly sug-

gestive of contact infection; there were metastatic formations in the kidneys. If this was accepted as an instance of implantation, it would at least prove the existence of lymphosarcoma in man, the occurrence of which might seem to hang in the balance in view of Dr. Murray's research. At the same meeting Dr. J. W. CROPPER demonstrated a new counting chamber for the enumeration of protozoa and other organisms.

PRINCIPLES AND PRACTICE OF AMBULANCE WORK.

At a meeting of the Medical Society of London on February 25th, the President, Sir STCLAUDE THOMSON, being in the chair, Sir JAMES CANTLIE, K.B.E., F.R.C.S., defined ambulance work as the moving of injured persons as speedily as possible, either from the battle front to the base, or from the mine, the factory, the harvest field, or the street to the hospital. In military ambulance work the injured man was moved by bearers trained by the medical department of the army in time of peace; in civil life the training of the bearers was left to members of the medical profession under the direction of civil ambulance bodies, which were under the direction of laymen. In military work the medical department sent out trained men under its control to bring in the wounded, but in civil life surgeons and physicians waited for the injured to be brought to the hospitals, but took no responsibility or control for how or in what state the injured were to be brought to them. Universities and medical schools took no part in the training or teaching of first-aid bearers or ambulance workers. First aid, as now known, was a special branch of the surgical art, and those of the profession who wished to take it up had to go beyond their schools to acquire the knowledge necessary in either the practice or the teaching of the art. As a profession we shut our eyes to the condition of the wounded in the streets and took no care, for instance, to prevent the simple fracture from becoming compound and septic. At the Medical Congress in London in 1831 a demonstration of ambulance work was watched by Professor Eschsch, and on his return he called the population of Kiel to the University to be taught first aid. Britain was the originator of civil ambulance work, and had taught the world its meaning and purpose, yet the medical profession, as a profession, had taken no part in it, nor was there a great ambulance school in which this important branch of the surgical (and to a great extent the medical) art was taught. We wanted the best appliances, the best teachers, and our foremost surgeons and physicians to take the matter in hand. We had got beyond the stage in which we regarded a little knowledge as a dangerous thing. First aid, as it ought to be taught, was not a little knowledge—it was a definite part of medicine and surgery, and was complete in its limitations and its purpose. It was as distinct a department of surgery as, say, ophthalmology or dentistry. The welfare, the very life, of the injured was being dealt with by a section of the community whose business was neither surgery nor medicine, yet they were expected to carry on this important work apart from the control of those to whom the nation looked for direction in all matters of the healing art. It was to remove this defect that he had for many years in his mind the formation of a central institute where this great branch of surgery should be suitably housed, where its teaching should assume a technical if not a scientific perfection. It was for this purpose that the College of Ambulance was founded in 1914. The college had fulfilled its purpose inasmuch as it provided a central institute where all branches were taught, where models of all organs were to be found, and where drill room, ward, and operating theatre, etc., were at hand. Various methods of lifting and carrying were then demonstrated. Mr. HUGH LERT agreed that the omission of first aid was a grave defect in nursing and medical training. Mr. EDMUND A. RINSOR said there was a marked distinction between the case of the wounded soldier in the field and the injured in civil life. In the one case casualties were expected in considerable numbers, and their position known, whereas in civil life it was impossible to know when or where an accident would occur. Mr. FRANK HASTINGS, secretary of the British Red Cross Society, suggested that medical men should be

responsible for their own district, and that a system should be devised whereby the civil population should be trained to render first aid. Important work had been done by the Red Cross in improving the status of the trained nurse. Dr. HECTOR MUNRO and Dr. THOMAS LISTER also spoke. Sir JAMES CANTLIE, in his reply, said that the standardization of first aid work was very necessary, and should be carried out by the best talent in the medical profession. Specialists in the various branches of medicine and surgery should deal with the different sections of first aid and decide finally as to suitable methods.

RHINOPLASTY.

At a meeting of the Section of Laryngology of the Royal Society of Medicine, on February 1st, 1918, the President, Dr. BROWN KELLY, being in the chair, Major H. D. GILLIES and Captain G. SECOCOME HETT showed examples of rhinoplasty in various stages, and demonstrated photographs and models. The subject was reviewed from the repair of each portion of the nose that had been lost. Methods were classified and the difficulties and advantages of each put forward. Unsuccessful procedures were demonstrated, and the causes of failure pointed out. The advantages of utilizing the turbinate and septum in the formation of a lining membrane of the new nose and as supporting structures over which to mould the organ were shown and explained. The necessity for lining the new nose with either mucous membrane or skin was insisted on, and various new methods of epithelialization of frontal flaps and of the alae nasi in stenosis were illustrated with the aid of models and photographs.

Reviews.

HYGIENE AND PUBLIC HEALTH.

The object of Dr. CHARLES PORTER'S *Elements of Hygiene and Public Health*¹ is to provide the student and practitioner of medicine with a textbook containing knowledge essential to the doctor in general practice. The book is well suited to the needs of the medical student, containing just what he ought to know, but for the doctor who has been a few years in practice the information on many subjects is inadequate. The arrangement of the contents is different from that found in most English works, which usually proceed in the first chapter to the consideration of air and water; but we believe the author is right in placing immediately after his introduction chapters on personal hygiene and public health and disease. The treatment of notifiable and non-notifiable diseases in different chapters is surely unscientific, involving as it does the separation of paratyphoid fever from typhoid fever and the inclusion of anthrax and glanders among non-notifiable diseases simply because they are not notifiable to a local although notifiable to a central authority. The work bears evidence of an intimate knowledge of the whole field of hygiene. The material is well put together, and the interest of the reader is sustained throughout. A feature of the volume is the large number of illustrations, many of which are new and excellent. Altogether the book forms an admirable introduction to the subject.

The appearance of a thirteenth edition of WHITELEGGE and NEWMAN'S well known book on *Hygiene and Public Health*² is a sufficient indication that it has supplied a professional and public demand. The revision of the new edition has been carried out by Sir George Newman alone, and he has introduced much new material in regard to subjects which have assumed an increased importance, partly on account of the advance of preventive medicine and partly on account of the war; we need only mention such questions as infant mortality, tuberculosis, venereal diseases, and military, naval, and industrial welfare activities. There is no doubt that this manual fulfils its

object, which is stated to be "to summarize in a condensed and succinct form the most important applications of preventive medicine for the use of the medical student, the medical practitioner, and the health officer in every branch of the public service." The book is a mine of useful information, but is not easy reading, perhaps because it aims at too much. The accounts of the exact procedure employed in chemical, bacteriological, and immunological analyses might well be left to practical books treating of these subjects; the medical student is disposed to skip such matter, especially as it appears in small type, and the analyst will ask for more. In a subject of such wide range as hygiene it is difficult sometimes to decide what to include and what to omit. We find no mention of vitamins either in the chapter on food or in the section dealing with scurvy and beri-beri. Nor have we found any mention of Leiper's work on the life-history of the billharzial worm, which has put out of date the suggestion that one stage of it is passed in the body of a crustacean. Greater stress might have been laid on the use of antitetic serum as a prophylactic; the directions as regards intrathecal injection of the serum mentioned in the book are applicable to the treatment of actual cases of tetanus. Reference to *B. icteroides* in the etiology of yellow fever might well have been omitted, and in the section on typhus fever more room for modern investigations of its etiology and prophylaxis might have been found. The statement in the text that infection in typhus fever "is given off by the breath," and that "it is believed that the disease is largely spread by vermin, especially fleas and body lice," might make the student consider that the spread by body lice had no experimental or epidemiological evidence in its favour. Some good new illustrations have been added, but those depicting the meningococcus, the *Spirochaeta pallida* and the *Bacillus typhosus* are poor and unimstructive. These are minor defects, and it may be said that no book on the subject contains in the form of a handy manual such a wealth of accurate information on every branch of public health.

The sixth edition of PARKES and KENWOOD'S *Hygiene and Public Health*³ will be found to take a fair perspective of the whole field of sanitary science and to present the subject in a most readable and interesting form. It is not a cram book, and lucidity and style are not sacrificed to brevity. The work is brought thoroughly up to date, and bears evidence of careful discrimination in the introduction of new matter and the omission of what is no longer relevant. A new chapter has been added on maternity and child welfare work, and those on personal hygiene, camp sanitation, and communicable diseases judiciously amplified. We are in entire agreement with the authors as to the advantages of installing water-closets rather than incinerators in camps where this is at all possible. The printing, paper, and illustrations are good, and the whole subject is treated so clearly and thoroughly that it forms not only an admirable manual for the student and medical practitioner but also an interesting book for the general reader. We have noted a few mistakes in spelling—for example, Schiga and Zenopsylla should be Shiga and Xenopsylla. The only suggestion we would make is that the authors should include in their next edition an introduction dealing with the development and scope of hygiene and public health administration, as we find that too often students are disposed to regard it as one of the minor subjects. We congratulate the authors on a work which maintains the high standard reached in former editions.

The fourth edition of ROBERTSON and PORTER'S *Sanitary Law and Practice*⁴ will be welcomed. It has been brought up to date; some of the new material has been introduced into the text, but the bulk into appendices. In supplying practical suggestions as to the usual methods of administration followed by the medical officer of health and the sanitary inspector the book will be found useful not only to those who already hold these posts but also to those

¹ *Elements of Hygiene and Public Health. A Textbook for Students and Practitioners of Medicine.* By Charles Porter, M.D., B.Sc., M.R.C.P. London: Henry Frowde, and Hodder and Stoughton, 1917. (Cr. 8vo, pp. xiv + 411; 98 figures. 12s. 6d. net.)

² *Hygiene and Public Health.* By Sir Arthur Whitelegge, K.C.P., M.D., B.Sc., F.R.C.P., and Sir George Newman, M.D., D.P.H., F.R.S.E. Thirteenth edition. London: J. Cassell and Co., 1917. (Fcap. 8vo, pp. xii + 736; 77 figures and diagrams. 10s. 6d. net.)

³ *Hygiene and Public Health.* By Louis C. Parkes, M.D., and Henry R. Kenwood, M.B. Sixth edition. London: H. K. Lewis and Co., 1917. (Demy 8vo, pp. xii + 787; illustrated. 14s. net.)

⁴ *Sanitary Law and Practice. A Handbook for Students of Public Health and Others.* By W. Robertson, M.D. Glas., D.P.H., and Charles Porter, M.D., B.Sc., M.R.C.P. Edin. Fourth edition. London: The Sanitary Publishing Co., Ltd. 1917. (Demy 8vo, pp. xxiii + 750; illustrated. 12s. 6d. net.)

who are preparing to qualify for them. It is well written, and the treatment of theory and practice well balanced. The authors have succeeded in placing in the hands of the student a guide which will make his study of what is usually a dry subject quite interesting. We can most heartily commend this volume to the attention not only of the medical graduate studying for the Diploma of Public Health but to all who are interested in the social welfare of the people and who wish to be acquainted with the present position of our country in this extremely important matter. The illustrations are few in number but good.

The moment is timely for the publication of a book on *Public Health Nursing*, and Miss MARY S. GARDNER deserves congratulation for her lucid presentation of a subject which is daily growing in importance as a most essential part of the public health work. Miss Gardner, as president of the American National Organization for Public Health Nursing 1913-16, knows her subject from within, and British readers will find that due prominence is given to the pioneer work in England. In spite of the differences in administrative organization in England and the United States the book will be as inspiring and instructive to British readers as to Americans. The work is divided into three parts. Part I treats of the public health nursing movement, its history, its fundamental principles, and the problems it encounters at the present time. Part II deals with visiting nursing, and in it will be found words of wisdom useful to all concerned in the movement, whether members of visiting nursing associations or persons employed by them. Part III contains chapters on tuberculosis nursing, child welfare nursing, school nursing, mental hygiene nursing, industrial nursing, and medical social service, and on records and statistics. This enumeration indicates the scope of the book and incidentally shows how important a part in preventive medicine the nurse is playing at the present time. It is in the domain of personal hygiene that progress is now most required, and this is the sphere for educated tactful sympathetic women who have pursued a proper course of training and have access to the homes of the people. Little reference is made to the question of venereal disease; we would have welcomed the opinion of the writer as to the position of the nurse as regards its prophylaxis and treatment. The book should be in the hands of all social workers and of all interested in the training of the nurse not merely for the treatment of disease but for its prevention.

In his book entitled *State Sanitation* Professor G. C. WHIPPLE presents a review of the work of the Massachusetts State Board of Health. There are to be three volumes. The first, which is before us, is divided into two parts. Part I contains the history of the State Board of Health, and Part II the report of the Massachusetts Sanitary Commission of 1850. The book forms a worthy memorial to the men who have made the name of Massachusetts familiar to all sanitarians and especially to those interested in water and sewage purification. The author shows how the State Board of Health has fulfilled the ideals set forth by Lemuel Shattuck in the "Report of the Massachusetts Sanitary Commission of 1850," and in this volume can be read in Part I what has been accomplished, and in Part II what Shattuck considered practicable. An interesting chapter contains short biographical sketches of the sanitarians of the Commonwealth. The volume is a valuable contribution to the history of sanitation. The print is large and clear, the paper good, and the illustrations excellent.

NOTES ON BOOKS.

DR. BROOKBANK'S elementary *Diagnosis and Treatment of Heart Disease* has rapidly passed into a third edition, and is thus proved to supply a definite want. A new chapter on

the general physical signs and symptoms of heart disease and a number of clinical points have been added. Dr. Brookbank naturally maintains his contention that the crescendo murmur of mitral stenosis occurs in the early part of ventricular systole, and so is presphygmic not presystolic in rhythm. It would perhaps be well in a future edition to alter the statement that digitalis raises the arterial blood pressure. The treatment of angina pectoris between the paroxysms by dilute phosphoric acid, which is said to be followed by great freedom from attacks, and is hinted to remove calcareous deposits from the coronary arteries and to prevent their further deposition, is new and rather surprising, but is possibly worth further investigation.

The first edition of REMINGTON'S *Practice of Pharmacy* appeared in 1885; the sixth has just been issued, with apologies by the editor, who had on this occasion the assistance of Dr. L. FULLERTON COOK, for an increase in its size. It is described as a handbook for pharmacists and physicians, and a textbook for students, but it will, perhaps, be more particularly useful to pharmacists; one of its special features is an unusual number of illustrations of pharmaceutical appliances. The chapter on prescriptions is illustrated by facsimiles of many very curious specimens, some of which we find illegible, though they appear to have been deciphered by the pharmacist; several are curious examples of polypharmacy; thus one of them contains twenty-nine ingredients, another twenty-two. The book is adapted to the United States Pharmacopoeia. In a final section a formulary of unusual preparations and a glossary of uncommon names, terms, and substances are provided. There is a good index.

Practice of Pharmacy, by J. P. Remington, Ph.M., Ph.D., F.C.S., assisted by L. Fullerton Cook, P.D. Sixth edition. Philadelphia and London: J. B. Lippincott Company. (Medicine 8vo, pp. xxviii + 1947, 25s. net.)

DIMINUTION OF PAGES IN THE "BRITISH MEDICAL JOURNAL."

FURTHER RESTRICTIONS BY THE PAPER COMMISSION.

THE Paper Commission has issued an Order under the Defence of the Realm Act reducing the licences for the importation of paper and paper-making material in the year beginning March 1st, 1918, to two-thirds of the tonnage imported in the year ending February 28th, 1918. This reduction takes effect on a supply which had already been reduced by one-third, owing to previous orders by the same authority. This means that the amount of paper available in 1918 will be half, or rather less than half, the amount available in 1915. The number of pages in the weekly issues of the JOURNAL must therefore be reduced in this proportion.

This reduction in the number of pages is not a matter in which the Association has any choice. The Council at its last meeting adopted the following resolutions:

PAPER SUPPLY.

1. That an announcement be made in the *BRITISH MEDICAL JOURNAL* on the authority of the Council drawing the attention of Members to the fact that from the first issue in March the number of pages of the JOURNAL must be still further reduced by one-third, and particularly to the following points:

(1) That this reduction is not a matter of choice with the Council, but compulsory under the Defence of the Realm Regulations; and

(2) That, as in the case of other rationed articles, there is no guarantee that a sufficient supply of paper or paper-making materials will be available in the country to furnish to each consumer the proportionate minimum quantity permitted under the amended regulations.

The aim must be to maintain a due balance between the different departments of the JOURNAL to each of which large sections of its numerous readers attach importance, and this principle must be applied also to advertisements. The aim can only be satisfactorily attained if all members of the Association who desire that their observations and opinions should find expression in the JOURNAL will frankly recognize the position that has been brought about owing mainly to the necessity of diverting shipping to the transport of food and of the raw materials and implements of war.

⁶ *Public Health Nursing*. By Mary Sewall Gardner, Superintendent of the Providence District Nursing Association, etc. New York: The Macmillan Co. 1917. (Gr. 8vo, pp. 372, 7s. 6d. net.)

⁷ *State Sanitation*. A Review of the Work of the Massachusetts State Board of Health. By George Chandler Whipple, Professor of Sanitary Engineering in Harvard University, etc. Vol. I. London: Humphrey Milford, Oxford University Press, 1917. (Med. 8vo, pp. xi + 377; illustrated, 15s. 6d. net.)

⁸ *The Diagnosis and Treatment of Heart Disease: Practical Points for Students and Practitioners*. By R. M. Brookbank, M.D. Vict., F.R.C.P. Third edition. London: H. K. Lewis and Co., 1917. (Gr. 8vo, pp. 177, 22 figures, 4s. 6d.)

British Medical Journal.

SATURDAY, MARCH 2ND, 1918.

WOUND SHOCK.

In last week's issue of the JOURNAL we dealt with two of the reports of the Special Investigation Committee on Surgical Shock and allied conditions, deferring for further consideration the papers dealing with an investigation of the nature and treatment of wound shock. Of the six papers constituting this report, five are clinical studies of the circulatory functions, which, "whatever the nature of the bodily changes which underlie the state of shock, . . . are in a precarious condition."

The contribution on the initiation of wound shock by Captain H. M. Cowell, R.A.M.C.(S.R.), is a valuable and highly interesting study of blood pressures among soldiers in forward areas and the front line in "peace" and in active periods. He comes to the conclusion that "the psychology and physiology of the average healthy 'veteran' soldier, living in the fighting zone under 'peace' conditions, are for practical purposes normal," but at times of increased activity, although the pressures are invariably above normal, the conditions of excitement, cold, thirst, fatigue, and possibly loss of sleep, become important pre-wound factors in the initiation of shock. He classifies wounds, and finds that "trivial" wounds give rise neither to primary nor to secondary wound shock; with moderately severe wounds primary shock is generally absent, and the secondary form may be averted if conditions admit of proper precautions being taken. Serious wounds, that is, those likely to be mortal, are attended by primary shock, which, generally speaking, merges insensibly into secondary, notwithstanding efforts to avert the injurious influence of cold, pain, anxiety, a long "carry," and, in the case of survival, toxæmia. These are the usual, theoretically preventable, causes. Wound shock as seen at casualty clearing stations, where the majority of these clinical studies were made, is in fact secondary shock.

Captains John Fraser and Cowell give an elaborate account of the sphygmomanometric findings in the most important types of wound, the full value of which appears later. Incidentally it bears out Bayliss's experimental investigation of the relative value of various intravenous injections, and also suggests that similar observations may be useful for prognosis. A wound running a favourable course shows a steadily maintained blood pressure; the onset of gas gangrene or other infection is signalized by a sudden fall; a steadily rising or maintained high pressure reading, even in a severe wound, may be taken as a most favourable prognostic sign.

Professor Cannon, of Harvard, and Captains Fraser and Hooper relate the results of venous and capillary red counts, with hæmatocrit and hæmoglobin readings in cases of low blood pressure. In shock, with a normal venous red count, the capillary count is higher by as much as 2 millions per cubic millimetre, and the discrepancy bears a direct relation to the

depth of the shock. Hæmatocrit and hæmoglobino-meter readings confirm these findings, which are interpreted as indicating that the "lost" blood in shock is hidden in the general capillary system and not in the veins of the splanchnic area. Once established, concentration of capillary blood persists for two or three days; further persistence is of bad omen, and conversely. On the other hand, continued dilution after four or five days suggests an unfavourable prognosis.

Professor Cannon reports also the results of an investigation into the diminution of the alkali reserve in shock, and reaches the conclusion that bodily states characterized by reduced blood pressure, and consequently by defective circulation, are accompanied by such a diminution, or "acidosis," and that, broadly speaking, the lower the pressure the lower the alkali reserve. Haemorrhage alone is attended with less reduction of the alkali reserve than wound shock; the maximum reduction is seen in cases of gas infection. Operation and anaesthesia reduce the alkali reserve, but the encroachment is greater as the margin of safety is less: the marked and sudden decrease of the alkali reserve in the blood is accompanied by serious and rapid sinking of arterial pressure. Acidosis, even extreme, can be relieved by the administration of sodium bicarbonate. The most important outcome of the studies is, perhaps, the indication that a very low blood pressure—an easily and rapidly observed fact—is almost certainly attended by that grave diminution of the alkali reserve which makes operation perilous, but which is remediable by administration of sodium bicarbonate intravenously before or during operation; moreover, the diminution can be minimized by systematic administration of bicarbonate in sweetened drinks at every point from the aid post down to the casualty clearing station.

A paper, by the same three authors, on the application of these findings to the preventive treatment of wound shock, for anything novel that it offers, seems rather a "small mouse," but of course everyday practice has not waited on publication, so that nearly everybody is already familiar with the measures suggested, though the details should certainly be circulated; and it is satisfactory to learn that the proper gum and bicarbonate solution is to be provided in sterile bottles ready for use.

Yet another paper by Professor Cannon, a consideration of the nature of wound shock, is of a different order. Some of its paragraphs, as their very language shows, are of a highly speculative character, whilst the work of Henderson, Crile, and others is, as it were, "dealt with kindly but firmly." The outcome of his study of the results of this work and Bayliss's and other research along the same lines, is that the condition met with in hospitals in forward areas, and here called secondary wound shock, would be best described as "exæmia," implying that, as a consequence of fall of blood pressure, diminution of alkali reserve, alteration of viscosity, and perhaps other inter-related factors, blood is lost from currency, and vitality imperilled. It is comforting, at any rate, that "exæmia" is amenable to simple remedies; they ought to be and are being put into universal practice. This is not to say that the whole problem of shock has been solved, and probably for that very reason the Committee has not as yet issued these reports for sale, looking upon them as interim contributions useful to workers elsewhere. All the work is valuable, and Captain Cowell's observations in the trenches under bomb fire are deserving of the highest praise.

MASSACHUSETTS AND PUBLIC HEALTH.

A RECENT work by that distinguished American sanitarian, Professor George Chandler Whipple, puts on record the great services rendered by "the glorious old Bay State," Massachusetts, to the cause of sanitary science. In America, as in England, it is the existence of large waterworks, systems of sewage disposal, baths and bath-houses, the provision of parks and playfields, the supervision of the health of the mother, the child, and the worker, and of the quality of the food consumed by them, rather than learned treatises on the subjects, which make the English-speaking race leaders in practical hygiene. In democratic countries the existence of such works and institutions implies the presence of an enlightened public opinion. In producing this a large part is played by the epidemic visitations, and still more by the work of enthusiasts in the cause of hygiene and sanitary reform. In England Edwin Chadwick and in America Lemuel Shattuck will always find an honourable place in sanitary history—a history really dealing with the lives of the people, their health, comfort, and physical and moral welfare. Neither of these eminent men belonged to the medical profession, but as a profession we are proud to claim that it was the *Reports of Fevers in London*, by Neil Arnot, M.D., James Phillips Kay, M.D., and Southwood Smith, M.D. (1838), which caused action to be taken. Their work gave an opportunity to Edwin Chadwick, the secretary of the Poor Law Commissioners, to issue his epoch-making *Report on the Sanitary Condition of the Labouring Population of Great Britain* (1842), which led Parliament to pass an Act for promoting the public health in 1848.

In Massachusetts the problems involved in the prevention of disease early obtained attention. Thus Jenner never had more enthusiastic and faithful disciples than Drs. Waterhouse and Jackson of Boston. Dr. Waterhouse, on July 8th, 1800, vaccinated seven members of his own household. Shortly afterwards, as a convincing test, three of the children were sent to the small-pox hospital, and one was even inoculated with small-pox matter, but none of them contracted the disease.

In 1848 the provision of abundance of wholesome drinking water was undertaken in Massachusetts. The disposal of waste and sullage water was dealt with in an Act passed by the Great and General Court or Assembly of Her Majesty's (Queen Anne) Province of the Massachusetts Bay in 1709. Under this Act for 115 years the sewers of Boston were built, repaired, and owned by private individuals. The results of this lack of central responsibility were a highly insanitary condition of the soil and interminable disputes between owners of property. The City government assumed control of the sewers in 1823, and in 1833 the passage of liquid sewage from cess-pools into them was permitted. In 1849 the Commonwealth of Massachusetts appointed three commissioners to make a sanitary survey of the State. Lemuel Shattuck wrote their report, which was published in 1850, and sketched an ideal of public health administration quite within the range of practical attainment at the time. But, as Dr. Bowditch has put it, this report "fell stillborn from the hands of the State printer." Not till 1860 was the time ripe for Shattuck's ideals, and in that year an Act creating the State Board of Health was passed. The board consisted of seven members, of whom three were physicians, one a lawyer, one a civil engineer, one a historian, and one a business man.

The first chairman of the board was Henry J. Bowditch, whose name is familiarly linked with that of Buchanan in England as the sanitarian who showed that the spread of consumption is closely associated with dampness of the soil. "The State Board of Health was founded on a noble ideal, and has been supported by sound public sentiment. Its organization and work have been non-partisan; its functions have been conceived to be advisory rather than coercive, educational rather than punitive; yet, when occasion required, it has not hesitated to demand the exercise of the police power of the State through its legal machinery. By co-operating with other State departments, metropolitan boards, and local authorities, it has given them the advantage of its knowledge and the services of its experts. The State Legislature has liberally supported it, and last, but by no means least, it has maintained a remarkable personnel." It was good policy of the board to invest its money in brains and not in buildings—and here some of our universities might note and learn—and it was able to attract the services of the very ablest men in the country. The reports of the board contain the results of investigations in every field of public health. It is interesting to note that in a paper on the ventilation of schoolhouses Mr. A. C. Martin, an architect of Boston, contested the current view that carbonic acid was the chief noxious ingredient of vitiated air: he held that watery vapour and animal matter given off by the lungs and skin were of greater significance. The recent work of Leonard Hill has emphasized the importance of moisture, heat, and stagnation of the air in causing the symptoms produced by a vitiated atmosphere.

In 1886 the State Board of Health was reorganized under the chairmanship of Dr. Henry P. Walcott, who held this post for twenty-eight years and carried out his duties with such thoroughness and exercised such discrimination in the selection of the personnel of the officials of the board as to attract to the work done in Massachusetts the attention of the whole sanitary world. So far as the purification of water and sewage are concerned it is not too much to say that the board's experiments were of capital importance. They showed that the oxidation of the organic matter was not a physical action alone and was not dependent upon the passage of sewage through fine material, as the process of nitrification occurred in coarse gravel filters as well as in those of sand. This germinal idea was developed by English sanitarians and led to the extensive use of contact beds and trickling filters, which have rendered the problem of sewage disposal so much simpler. The work at the Lawrence experiment station in Massachusetts has shown that instruction in biology, and especially in bacteriology, should enter into the curriculum of the engineering student, and this is now being recognized by some British universities.

The Massachusetts State Board of Health took the lead in 1895 in a movement having a more direct medical bearing than those hitherto undertaken—the manufacture and free distribution of antitoxin and vaccine lymph. Here the board was fortunate in securing the services of Dr. Theobald Smith, who had just been appointed Professor of Comparative Pathology in the Harvard Medical School. Soon the scope of the bacteriological work was extended so as to include examination of sputum, blood, and secretions for evidence of the presence of infecting germs.

Harvard University and the Massachusetts Institute of Technology contributed greatly to the success of the enterprises of the board. In 1914 an Act was passed creating a State department of health, under

which a commissioner of health, with a public health council of seven, the commissioner himself being the eighth member, exercise all the powers and perform all the functions of the State Board of Health. Four of these members are physicians, one is a hygienist, one a biologist, one a sanitary engineer, and one a lawyer. The Public Health Council is organized into three separate standing committees. The salaried force is arranged into seven divisions, each in charge of a director, who reports to the Commissioner of Health. The work of this new and elaborate State Department of Health will be watched in this country with interest. We may learn from the experience of our cousins and staunch allies in the Commonwealth of Massachusetts much which will be of value to us in the task of setting up a Ministry of Health.

SIR ALFRED KEOGH.

SIR ALFRED KEOGH has this week vacated the office of Director-General A.M.S., and has been welcomed at the Imperial College of Science and Technology on resuming the office of Rector. In the debate on the Army Estimates, reported elsewhere, Mr. Macpherson, the present Under Secretary for War, and Mr. Tennant, who held that office in the early days of the war, both paid very high tributes to his magnificent work during three and a half difficult years, and we know that he has recently received many private expressions of the admiration and esteem with which his work is regarded by those who have been most intimately associated with him in the conduct of army medical affairs since a very early stage of the war. We desire to associate ourselves with these tributes to a great public servant. We have had occasion recently to criticize some aspects of army medical administration, especially in respect to the organization of the home Commands, and to suggest certain changes which will, we believe, make for economy and greater efficiency. We know that in calling attention to these defects we have only expressed the views of a large number of medical men of wide civilian experience; but the belief that the machine can be made to run better does not blind them or us to the great qualities of the man who has been in charge at home through a period of unexampled stress. As we said when his approaching retirement was announced, Sir Alfred Keogh has shouldered day after day a burden of responsibility and labour which only a man of his energy, enthusiasm, and mental calibre could carry. In the earliest stage, putting into action a scheme he had brought into existence during his first term of office, he turned to the civilian profession for assistance, and it was very fully given. The military hospitals with their staffs, for which the Territorial scheme provided, were quickly in working order, and the plan proved capable of great extensions. In the army abroad the methods elaborated before the war for the prevention of diseases of the typhoid group have worked on the larger scale with a success beyond the hopes of the most sanguine. When new problems arose—such as that created by the frequency and severity of wound infections—resort was freely had to scientific research and clinical experience to overcome them, and step by step they have been overcome; and so with other problems as they have arisen. Nothing that energy, knowledge, or money could provide has been spared for the benefit of the soldier. The bulk of the British Forces are engaged on the Western front, and in no other war have the wounded experienced so many alleviations of their lot as have been provided for them there. The work has all been done in a spirit of comradeship between regular officers and those drawn from civil life which reflects honour on both. In the institution of clinical and laboratory inquiries, and in the application of results to treatment, the directing hand of Sir Alfred Keogh has

everywhere been felt. The debt of gratitude due to him by the nation and by his own profession cannot be paid, but it will not be forgotten.

THE NEW CHARTER OF THE LABOUR PARTY.

THE Labour Party has enlarged its constitution, and in future will receive within its fold professional men who may be willing to subscribe to its articles of faith—which, however, are to be susceptible to change. When the new charter was submitted to the conference at Nottingham last month there was hesitation, and by a small majority on a card vote, it was referred to the adjourned gathering, which was held in London last Tuesday. Then the opposition broke down, and, subject to some small amendments, the original recommendations of the executive were adopted. It is interesting to notice what were the two lines of objection to the change. The trade unionists were at first divided—a number fearing that the party would lose its essential character, and therefore its vitality, from the addition of members not belonging to what may be called the crafts. The Independent Labour Party, and other pronouncedly socialist bodies, were perturbed because their over-representation on the executive which existed under the old method of election would be ended. The ease of the first-named was met by an amendment which increases the representation of national organizations on the Executive Committee from eleven (which was originally proposed) to thirteen, the representation of local organizations being left at five, and the representation of women at four, which were the figures in the draft plan. Thus the Executive Committee will comprise twenty-two members, of whom thirteen will be trade unionists. The Independent Labour Party, in its effort to keep up separate representation, suffered defeat by an overwhelming majority. Whatever strength it has will be exercisable only in the ordinary voting. No special party representation is to be allowed. The trade unionists, the local parties whose organizations will be according to constituencies, and the women, will be the power behind the machine—that is, behind the Executive Committee as elected and controlled by conferences. The charter, with its arrangements for local elections, for framing and varying policy, for support of candidates for seats in Parliament or on local authority, is practically what it was when we noticed it in draft in the issue of the BRITISH MEDICAL JOURNAL of December 15th. The feature of the enlargement of the scope of the party is the appeal to workers by head to join workers by hand in becoming members by obtaining admission to local parties, which, as already indicated, will be made up on constituency bases. Mr. Henderson, in his book *The Aims of Labour*, says the “net is being cast wide” because it is “realized that real political democracy cannot be organized on the basis of class interest.” The four principal aims foreshadowed in the memorandum on “Labour and the new social order” are: (1) The universal enforcement of the new national minimum wage; (2) the democratic control of industry; (3) a revolution in national finance; and (4) the surplus wealth for the common good. In his speeches Mr. Henderson has said there is no intention that anything should be done suddenly or violently. Phrases of the kind just quoted are elastic enough to be capable of greatly varied interpretation according to individual opinion and desire. As regards consideration for capital, it has to be remembered that the trade unions themselves have large financial interests, and may be expected to shun Bolshevism like a plague. But the new organization opens fresh political possibilities, all the more uncertain because the Reform Act has added so many more millions to the electorate.

GERMAN RED CROSS “LADIES.”

Boys of a past generation used to read Fenimore Cooper's stories of Red Indians. His books seem to have gone out of fashion, although, as his biographer says, he had considerable powers of description and could tell a tale of

adventure as well as most. The hero sometimes was captured by the red man and taken to the camp to be tortured. Occasionally his courage and noble demeanour appealed to the braves, who might be disposed, if not to save his life, at least to excuse the preliminary atrocities. But, if this happened, the women of the tribe demanded the utmost rigour, showing themselves more cruel than their men. Since those days the Red Indian has risen in the scale of culture, and to-day has not only enlisted in large numbers to fight in the cause of freedom, but has subscribed largely to the Red Cross. Judging from her conduct to British prisoners of war, as related in a white paper¹ on the transport of British prisoners of war to Germany, the German woman is still in the primitive stage of ethical development out of which the Red Indian has emerged. Not only did the German officials discriminate against British wounded taken prisoners early in the war, but the German "ladies" of the Red Cross deprived British wounded of food and even of water, and insulted them, and tantalized them by showing food to the starving prisoners and then removing it, and by bringing water and soup in cans and pouring it out on the platform in front of the English. The women, the report says, "were extraordinarily venomous in preventing anything from reaching the prisoners, and their general display of spite, their heartless cruelty, their profusion of gross insult were barbarous beyond all words. One officer tells how a woman of the Red Cross brought him a glass of water, spitting in it first. Very occasionally it would happen that a German officer would order one of these women to bring something for the prisoners, which she would do most unwillingly, and even with *averted face*" (italics in report). Well-dressed women were constantly prominent in the scenes of insult and outrage at railway stations, and at some wayside places rows of school children had been drawn up and chanted choruses of abuse. When the prisoners reached their place of confinement they were marched through "immense spitting, threatening crowds, mostly well-dressed people of the middle classes, which thronged the streets." German officers often took an active part in these pitiable proceedings, but the British prisoners received some kindnesses from their Senegalese fellow prisoners, and some of the German rank and file would give them a little of their own food "when there was no chance of their being seen by the ladies of the Red Cross." The Government committee on the treatment by the enemy of British prisoners of war, which has drawn up the report, takes care to quote the statement that in one instance "the Red Cross behaved very decently"; but it is added, "in view of the evidence there can be little doubt that the reference is to the German Army Medical Service, not to the Red Cross Society." The report states that the "persistent degradation of the Red Cross, universal emblem of charity in warfare, caused the deepest possible impression on the British prisoners, both officers and men." The behaviour of the German Red Cross is declared to have been "most revolting," and the fact makes it difficult to accept the distinction President Wilson wished to draw between the German people and their Hohenzollern rulers. The German Emperor may be personally responsible for the torpedoing of the *Lusitania*, as Mr. Gerard holds, and for the sinking of hospital ships, of which we have another instance this week, but he can hardly have ordered German Red Cross women to spit in the water before handing it to the wounded, or German ladies in evening dress to shout and shake their fists from an open window as the prisoners were marched through the street.

A NEW SYPHILITIC SYNDROME.

THE Wassermann test is constantly adding presumptive evidence in support of the view that syphilis is the underlying factor in many chronic diseases of obscure origin.

This is particularly true as regards the nervous and vascular systems, whereas the alimentary, and especially the respiratory organs, still offer opportunity for further application of this generalization. Luetic affections of the liver and pancreas are, of course, sufficiently well recognized, but the high percentage of positive Wassermann reactions in ordinary cirrhosis has again raised the old view of a syphilitic origin. Sometime ago the possibility of a relation of syphilis to appendicitis was raised, but the suggestion was unsympathetically received. There appears to be more reason to consider Leredde's¹ contention that the definite syndrome of severe dyspnoea on exertion dating from early life or adolescence, combined with advanced emphysema, recurrent attacks of acute febrile bronchitis, and often with asthma, is a remote sequel of syphilis, usually congenital, and characterized by fibrosis. The acute attacks are evidently a complication depending on special liability to infection. Out of 20 of such cases 7 gave a positive Wassermann reaction, and among the remaining 13 there were undoubted clinical manifestations of syphilis in all but two. Antisyphilitic treatment, especially arseno-benzol in gradually increasing doses, is recommended.

VISITS TO FOREIGN HEALTH RESORTS.

We are informed that the Military Permit Office has been instructed to reduce all cross-channel traffic to the lowest limits consistent with the national interest and the avoidance of unnecessary hardship to individuals. Permits are now limited to those cases only in which the absolute necessity of the journey can be satisfactorily established. Before any application which is made on the ground of ill health is considered the applicant is required to produce a doctor's certificate stating that the journey is an absolute necessity, specifying the place to which the journey is to be made, and the length of stay there, and certifying that there is no health resort in Great Britain which would meet the case; when the application includes a request for a companion the medical man must include in his certificate the statement that a companion is essential, and the name of the companion. These regulations do not apply to persons seeking permission to visit a wounded relative. The regulations, therefore, appear to apply solely to persons who consider that it would be to the advantage of their health to visit some place on the Continent, most usually the Riviera. We have been asked to bring the decision of the Military Permit Office to the notice of members of the medical profession and to invite them to exercise the utmost discrimination in giving certificates. The essential points seem to be that the doctor must certify that the journey is an absolute necessity, and that there is no health resort in Great Britain which would meet the case. It is clear, therefore, that the total number of medical certificates to this effect which need be given must be extremely limited; in fact, we find difficulty in thinking of any condition as to which it could be said that there is no health resort in Great Britain which would meet its needs.

THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

INFECTION with the round worm is a comparatively uncommon and comparatively trivial affair to dwellers in Great Britain. But this worm has a cosmopolitan distribution, and ascariasis, or the condition of infection with it, is an important matter in hot countries. Indeed, Major F. H. Stewart, I.M.S., some of whose work on the subject has already been published in the *BRITISH MEDICAL JOURNAL*,² goes so far as to state that "there is reason to suppose that a great deal of the debility of the natives of the tropics is due to ascariasis, and that this disease is

¹ Leredde, *Paris méd.*, 1917, vii, 225.

² *BRITISH MEDICAL JOURNAL*, July 1st, October 7th, and December 2nd, 1916.

at least the equal of ankylostomiasis in economic importance." Major Stewart has published in the current issue of *Parasitology* an account of some further experiments designed to clear up obscure points in the life-history of *Ascaris lumbricoides*, which occurs in man, and *A. suilla*, which infects pigs. More particularly he has endeavoured to determine whether these ascarids normally complete their life-cycle in a single host, or, alternatively, require an intermediate host for their development, such as the rat or mouse, before maturing in the definitive host, man or pig as the case may be. There is good reason for believing that in human beings, pigs, rats, and mice the eggs of these ascarids when ingested by the mouth first develop into larvae in the lungs and tracheae of their hosts. Can these larvae then enter the alimentary tract and develop into the corresponding round worms? The question is one that should be capable of fairly easy solution, as Major Stewart points out. His own experiments, unfortunately interrupted before completion, are not in favour of the theory of direct development without an intermediate host. But they leave the question still open. It is interesting to note that the development of fever and dyspnoea, evidence of pulmonary involvement, a few days after the ingestion of several dozen eggs of *A. lumbricoides* by children, was observed by Mosler as long ago as the year 1860.

VENEREAL DISEASES.

THE KING's visit last week to the Rochester Row Hospital was publicly stated to be due to His Majesty's recognition of the importance of the movement dealing with venereal diseases, and his sympathy with the practical efforts now in progress to combat this national danger. A royal visit to a hospital for venereal diseases is an encouraging sign of the changed outlook on this problem, and there are other indications of improvement. Thus, in a circular issued by the Local Government Board on February 22nd, on the prevention and treatment of venereal diseases, the President records his appreciation of the fact that county and borough councils generally have shown their readiness to undertake the new duties imposed by the regulations, and have been successful in a large majority of cases in their negotiations with hospital authorities and other bodies for the provision of the necessary facilities for diagnosis and treatment. The circular goes on to point out that for certain classes of cases additional accommodation is needed, and should be provided wherever possible. Thus, the treatment of lying-in women and expectant mothers suffering from venereal disease is a matter of national importance both in the interests of the mothers and of their offspring. Councils are therefore urged to consider what steps can be taken to secure additional accommodation for these cases either by obtaining beds at existing lying-in or general hospitals, or, failing these, at special institutions or nursing homes. The Board will be prepared to make a grant of 75 per cent. of all expenditure approved by it for this purpose. In this connexion the Board draws attention to the importance of the Wassermann test for patients who have had miscarriages, and of examinations of material from cases of stillbirth. It is deemed desirable that when these cases are notified the medical officer of health should make discreet inquiries into the circumstances through the medical practitioner in attendance. Lastly, the circular refers to the need for special accommodation in the form of hostels for certain classes of women and girls, such as shop assistants and domestic servants, who are infected with venereal disease and whose home conditions are not satisfactory. The Board encourages councils to contribute towards the maintenance of satisfactory hostels, and is willing to make a grant of 75 per cent. of the amount of any contribution approved by it. We may also refer to a circular to medical

practitioners on the subject of venereal diseases issued recently by the Public Health Department of the London County Council. This emphasizes the need for the hearty co-operation of the medical profession in the Council's scheme for dealing with these diseases. Details are given of the special facilities which, after conferences with representatives of the medical profession, have been provided at the twenty-five hospitals with which the Council has entered into agreement. Dr. W. H. Hamer, the medical officer to the Council, expresses the hope that medical practitioners will take the fullest possible advantage of all the facilities provided, and communicate with him should difficulty be experienced.

Medical Notes in Parliament.

The Air Medical Service.

IN the House of Commons, on February 21st, Major Baird, the Parliamentary Secretary to the Air Ministry, presented the estimates for the coming year, and made a lengthy statement as to the reconstitution of the air forces. Speaking of the medical service, he said that a committee, under the chairmanship of Sir Watson Cheyne, had, at the request of the Air Board, drawn up a scheme for a medical service. Major Baird hinted that there was some apprehension on the part of the army that a separate air medical service might lead to friction. He claimed, however, that the arrangement made met the views of the navy and the army, and would render it possible to carry into effect the system advocated by the committee. The two indispensable conditions—that medical officers responsible for the care of the officers and men serving in the air should specialize in that particular branch of medical science, and should not be changed indiscriminately—had been secured. It had been agreed by the War Office and the Admiralty, with the assent of the Treasury, that the medical affairs of the air force should be controlled by a committee responsible to the Air Council, and composed as follows: The Director-General of the Naval Medical Service, the Director-General of the Army Medical Service, the Vice-President of the Air Council, a Medical Administrator of the air force, an Assistant Medical Administrator who would act as secretary, one neurologist, one physician, one surgeon, one physiologist, and the secretary of the Medical Research Committee. The Medical Administrator would be given the substantive rank of surgeon-general, and the Assistant Medical Administrator that of lieutenant-colonel. The Medical Administrator would nominate an executive staff of medical officers, and would arrange for the necessary clerical assistance. He would be given discretion to take action on any matter of urgency, and on matters of detail arising in the intervals between the meetings of the committee. The medical arrangements of the air force would be centralized under the direction of the committee as soon as possible. All medical appointments would be made by the President of the Air Council on the nomination of the committee. Officers appointed to the air force medical posts would be seconded to that force. Temporary air force commissions would be given to all those, whether already officers or not, appointed to executive medical posts, but a limited number of officers would be nominated by the committee for permanent commissions. All medical officers appointed to the air force would wear air force uniform. Officers seconded from the army and navy would receive an assurance in writing that their prospects of promotion by selection in their own services would not be prejudiced thereby. The Medical Administrator would have direct access to the Secretary of State for the Air Force, and the medical arrangements of the air force would be dealt with in the department of the Master-General of Personnel.

In the course of the debate Mr. Joynson-Hicks, after some general congratulations on the improvements in the air service, said it would have been better to have established a special medical air service apart from the Royal Army Medical Corps. Referring to the necessity that a technically trained physician should be appointed for every detachment of the air service at home, Mr. Joynson-Hicks remarked that he could take Major Baird, who had trained a detachment in this country, with 700 or 800 men under training, who not only had no medical man attached to them, but whose aerodrome was not even in telephonic communication with a medical man. The

condition of things must be altered at the earliest possible moment. Touching the question of accidents, Mr. Joynson Hicks asked that the system of training airmen should be overhauled. He quoted with particular appreciation the article by Mr. Graeme Anderson which appeared in the *BRITISH MEDICAL JOURNAL* in January, with particulars of investigations extending over six months.

Sir Watson Cheyne, in dealing with the medical aspects of aviation, said that the human being was constructed to live upon the earth, and all his mechanisms were delicately linked together for living under those conditions; he was not constructed to live under water, or up in the air. The two important conditions, so far as was known at present, were the atmospheric pressure and the density of the air—the density of the air especially, because with a suitable density the proper amount of oxygen was available. People might live on the sea level, or 5,000 or 6,000 feet above the sea level, and could go from one to the other without great discomfort, if the transition was not too quick. A day or two was spent by mountain climbers in reaching 10,000 feet, but a flier went up 10,000 feet in a few minutes, and the human mechanism had not time to adapt itself. This was especially true when that height was exceeded. As the aviator mounted he came into air that did not contain so much oxygen as was necessary; to take in the required amount he began to breathe faster, and the heart beat quicker, until, at a considerable height, the heart began to fail, the man began to lose consciousness, and might actually faint. Although that was not always fatal, because of the steadiness of modern machines, a good many never recovered from that faintness, or, if they did, found they were dashing to their doom. Nowadays aviators were provided with oxygen for inhalation, but they differed very much in the heights to which they could go without employing it. Almost more important than heart and lungs was the nervous system, which, up in the air, was acting, quite unconsciously to the individual, under great strain in maintaining equilibrium. He did not know that any aviators were consciously frightened, but their nervous system was frightened. Although the aviator had no feeling of fear, the brain was getting exhausted in its efforts to overcome the dangers surrounding him; exhaustion came specially in a rapid descent from a high altitude. True binocular vision, especially when travelling at a great speed, and rapid connexion between sight and action were so necessary, that in selecting pilots it was most important to ascertain that they were perfect in these respects. Very often it had been discovered that one eye was not used at all; such a man should not be allowed to enter the service. The troubles of low flying were not nearly so marked as of high flying (10,000 feet and over).

For the reduction of aviation dangers the first necessity was to have a set of trained doctors in contact with aviators. They would in the first place furnish the statistics and observations on which to build up the theory. The skilled medical officer could ascertain to what height an aviator might go safely, and to what height he might go with oxygen. Air medicine was so new a subject that it was not taught in the schools. Only a few were working at it, and the number engaged in regulating the admission of pilots was small. Another point was that medical men should be in close touch with aviators to keep an eye on them. High flying had a cumulative effect on the aviator. A man went up the first day and perhaps he was a little elated; much the same thing would happen for three or four days, but then he began to find he was not quite up to the mark; in other words he was getting stale. A superior officer wanted a man, and he asked a commander to send along one of his best men—it might be from a unit where the medical man knew nothing about air illnesses: hence might come disaster to the aviator. What was wanted was a medical man with some force of character who would say, in a case of this kind, to the general, "You must not send up that aviator; it is not safe." A medical man of the air service ought to stand in much the same relation to the men as the athletic trainer to those he trained. If this work were done properly, double the number of doctors at present at aerodromes would be needed. There were also what might be termed "air diseases." One was distension of the intestine by gas, probably on account of the diminution in the air pressure. It caused pain and vomiting, but recovery followed a few days' rest.

These were the chief reasons for a medical air service, the members of which should devote themselves wholeheartedly and permanently, or quasi-permanently, to this work. The army and the navy between them apportioned a certain number of medical officers to the aerodromes to attend to the flying club, and the new service ought to

take over the whole of the men doing that work in England, and thus get a nucleus for a service. This would cost the navy and army nothing in the way of men. The service should also get its share of the new men, including men too old for conscription, but keen to do this work. Sir Watson Cheyne said he did not like putting a money value on an aviator's life, but an airman was reckoned to cost the country about £900, and his machine roughly about £4,000. If an aviator were killed and his machine were wrecked, there was a loss, roughly, of about £5,000. If one hundred lives and machines could be saved in the course of a year, the State would save half a million of money, and that would pay for the expense of the whole air medical service. He did not think, however, that expense ought to have anything to do with the matter. He regretted that a completely separate air service was not proposed, but felt it best to accept the compromise under which members of the other services were nominated on the Administrative Committee. It obviated further delay, and medical men would be in training, which was the main essential; after the war there must be a separate air medical service.

In the course of the debate Sir Hamar Greenwood said he was sorry that Sir Watson Cheyne, with a unanimous committee of distinguished men behind him, had not stood to his demand for a completely separate medical service; and Major David Davies expressed the same regret. The advisory committee of medical men appointed by the Air Board reported quickly, but apparently their report did not meet the views of the Directors-General of the army and of the naval medical services. The result had been a delay of two months. It was a slur on the members of the committee to have asked them to spend a great deal of time and trouble in preparing this report, and then to have turned it down. There was another example of the same kind of procedure in regard to the report of the committee sent to France to inquire into the arrangements of the Royal Army Medical Corps there. That report was sent in, he believed, five months ago; so far as he understood it was still being considered by the Army Council, and no steps had been taken to carry out the recommendations. What usually happened was that these reports were put on one side and a new committee was set up, which proceeded to consider the whole matter afresh in the hope that a report more in accordance with the views of the permanent officials would be produced.

Major Baird, in replying to the criticisms, said that at the request of the Director-General of Military Aeronautics military medical authorities had been working on special lines in regard to the Royal Flying Corps. The officers were now examined by a special medical board before they were sent to France. Another staff was engaged in the medical examination of officers suffering from disabilities caused by flying. A special type of hospital had been set apart for the treatment of members of the flying force, both military and naval; in addition, a Royal Flying Corps Hospital, maintained by private subscription, had been at work for more than two years. It provided accommodation for seventy serious cases, and for more than 100 convalescents. He added, in reply to questions, that candidates for service as air pilots were rigorously examined by a special medical board in London, and that the administrator of the air medical service would not be on the Air Council, but would have direct access to the Secretary of State.

Army Estimates.

The Work of the Army Medical Service.

In his speech introducing the Army Estimates, on February 20th, Mr. Macpherson paid warm tribute to the work of the Royal Army Medical Corps. Having recalled figures as to the satisfactory conditions in France as compared with the experience of armies in the past, Mr. Macpherson said that owing to climatic reasons the conditions in Salonica were not so satisfactory. But the amount of sickness in the Salonica army had in 1917 been reduced to two-thirds of what it was in 1916, and the death-rate in 1917 had been reduced to one-third what it was in 1916. Having remarked that the success and gallantry of the Army Medical Service had given it a place in the army which it had never had before, the Minister said it had now been arranged that the term "lieutenant-general" or "major-general" should be applicable to a surgeon-general, and in future a general in the Royal Army Medical Corps will be known as lieutenant-general or major-general "A" or "B," surgeon-general to the forces.

Sir Alfred Keogh.

No one had been more responsible for the success of this branch of the service than Sir Alfred Keogh, who, coming

forward at the beginning of the war, after a brilliant career, had assumed control of the service he had so long admired. He would soon go back to the scientific work which he loved. Mr. Macpherson therefore took this opportunity publicly, on behalf of the Army Council and the army as a whole, and, indeed, on behalf of the whole of the people in this country who had friends in the army, to acknowledge the magnificent work of Sir Alfred Keogh during three and a half years of strenuous toil.

Mr. H. J. Tennant (Under Secretary of State for War 1912-16) reminded the House that in the Napoleonic campaigns, of the dead only 3 per cent. died of wounds and 97 per cent. of disease. The nation, reflecting upon the extraordinary alteration that had taken place in the present campaign, would be really grateful to those who planned and organized the wonderful organization by which so many lives had been saved. There was no doubt that the master hand and the master mind in that organization was Sir Alfred Keogh. When he came back to the War Office to administer the medical services he brought judgement, skill, and prudence, for which all were most grateful; he had laboured with tirelessness, unceasingly and devotedly, for three and a half years to make the scheme as perfect as it was. Mr. Tennant said that he had had the honour of conferring with Sir Alfred Keogh during a time more pregnant perhaps with possibilities of failure or success than any other period during the war, and looked upon it not only as a privilege, but as a cogent and pleasing duty, to record his warm appreciation of Sir Alfred Keogh's services to the State, as well as his great admiration for him as a man.

The Place of Civilian Doctors in the Army.

On February 25th Mr. Walter Roch raised questions as to the use now being made of civilian doctors in the army. A very large proportion of the purely administrative posts in the army to-day were held by the old officers of the R.A.M.C. Of the civilian doctors with wide experience gained in the hospitals and the various branches of the profession some might well be appointed to such posts. Speaking of the distribution of distinctions, Mr. Roch said that while one of every two of the regular army medical officers had been decorated, only one in fifty of the fourteen thousand civilian doctors had been decorated. The sacrifices of these civilian doctors had been very great, and such as to alter their whole scheme of life: many who had given up substantial practices were now undergoing great hardships. He had received a letter from a friend in Salonica, a surgeon and a Territorial officer, who since the beginning of the war had remained a captain; he took his orders from his army medical officer as to what operations should or should not be performed although he had a large surgical experience which would have enabled him to suggest the kind of operation which should be adopted. Small use was made of some of the foremost operators in the profession. He had numerous letters showing that eminent civilian medical men had never performed any operation at all. It seemed ludicrous that the War Office should have at its disposal such men who were now almost wasting their time, for they were not carrying out those operations they were so eminently fit to perform. He wished that these civilian doctors and surgeons were formed into a staff for the base hospitals, giving them liberty to choose the men—none knew better than themselves—who were best qualified to carry out the work which falls to the civilian medical officer with the army. After mentioning some instances of specialists whose services had not been utilized, he said that he did not suggest that these things were general—though he was told they were—but they left the impression that the barrier which existed between the old officers of the Royal Army Medical Corps and the body of civilian medical officers was very real. The War Office should again consider the restoration of the old Advisory Medical Board, and make use of the civilian medical man with his great knowledge, bringing into the board, if necessary, representatives of the Canadians, the South Africans, the Australians, and perhaps the Indian Medical Service.

Mr. Macpherson, in his reply, said he hoped that Mr. Roch would now have felt assured that the distinctions which existed in the past between civilian doctors and doctors of the Royal Army Medical Corps were dying away. He understood that the reform which had come into existence made all distinctions a thing of the past. It was natural that more decorations had been given to men in the Royal Army Medical Corps than to civilian doctors, because the first went out at the very beginning of the war. Mr. Roch, interpolating, said he was taking comparisons for three years. Mr. Macpherson replied that he did not think that affected his argument much. Most of these civilian doctors were kept at home doing part-time

work. They were carrying on their own practices and also doing civil work in hospital, and while the nation was very grateful to them for their part-time service, he could quite imagine it did not give them the opportunity for decoration which was given to the Royal Army Medical Corps, who were established officers, who had been bearing the brunt of work at the front and in the trenches.

The Advisory Medical Board, Mr. Macpherson said, had not, so far as he knew, met at any time during the war as a board, but the Director-General of the Army Medical Service had been in constant communication with either one or other of the members of that board, and had received invaluable advice from them. Mr. Macpherson said he should not like to see the able surgeons in administrative posts, for it was better that they should do their own specially skilled work. The best work for them was not administrative, but in the hospital dealing with the major operations and all the worst cases that arose.

Brothels in France.

During the debate references were made to the action of the British military authorities in France with regard to regulated brothels. Mr. Lees-Smith observed that in France there was a system of licensed regulated brothels, and there were many in towns largely occupied by British troops. Mr. Macpherson had said, in reply to various questions, that these places were under the control of the French civil authorities, and that the War Office had no jurisdiction over those authorities, but it had jurisdiction over the British soldier. Why did the British military authorities leave these places within bounds when the Americans in the towns they controlled had put them out of bounds? Similar inquiries were made by Mr. Roch. Mr. Macpherson, in his reply, said that there was no truth in the statement that the British military authorities had either requested the French military authorities to keep up these institutions or indeed connived at their maintenance. The view of the army was that the question was one entirely for the French civil authorities. While in this country there might be no hesitation in taking a certain action, yet in a country allied to us and on the most friendly terms with us, the army was in an extremely difficult position, and it could not ride rough-shod over arrangements which were accepted as part and parcel of the life of the country. It was true that certain estaminets and cafés had been put out of bounds for a specific purpose—namely, to prevent disorder. He promised to make further inquiries as to American arrangements. At the same time the alternative seemed to be, on the one hand, the danger of tolerating houses, and, on the other, that of soldiers meeting in the public streets with women who made their living in that way who were unregistered, and would not give the men associated with them the security a registered woman might give.

Venereal Disease.—On February 5th, at the request of the Under Secretary of State for War, Mr. Peto postponed a further question asking for particulars as to the number of men suffering from venereal disease who passed through army hospitals in 1917, the number on the sick list in France and in this country on any one day in the four quarters of 1917, and whether the Army Council intended to substitute for the War Office letter dated March 18th, 1916, instructions to medical officers to use every measure to prevent waste of man power in the army from this source. He also inquired whether it was true that there were between 40,000 and 50,000 men always in hospital for venereal disease. Mr. Macpherson has since informed Mr. Peto that the number of soldiers admitted to all hospitals in the United Kingdom in 1917 for all forms of venereal disease was 54,884. The number of soldiers in all hospitals in the United Kingdom suffering from venereal disease was:

On February 28th, 1917	...	...	9,053
On April 30th, 1917	...	...	8,045
On July 31st, 1917	...	...	7,392
On September 9th, 1917	...	...	3,674

Medical Men of Allied Nationalities.—In reply to a question by Sir William Collins, Mr. Macpherson stated that medical men of allied nationality, though holding qualifications in their own countries, were not eligible for substantive commissions in the Royal Army Medical Corps. They might, however, be employed by the War Office as was the case with American surgeons.

Medical Department, Ministry of Pensions.—In reply to Mr. Alder, Mr. Hodges (the Minister of Pensions) said that Sir John Collie is a whole-time officer of the Ministry of Pensions.

THE WAR.

INJURIES OF THE VERTEBRAL VESSELS.

PROFESSOR HERMANN KÜTTNER has written an elaborate account of injuries of the vertebral vessels in the neck.¹ Of the fifty-one cases mentioned, forty-four are from earlier records, whilst seven had come under his own observation. Three patients survived operation, and two it is said made good recoveries.

Case 1.—The bullet had traversed the left side of the neck from the level of the cricoid cartilage to the second dorsal spinous process; both apertures had healed. A thrill, ceasing on compression of the carotid, could be felt in the lower part of the neck. The carotid artery was isolated with great difficulty in the dense cicatricial tissue, and found to be uninjured. Further tedious dissection of the transverse cervical, inferior thyroid, and vertebral arteries disclosed an aneurysm of the last named, communicating inferiorly with the vertebral vein. A ligature applied below the sac sensibly diminished the thrill, which, however, gradually became re-established. The upper part of the sac was tightly pressed against the vertebrae and the enlarged foramen of the sixth transverse process, and on incision it was found that its posterior wall was inseparably fused with the vertebrae, so that complete excision was impossible. The severe haemorrhage which followed was only partially arrested by ligature of the upper part of the sac and of the rigid collaterals opening on its hinder wall. Small fragments were therefore cut from the sterno-mastoid muscle and the cavity was plugged with these, and the bleeding stopped. The patient, it is said, made a good recovery.

Case 2.—The bullet had passed transversely through the hinder part of the neck in its upper third. The wounds healed completely, leaving the patient with a distressing murmur and a well-marked thrill near the left suboccipital region. The common carotid and its main branches were found to be normal, and on the assumption that a small arterio-venous aneurysm existed on some secondary branch of the external carotid, the vessel, together with the superior thyroid, lingual, and facial branches, was ligatured, and the thrill disappeared. Eleven months later the patient stated that the murmur had returned in its original intensity; and a thrill was then present in the suboccipital region, but not within the area of the occipital artery.

Case 3.—In this case haemorrhage from a wound to the right of the larynx, traced to a perforation of a large vein deep in the neck, occurred also into the right pleural cavity, and the patient died on the eleventh day.

Case 4.—Six months after receiving a bullet wound in the neck, which had healed, the patient suffered from a persistent murmur in the left half of the head, and there was a large pulsating tumour below the lobule of the left ear, in front of which the dilated and strongly pulsating carotid artery could be felt. This artery was not connected with the aneurysm. An incision was made into the sac large enough to permit of exploration with the finger, when respiration suddenly ceased, the pulse remaining good. Artificial respiration failed to restore the patient. It was found *post mortem* that the hinder wall of the aneurysm was formed by the third, fourth, and fifth cervical transverse processes and the deep muscles of the neck; superiorly the sac reached the level of the axis, and inferiorly to the fifth cervical vertebra. It communicated, through a small aperture, with the vertebral artery in the interval between the third and fourth transverse processes. From this point upwards the artery was closed by a firm thrombus, which was continued into the basilar and its branches and into the opposite vertebral artery for a short distance. It further extended into the circle of Willis and thence into the right internal carotid artery, which just above its origin had received a perforating wound, each aperture being connected with a small aneurysm. Both the sacs and the whole length of the internal carotid were filled with firm clot.

Case 5.—Eight days after a gunshot wound of the shoulder secondary haemorrhage suddenly occurred. The wound was traced up into the neck, disclosing an abscess and wound of the vertebral artery at the fourth and fifth transverse processes, which were comminuted. With considerable difficulty the artery was ligatured. The patient died a few hours later.

Case 6.—Secondary haemorrhage occurred from a suppurating grenade wound behind the left ear, received one week previously. The bleeding was traced to injury of the vertebral artery in its upper part, and excision of about 2 cm. of the arch of the atlas was necessary before the vessel could be ligatured. It was probable that the carotid artery also had been wounded. Death occurred one hour after the operation.

Case 7.—Haemorrhage following a gunshot wound of the left side of the neck was traced to the vertebral artery in its canal. Ligature at the site of injury being impossible the vessel was tied in the first part of its course. The patient made a good recovery.

¹ Bruns's *Kriegschirurg. Hefte*, 1917, Ix, p. 1.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

MAJOR W. AP S. J. GRAHAM, R.A.M.C.

Major Walter Ap Samuel James Graham, R.A.M.C., died on February 23rd, aged 54. He was the eldest son of the late General Sir James Graham, K.C.B., and was educated at St. Mary's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1888. After acting as house-physician, house-surgeon, and resident obstetrical officer at St. Mary's, he entered the R.A.M.C. as surgeon on January 31st, 1891, and became major on January 31st, 1903. He served in the Nile campaign of 1898, receiving the British and Egyptian medals.

CAPTAIN P. H. DELAMERE, R.A.M.C.

Captain Percy Herbert Delamere, R.A.M.C., died in the Military Hospital, Milton, Portsmouth, on February 23rd. He was the eldest son of the late Captain P. H. Delamere, of the 21st Royal Scots Fusiliers, and took the diplomas of L.R.C.S.I. in 1882, and L.R.C.P.I. in 1883. He served for many years in the Colonial Medical Service in Demerara, British Guiana. He took a temporary commission as lieutenant in the R.A.M.C. on April 14th, 1915, and was promoted to captain after a year's service.

Wounded.

Lieutenant P. A. O'Brien, R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Amesbury, Frederick Cholmondeley Dering, Major Indian Army (retired), son of the late Surgeon-Major J. W. R. Amesbury, I.M.S., died at Warwick on February 7th, aged 55. He was born on October 4th, 1852, got his first commission from Sandhurst in the King's Own Yorkshire Light Infantry on August 25th, 1883, transferred into the Indian army, and spent most of his service in the 10th Jats, attaining the rank of major on August 25th, 1901, and retiring on August 25th, 1907. He rejoined at the beginning of the war, and was posted to a service battalion of the West Yorkshire Regiment, and subsequently transferred to charge of the infantry records at Warwick. His eldest son, Second Lieutenant Hugh R. Amesbury, Bedford Regiment, was killed on November 20th, 1917, aged 27. He had previously served in the Canadian forces.

Harold, John Bevan, Lieutenant Royal Field Artillery, attached Royal Flying Corps, eldest son of the late Dr. John Harold, of Harley Street, died of wounds, aged 23, on February 16th. He was educated at Beaumont College, Old Windsor, and at University College, Oxford, where he was studying medicine, when he got a commission in the Special Reserve R.F.A., on August 13th, 1914. He had served for two years in France with the R.F.A., and a year ago transferred to the R.F.C., gaining his pilot's certificate last August. He returned to the front in December. While photographing over the enemy lines he was attacked by two German machines, but succeeded in bringing back his aeroplane, though severely wounded. His younger brother, Midshipman Geoffrey Harold, was lost in H.M.S. *Hogue* in 1914.

Hope, Humphry Bryan Thomasson, Lieutenant Northamptonshire Regiment and Royal Flying Corps, younger son of the late W. Hodgkin Hope, surgeon dentist, of Wellingborough, reported missing on April 26th, 1917, after an aerial fight with six German aeroplanes, now presumed killed on that date, aged 20. He was educated at Wellingborough School and at the Royal Dental and Middlesex Hospitals, London, when he got a commission in the Northants Regiment in November, 1915.

NOTES.

TREATMENT OF NERVE-STRAINED SOLDIERS.

MR. MACPHERSON, in stating that eight institutions for the care of nerve-strained soldiers were already organized, gave the names of the medical officers as under:

Lieut.-Colonel Mott, Maudsley Section, 4th London General Hospital, S.E.

Major Rows, Red Cross Military Hospital, Maghull.

Major Worth, Springfield War Hospital, Upper Tooting, S.W.

Lieut.-Colonel Fox, 4th Southern General Hospital, Plymouth.

Major Hurst, Royal Victoria Hospital, Netley.

Major Mackenzie, Glen Lomond War Hospital, Fife.

Captain Culpin, 1st Southern General Hospital, Monrhull Section, Birmingham.

Captain Clements, Bradford War Hospital, "Ahraia Peel" Section.

The Distinguished Service Cross has been conferred upon Surgeon Alexander Frederick Richmond Wollaston, M.B., M.A., R.N.

For conspicuous devotion to duty and for his unfailing care of the sick and wounded during military operations in East Africa. During the operations in the Rufigi River Delta he voluntarily attended to the casualties of the Rufigi River Transport Service in addition to those of his own unit.

The Distinguished Service Medal has been awarded to 1st Class Subassistant Surgeons Abdol Majid and Wahidyar Khan, and 2nd Class Subassistant Surgeon Chintaman Gopal Gogale, all of the I.S.M.D.

England and Wales.

PROPOSED TRANSFER OF FUNCTIONS OF POOR LAW AUTHORITIES.

At the meeting of the London Panel Committee on February 26th a memorandum on the medical questions involved in the proposed transfer of functions of Poor Law authorities to public health authorities in London was discussed and, after some amendment, adopted. It recommended that whenever the transfer took place two distinct departments of the medical service should be established under the local authority, one dealing with public health questions, and the other with individual health questions, both preventive and curative, the two to work under a common central control. Every local authority should have two medical officers of equal status, one in charge of the sanitary, and the other of the clinical service. So far as the sanitary service was concerned, the best results would be obtained by increasing the number and maintaining the status and qualifications of the whole-time assistant medical officers of health. No general system of whole-time medical officers was likely to prove successful for the clinical service, and the Committee urged (as its only definite exception to the scheme for London as set out in the report of the Minister for Reconstruction) that medical service in the home should be given by a part-time service of general practitioners who should be remunerated by capitation grants. A part-time service of specialists and consultants should also be utilized to assist the general practitioners in connexion with domiciliary treatment. The memorandum also dealt with the question of administration, both of domiciliary and institutional services, and urged that the centralization of the administration of the "municipal hospitals" of the various boroughs in London was an essential feature of the scheme.

CENTRAL MIDWIVES BOARD.

At a penal session of the Board, held on February 20th, Sir Francis Champneys presiding, a number of charges of the usual kind were dealt with, and one midwife was struck off the roll. In one instance a midwife had inserted an advertisement offering "twilight sleep" treatment, and worded in an ambiguous manner. No mention was made that the treatment would be administered by a medical man. The Board agreed to censure the midwife and exact an undertaking that in any future advertisements there should be a clear statement that the administration of the treatment would be conducted by a doctor.

At the monthly meeting, on February 21st, the Secretary announced that the following bodies had respectively elected as their representatives on the Council:—*Royal College of Physicians*: Sir Francis Champneys, Bt., M.D. *The Privy Council*: The Lady Mabelle Egerton. *Society of Apothecaries*: Dr. A. H. W. Ayling. *Incorporated Midwives Institute*: Dr. J. S. Fairbairn. *Queen Victoria's Jubilee Institute for Nurses*: Miss Rosalind Paget. In reply to a communication from Dr. Janet Lane-Clayton, Dean of the Household and Social Science Department, King's College for Women, with regard to the scheme for constituting a central council for the physical welfare of women and children, it was decided to appoint the Chairman and Miss Paget as the Board's representatives on the Provisional Executive Committee. The M.O.H. for the county of Durham had forwarded a copy of the county council's scheme for providing trained midwives and medical assistance for them within the county. The Board expressed its approval of the scheme. Consequent on the establishment of a Central Midwives Board for Ireland, with power to prescribe rules for training and to hold examinations, the Board decided to give notice to all approved institutions, lecturers, and teachers in Ireland that its approval will be withdrawn from March 31st next. The Chairman moved, in pursuance of notice duly given—

That having regard to the urgent necessity of securing the reciprocal treatment of midwives certified in other parts of His Majesty's dominions and of otherwise bringing into harmony the laws governing the practice of midwifery in the different parts of Great Britain, the Lord President of the Council be requested to introduce into Parliament as soon as may be a bill to amend the Midwives Act, 1902, by enlarging the scope of the powers of the Central Midwives Board on the general lines laid down by the Midwives (No. 2) Bill, 1910, and recently adopted in the Acts for Scotland and Ireland.

Scotland.

A DEPUTATION, representing the county council and district of Lanarkshire, had an interview on February 22nd with the Secretary for Scotland in order to express to him their views on the administration of public health services, with particular reference to matters being discussed in connexion with the proposal to establish a Ministry of Health.

INSANITY AND THE WAR.

In his report as physician-superintendent of the Glasgow Royal Infirmary, presented to the annual general meeting on February 21st, Dr. Oswald said that among soldiers exposed to its dangers the war might be producing some new forms of nervous and mental disease, but for these ample provision was being made. In those with a tendency to such illnesses the war might bring about a condition which otherwise would not manifest itself. The prosperity enjoyed by the working classes with the restrictions on alcoholic excess, taken along with the absorbing interest, to the exclusion of all else, of the war and its problems, made for a decrease, not an increase, of lunacy. The number of cases noted as due to alcohol was the smallest recorded for many years, while those due to syphilis showed an increase. Alluding to the establishment of the scholarship for research, Dr. Oswald said it was the first of its kind in Scotland, if not in Great Britain, and its institution marked a definite advance. Glasgow was now in the unique position among university cities in this country in possessing an endowed lectureship in mental disorders (St. Mungo's College) and an endowed scholarship for research into their causes.

Correspondence.

THE TREATMENT OF WOUNDS BY FLAVINE.

SIR,—I have read with interest the article by Colonel E. M. Pilcher and Lieut.-Colonel A. J. Hull which appears in the *BRITISH MEDICAL JOURNAL* of February 9th.

The important practical question is not so much what is the absolute clinical value of flavine, but what is its *relative* value when compared with other substances which may be used under similar conditions. In other words, we must establish comparative standards. Some months ago I completed an investigation on these lines, and submitted a paper for publication which has not yet appeared in the press; but as I hope it may do so shortly, I do not wish to anticipate my results in detail, and my remarks must be condensed.

For over three years I have treated wounds extensively with gauze packs, so that I may claim a considerable experience in this method. In my investigation I employed flavine in the method from which its advocates claim for it the best results, that is, in the form of gauze packs wrung out in 1 in 1,000 solution. In control cases I used packs of plain sterile gauze, normal saline, boric lotion, weak biniodide solution, and cyanide gauze, none of which substances are at present fashionable in wound treatment, and I purposely avoided using hypochlorites or other agents for which special merit has been claimed. The general principles and details of treatment adopted in all cases were otherwise identical, and very careful observations were made. No substantial differences were observed between flavine and the other substances in regard to the control of sepsis and constitutional signs of toxæmia (any slight differences were on the whole adverse to flavine), but in regard to the processes of repair flavine proved definitely inferior to the others. That is to say, that I found flavine not only not an excellent wound dressing but *relatively* a bad one. All the phenomena which Colonel Pilcher and Lieut.-Colonel Hull have observed in their wards I am accustomed to see regularly follow adequate drainage and the use of gauze packs, irrespective of what substance may be in the latter.

In regard to the film, coagulum, or pellicle which forms in flavine cases, my experience was that it appeared (in varying amounts) in every case. My clinical observations led me to believe that it consisted partly of a fibrinous exudate, and partly of a superficial coagulation necrosis,

and this seems to be confirmed by histological reports which have since been published. If its appearance is due to the use of too strong a solution, as these authors suggest, then we must assume that the solution advocated by its chief supporters—that is, 1 in 1,000—is too strong. Its removal from the surface of the wound is by no means easy in every case, and that is what we would expect in view of its constitution.

It is very difficult to draw any deductions from the proportion of cases which reach the "difficult suture ideal" under any form of treatment, as the possibility of reaching it is dependent far more on the physical characteristics of the wound and the stage at which efficient surgical treatment is adopted, than upon what reagent is employed in the wound itself. Since the period of treatment in base hospitals in France has been increased, as it has been in the last twelve months, I have found that the number of cases reaching this country in which secondary suture is mechanically possible is much less than formerly, and that there is a corresponding increase in the number of cases mechanically suitable for skin-grafting—a procedure which is certainly not inferior to suture as an ideal standard. From the physical characters of the wound when first seen, I decide whether it is a suitable case for either of these measures. If so, I can almost invariably get it into a condition when, without the aid of any bacteriological examinations, I can say clinically that suture or skin-grafting may be safely attempted. I hesitate to state, without giving details, that my secondary sutures have been invariably successful, and that my skin grafts, by the special technique which I employ, show certainly over 95 per cent. of complete successes—the exact percentage I have not at present available—although I employ neither flavine nor hypochlorites at any stage of my preparatory treatment.—I am, etc.,

WILLIAM PEARSON, Major R.A.M.C.,
Surgical Specialist.
Chichester, Feb. 21th.

SANATORIUM TREATMENT OF THE TUBERCULOUS SOLDIER.

SIR,—Expert opinion of the recent discussion at the Medical Society of London seemed unanimous that the continued use of sanatorium treatment for other than incipient or early cases is useless from the economic or public point of view. The offer of sanatorium treatment, therefore, to tuberculous soldiers after their discharge from the army and after they are more or less damaged lives, is bound to give disappointing results. This, however, seems to be the scheme of the Ministry of Pensions, and the monetary provision for such men as will accept institutional treatment is generous. It would be a great saving of man power and of money if the army authorities overlooked the early diagnosis and treatment of tubercle before the men put off their khaki.

Some time ago I came home from Egypt in charge of a convoy of forty-eight tuberculous soldiers returned from the Egyptian Expeditionary Force. All these men had been before medical boards in India, Palestine, or Egypt prior to embarkation. Forty-four were cases of pulmonary tuberculosis; most were in a comparatively advanced stage; both lungs were generally affected, and in some all five lobes were involved; eighteen showed signs of cavitation and 88 per cent. had tubercle bacilli in the sputum. The average length of time they had spent in military hospitals prior to embarkation was six months. In 74 per cent. of the cases the disease was considered by the medical boards to have been not caused but aggravated by active service, ordinary military service, or climate. If the findings of the medical boards, therefore, are correct, these men must have had active or quiescent tuberculous foci before being drafted overseas. The home localities of these forty-eight men embraced Scotland, Ireland, Wales, and seventeen different English counties.

The discharged tuberculous soldier, apart from his economic loss to the State and his own family, is bound to be a steadily increasing danger as a focus of infection to the community, until an effort is made to catch and treat the early and curable cases and segregate the advanced and infectious cases.

Judging from what one reads in the American medical journals, the problem of the tuberculous soldier is being

tackled with great energy by the medical authorities of the U.S.A. army.—I am, etc.,

TEMPORARY COMMISSION, R.A.M.C.

ARMY MEDICAL RECORDS.

SIR,—Your article on army service records (February 16th) will not be received with enthusiasm by medical officers of hospitals in this country.

It is to be regretted that the "index card" does not make for simplification and does not reduce clerical work. It is, in fact, an addition of one army form and not a reduction of one. The medical case sheet remains, and will remain if "the Medical Research Committee views its disappearance with some apprehension."

The index card is badly conceived; its faults are obvious if compared with the "field medical card." In the latter it is recognized that the medical officers at the field ambulances, the casualty clearing stations, and the base hospitals are different individuals, and so they are each given a separate space. The index card, however, fails to recognize that when a patient enters a particular group of hospitals in this country he is similarly treated by different medical officers, almost invariably by at least two, and often many more. It is impossible to decide who is the particular medical officer to make the necessary entries. Your article states: "The card is taken to the ward and comes under the charge of the medical officer, whose duty it is to fill in the diagnosis, with notes, etc., . . . authenticated by his signature." If I may be permitted to continue the story, I should write, "the patient is later transferred to an auxiliary hospital, where a minor or major operation is performed, returns to the central hospital, and is discharged to furlough." According to your article the card has already been completed and authenticated. The example quoted is a very common occurrence: every medical officer can mention scores of more complicated cases.—I am, etc.,

February 25th.

PUZZLEB.

THE PAY OF SPECIAL RESERVE OFFICERS R.A.M.C.

SIR,—Many R.A.M.C. officers will welcome Dr. Spence's letter on the pay of Territorial R.A.M.C. officers, published in your issue of February 16th, p. 216.

Dr. Spence should have added that Special Reserve officers are suffering under the same injustice, and perhaps in a more aggravated form, as promotion in the Special Reserve is slower than in the Territorial Force. He did not point out that when wounded and in hospital Territorial and Special Reserve officers lose all their allowances while temporary commission officers retain their full pay. Needless to say the loss of allowances is a very serious matter to a married officer if he is in hospital for any length of time.—I am, etc.,

February 21st.

HARD UP.

PAYMENT OF MEDICAL OFFICERS OF AUXILIARY HOSPITALS.

SIR,—In the SUPPLEMENT of February 16th you state that the Central Medical War Committee is pressing the authorities for a payment of a uniform sum of 10s. a day in the same form and manner as obtain in the Aldershot Command. You also admit the variation in the amount and method of remuneration in different areas. Now, no doubt you are aware, for instance, that the rate of remuneration in this area (Eastern Command) is 4d. per day per occupied bed, with the proviso that the medical officer shall not receive more than £1 per day. The medical officers live often some distance—it may be miles—from their hospitals, and have to pay for petrol and the increased wear and tear along roads that materially shorten the life of their cars.

To talk of making a flat rate of 10s. a day is manifestly unfair to many medical officers. Probably the varied methods and amounts of remuneration in different areas were originally fixed with the knowledge of the different conditions obtaining in different areas.

We in this area have been working for some time at the rate of 4d. per day per occupied bed, with a maximum of £1 per day, and find the amount none too much, considering the time, responsibility, and the expenses attached

to the work, and in spite of the fact that this is a comparatively easy area to work. May I add that for the above remuneration the medical officer has to visit the hospital at least once a day, Sundays included? To earn £1 per day he must have at least sixty beds occupied every day. If he has more occupied beds than this, he only receives the £1 per day notwithstanding. If the Central Medical War Committee intends to press for only 10s. a day it will be acting adversely to the interests of the medical officers in, at any rate, this area—possibly in others; and in some cases men who are running small hospitals will gain at the expense of those who are putting in a great deal of time at larger hospitals.—I am, etc.,

W. H. CHESTERS,

Honorary Secretary, Bromley Local Medical War Committee.

Bromley, Feb. 24th.

Obituary.

F. M. SANDWITH, C.M.G., M.D., F.R.C.P.,

LATE CONSULTING PHYSICIAN, EASTERN MEDITERRANEAN FORCE.

Dr. F. M. SANDWITH died suddenly, on February 17th, at Bournemouth, where he had gone for the benefit of his health after serving for two years as consulting physician in Egypt to the Eastern Mediterranean Force with the temporary rank of colonel.

Fleming Mant Sandwith was born in 1853, the second son of Colonel J. W. F. Sandwith. He was educated at Charterhouse and St. Thomas's Hospital, and took the diploma of M.R.C.S. in 1876 and that of L.R.C.P.Lond. in the following year. In 1893 he graduated M.D.Durh., and became F.R.C.P. in 1900. He saw a great deal of service in various wars. He was an ambulance surgeon in the Turco-Serbian war of 1876, and in the Russo-Turkish campaign in 1877-8; he was present at the fighting at Shipka Pass, and served on Baker Pasha's staff during his retreat across the Rhodope Mountains. In 1883 he went to Egypt to combat a cholera epidemic, and acted as vice-director of the Public Health Department of the Egyptian Government until 1885. He was then appointed professor of medicine in the Egyptian Government Medical School, and physician to the Kasr-el-Niny Hospital, Cairo. In 1900 he became senior physician to the Imperial Yeomanry Hospital at Pretoria, and served throughout the South African war. He was the author of *Medical Diseases of Egypt and Egypt as a Winter Resort*, and when he settled in London maintained his keen interest in tropical diseases. He was lecturer on tropical diseases at St. Thomas's Hospital, and was a lecturer also in the London School of Tropical Medicine, as well as senior physician to the Albert Dock Hospital. He held the Chair of Gresham Professor of Physic in the City of London. He was a member of many medical societies at home and abroad; he was president of the Section of Tropical Medicine at the annual meeting of the British Medical Association in London in 1910, having been vice-president at Leicester in 1905. He delivered the Lettsomian Lectures at the Medical Society of London on dysentery in 1914, and wrote many papers on the prevention and treatment of tropical diseases. In the earlier part of the war he was physician to King George's Hospital. In 1916 he received the C.M.G. in recognition of his services in Egypt. He married the daughter of Dr. Humphrey Sandwith, of Kars, who survives him, with two sons—one a lieutenant in the navy, the other still a schoolboy—and two daughters, the elder of whom is married to Squadron Commander Maude, R.N.A.S.

The above is a brief account of Dr. Sandwith's medical career, but we would add a few words about "the man" rather than "the doctor." For those who really knew him there was a charm about his personality which greatly endeared him to his friends. Very quiet, almost reserved in manner, with a half-cynical pose which was much more assumed than real and which was relieved by a most delightful sense of humour, he was one of the kindest of men, always ready to help, saying little or nothing about it, and never grudging trouble in doing it. He had a wonderful power of sympathy and of looking at things from the point of view of those who sought his advice—a power which greatly added to his usefulness in the world.

His health latterly had not been good, and some time ago he underwent a severe operation, from which, however,

he made a good recovery. But he felt the strain of the last two years in Egypt, and the heat, which was more than usually intense, greatly taxed his strength. When he returned home about two months ago his friends could not fail to recognize that he was worn and jaded. He was still anxious to work, and his retirement from the army was a great disappointment to him; but he took it quietly with a smile, and in the true spirit of a soldier. He died gently in his sleep—a happy ending to a strenuous life.

Dr. JAMES WATT BLACK, consulting obstetric physician to Charing Cross Hospital, died at Crockham Hill Place, Edenbridge, on February 22nd. Dr. Black was born in 1840. He was the son of Mr. James Black, J.P., of Knock, Banffshire. He received the greater part of his professional education in Edinburgh, but studied also in Paris, Vienna, and Berlin. He obtained the diplomas of L.R.C.P. and L.R.C.S.Edin. in 1862, and graduated M.D.Edin. in the same year, being awarded the gold medal for his thesis; he had previously graduated in Arts at King's College, Aberdeen. In 1869 he became M.R.C.P.Lond., and was elected a Fellow in 1881. During the first five years after graduation he acted as private assistant to Sir James Y. Simpson, whose obstetrical and gynaecological works he subsequently edited. In 1869 Dr. Watt Black was appointed obstetric physician and lecturer at Charing Cross Hospital. In later years he acted as examiner in midwifery to the Royal College of Physicians, London, and the University of Oxford. Dr. Watt Black took an active part for many years in the work of the Obstetrical Society of London. He was president in 1891 and 1892, and his chief contribution to the Society's *Transactions* was on "Puerperal fever and septic poisoning." He was vice-president of the Section of Obstetric Medicine at the annual meetings of the British Medical Association in 1878 at Bath, and in 1895 in London. Beyond the edition of Sir James Y. Simpson's collected works he published little. During his years of active practice he gained a high reputation as a skilful and conscientious practitioner, and his genuine kindness won him many friends.

The death occurred on January 28th, at the age of 73, of Dr. JAMES ROBINSON, of Ulverston, one of the oldest active practitioners in the North of England. Dr. Robinson was a native of Ulverston, and studied medicine at Anderson's College and the University of Glasgow. After obtaining the qualifications of L.R.C.P. and L.R.C.S.Edin., and the L.S.A., in 1866, he served as house-surgeon to the Glasgow Royal Infirmary and Lying-in Hospital, and to the Carlisle Infirmary. Returning to Ulverston, he held for many years the post of medical officer to the local workhouse, and was honorary surgeon to the cottage hospital from its foundation in the early seventies. He took a keen interest in all local affairs and institutions, especially in the Volunteer movement. He was one of the earliest members of the Ulverston detachment, and retired with the rank of honorary surgeon-major. Of his six surviving children one is in medical practice at Gateshead.

On February 4th Dr. T. ARNOLD JOHNSTON died at his residence, Leicester, at the early age of 37 years. A native of Ulster, he was educated at Belfast and at Edinburgh University, where he had a brilliant career, gaining many scholastic distinctions. He graduated M.B., Ch.B.Edin. in 1907 and M.D. in 1910. After holding resident appointments at Edinburgh, Bradford, and Leicester, he started consulting practice in the last-named town, specializing in bacteriology. He was appointed on the honorary staff of the Royal Infirmary as pathologist, and later as assistant physician. In addition he was pathologist to the Borough Mental Hospital and to the 5th Northern General Hospital. Dr. Johnston fell ill immediately after his marriage in 1915, being the victim of an infection acquired in bacteriological work. After many months he apparently recovered and resumed work, but a chronic meningitis supervened, which eventually proved fatal. Intellectually gifted, he was cheerful and kindly, and very popular professionally and socially. His early death is deeply regretted by his colleagues in Leicester, and much sympathy is felt for his widow and for his mother.

A MEDICAL friend of the late Mr. W. H. Jalland, whose death was announced in the *JOURNAL* of February 16th, p. 217, sends a personal note in which he says that Mr. Jalland justly held the premier position as surgeon in York. He possessed a sound judgement: he took great pains; he kept himself well abreast of the times, and read the medical journals faithfully; he was loyal to the best traditions of the profession. In cases of difficulty his advice and support to the harassed practitioner were invaluable. In counsel he was always helpful, while his sound judgement was the main reason for his success; yet behind this was a conspicuous integrity of character which commanded respect. For nearly forty years the welfare of the York County Hospital was one of his chief interests. Many of the improvements were largely made at his suggestion—for example, the erection of the children's ward, the open-air balconies, and the incorporation of the Eye Institution. He freely gave of his ripe experience to many city institutions where his considered judgement was much valued, and besides his work for the British Medical Association he took an active interest in the York Medical Society, of which he was twice president. By his regular attendance and frequent contributions his influence upon the younger members was considerable. He never forgot the dignity of his calling and always upheld what is best and noblest in the profession. For years to come his tall commanding figure and his cheerful helpful personality will be greatly missed.

Deep regret is felt in Guernsey at the recent death of Dr. JOHN AIKMAN, Staff Surgeon-Colonel to the Lieutenant-Governor of the island, principal medical officer to the Royal Guernsey Militia, and past president of the Guernsey and Alderney Division of the British Medical Association. Dr. Aikman was born in Edinburgh in 1850; his father was the late Rev. Dr. Logan Aikman. After studying medicine in the University of Glasgow he graduated M.B. and C.M. with honours in 1871, and proceeded M.D. three years later. Having held house appointments at the Glasgow Maternity Hospital and the Glasgow Royal Infirmary, he served for a short time as assistant medical officer to the Metropolitan Asylums Board; he then went to Guernsey, where he practised for more than forty years. For some time he was surgeon to St. Peter Port Hospital, and he was surgeon to the Victoria Cottage Hospital, Guernsey, at the time of his death. Dr. Aikman was devoted to his profession and to his patients, and was held in the highest regard throughout the island. While shunning public life he had a great capacity for friendship, with a sympathetic charm of character. Much of his leisure was devoted to literature, which was his principal recreation; his published essays on a variety of general topics were much appreciated by his large circle of friends. The funeral, which was of a semi-military character, was attended by the Lieut.-Governor and many representatives of the military and civil sections of the community.

Universities and Colleges.

UNIVERSITY OF LEEDS.

At a private degree ceremony, held on February 19th, Miss E. E. Violet Glover was admitted to the degree of Doctor of Medicine. Miss Glover is the first woman to obtain the Doctorate of Medicine in the University of Leeds.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

SURGERY.—D. A. Dyer, M. J. Panthaky, C. E. Rice, J. J. Remers, J. L. Walker.
MEDICINE.—O. Halstead, E. A. Leak, C. E. Rice, T. T. Tiplady.
FORENSIC MEDICINE.—A. D. Collio, R. E. Jenkins, C. E. Rice, T. T. Tiplady.
MIDWIFERY.—I. De Wardt, M. Girgis, T. A. Jordan, G. L. Mitchell, C. E. Rice.

Section I.

Section II.

The diploma of the society has been granted to Messrs. I. De Wardt, E. A. Leak, J. Remers, and C. E. Rice.

Medical News.

DR. D. RUD CAMPBELL of Drybrook has been appointed to the Commission of the Peace for Gloucestershire.

THE Carmichael prize, value £100, of the Royal College of Surgeons in Ireland for the best essay on the state of the medical profession, has been awarded to Alderman J. C. McWalter of Dublin, Captain R.A.M.C.

DR. A. ASHKENNY, honorary secretary of the School Medical Service Group of the Society of Medical Officers of Health, having received a commission as temporary lieutenant R.A.M.C., his address is now V.D. Section, Connaught Hospital, Aldershot.

THE trustees of Columbia University have under consideration plans for the establishment of a large clinic for the benefit of patients who do not wish to be recipients of charity but cannot afford to pay the fees of a number of specialists.

A MEETING of the members of the Old Epsomian Club will be held at the office of Epsom College, 37, Soho Square, on Tuesday next at 4.30 p.m., when, in addition to ordinary business, the sum to be given to the Epsom College War Memorial Fund will be decided. As the list of addresses is believed to be erroneous notices will not be issued by post.

DR. E. NORDENSKIÖLD of Gothenburg, the famous explorer, was present at the annual meeting of the Danish Medico-Historical Society at Copenhagen on December 10th, 1917, when Dr. Carl Jul. Salomonsen was elected its president for the ensuing year, and Professor Vilh. Maar undertook to edit its bulletin. Professor H. Mygind read a paper on the hygiene of the private house at Pompeii.

IN a report presented to the London Education Committee on February 27th Dr. W. H. Hamer, school medical officer, called attention to the relation between overcrowding in air raid shelters and the increased spread of infectious diseases. During the autumn air raids rises in the incidence of certain infectious diseases, including measles and scarlet fever, corresponded with periods of special crowding.

DR. D. M. WILSON, honorary secretary, Cheadle and District, informs us that the Cheadle (Staffs) medical men holding appointments under the guardians of the poor and the rural district council applied for an increase in their salaries and emoluments to the extent of 25 per cent., plus 10 per cent. for travelling expenses, plus 5 per cent. for drugs. The guardians and district council refused the application, so that the medical men concerned decided to resign their offices, and their resignations have been accepted by the guardians and district council.

THE introduction of compulsory rationing and the discontinuance of the voluntary propaganda department has led the Food Controller to reorganize the food economy division of the Ministry hitherto conducted by Sir Arthur Yapp. It will now consist of four branches: Public services food consumption, National Kitchens, Public Catering, and an Educational Branch under the direction of Professor E. H. Starling, F.R.S. The co-ordination and control of the several departments will be exercised by a Food Survey Board, of which the directors of the several departments will be members, with Lieut.-Colonel A. G. Weigall, M.P., as chairman.

A SMALL pamphlet entitled *Weekly Meat Rations*, containing Taylor's tables for rapidly calculating the purchasing value of coupons from 1 to 24, has been issued by Messrs. Mathieson and Sons, 16, Copthall Avenue, E.C.2 (price 6d.). A general note on meat rations is followed by a set of tables showing the amount of money that may be spent on meat in each week if three coupons a head or any smaller number are used, and the weight of other meat foods which can be obtained with the fourth coupon, which cannot be used for buying butcher's meat. The pamphlet ought to be very useful to any housekeeper who will take the small pains necessary to understand it.

THE Health Department of Cincinnati has established a health centre in the city for the purpose of carrying out a programme which includes the prenatal care and education of expectant mothers; the examination of children under school age; school medical examination and follow-up work; the establishment of health leagues in schools; junior Red Cross work, including elementary hygiene, home care of the sick and first aid; better housing and improved sanitary conditions for the community; frequent inspection of bakeries, dairies, groceries, restaurants, barbers' shops. It is also proposed to establish a night clinic for working men should the need for such a service exist.

Letters, Notes, and Answers.

Authors desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are:

1. EDITOR of the *BRITISH MEDICAL JOURNAL*, *Articulate*, Westrand, London; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the *British Medical Association* is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the BRITISH MEDICAL JOURNAL are devoted will be found under their respective headings.

QUERIES AND ANSWERS.

RAT-BITE FEVER.

DR. ALFRED C. COLES (York House, Poole Road, Bournemouth) says that in the course of an investigation on 100 rats in England he found nine harbouring the *Spirochaeta icterohaemorrhagiae* of infective jaundice, and one, the eighty-fourth rat from the country, contained the *Spirochaeta morsus muris*, which the Japanese observers have shown to be the cause of rat-bite fever. He has described his method in an illustrated paper shortly to appear in *Parasitology*. Dr. Coles desires the loan of a slide showing the Japanese spirochaete, and asks that any reader who meets with a case of rat-bite fever would send him an excised gland or a smear from an excised or punctured gland, and blood films from the seat of the rash or wound, both taken during the febrile attack.

FINGER CRACKS.

DR. F. S. D. HOGG (Rickmansworth) writes to suggest smearing the crack with a probe or pointed match dipped in pure carbolic acid. "I tried this as an experiment on myself some thirty years ago, and since then have used it with invariable good results on myself and some others. One application is usually sufficient. The carbolic should not be put on the skin surrounding the crack."

SYPHILIS AND STILLBIRTHS.

"SCOTTS" says that thirty-five years ago the finding *post mortem* of a red spot in the cartilage of the upper end of the femur in an infant was considered to be pathognomonic of syphilis, and asks whether this was observed by Professor Beattie in the series of stillborn infants examined by him (p. 232).

INHABITED FURNISHED HOUSES.

H. A. L. B. inquires whether an officer is compelled to pay (a) local rates, (b) income tax, and (c) inhabited house duty on a house "which has been closed for the past eighteen months, furniture remaining in the house."

If the amount of furniture is considerable, yes. The leading cases are, as regards local rates, *The Queen v. St. Pancras Borough Council* (2 Q.B.D. 583), and, as regards taxes, *Smith v. Dauncy* (20 T.L.R. 444). We may perhaps add that we have heard of, but cannot vouch for, cases in which rates and taxes have been passed by local authorities, either in whole or in part, where the furniture has simply been stored in one or two rooms instead of being left more or less *in situ*.

LETTERS, NOTES, ETC.

DR. R. W. LEFTWICH writes to say that Professor Best's conclusion that saccharin increases acidity is not new. It was noted in the sixth edition of his *Index of Symptoms*.

AN APPEAL.

We have received the following appeal:

May we appeal to the generosity of your readers on behalf of the wife and daughters of the late Mr. J. Kite, M.R.C.S., of Welwyn? Before his death, which occurred at the end of last year at the age of 76, he had been in failing health, mentally and physically, for some years, and for two years had been unable to practise. A kind-hearted man, of generous and easy-going disposition, he was, like others of the medical profession, singularly unbusiness-like, and often omitted to keep any record of his professional visits and to send in accounts. His life was not insured, and his family find themselves seriously burdened and handicapped by debts amounting to about one hundred pounds. Were these paid off they could start fair and ensure a reasonable livelihood. Mr. Kite

was a member of the British Medical Association, and we cannot but feel that many members would be willing to send a small contribution to help the family of a medical man who was universally esteemed and respected. Donations will be gratefully received and acknowledged by either of us—Arthur E. Giles, M.D., F.R.C.S., 10, Upper Wimpole Street, W., and Bridge Cottage, Welwyn; P. M. Wathen, M.A. (Rev.), The Rectory, Welwyn, Herts.

MALTHUSIANISM AND MORALITY.

MR. E. B. TURNER informs us, in reply to Dr. Binnie Dunlop's inquiry (February 23rd, p. 248), that his statement was founded on a large number of actual cases which had come to his own knowledge in the course of his practice, and also on definite statements from rescue workers, one of whom at the present time has several such cases under her observation.

VENEREAL DISEASES.

DR. E. H. SNELL (Coventry) writes: The statement furnished in the *JOURNAL* of February 16th by Mr. E. B. Turner appears to be well reasoned and cogent. Does it not seem to follow from the argument that the beneficent influences on society therein attributed to the existence of these diseases will disappear if these diseases can be successfully banished? And if so, that all steps taken to diminish the incidence of venereal disease tend also towards establishing a general condition of promiscuity and immorality? Do the continuance of properly organized national life and the sanctions of conduct really rest on such an insecure and rotten foundation?

DIET, STARCH, AND SUGAR.

DR. P. J. CAMMIDGE (London) writes: It may interest Dr. H. Campbell to know that the relation between an excess of sugar and diabetes has been very exhaustively investigated by Dr. Le Goff, of Paris, who read a paper on the subject at the Seventeenth International Congress of Medicine held in London in 1913. An article by Dr. Teizo Iwai on diabetes in Japan, in which the bearing of sugar and starchy foods on the etiology of the condition is thoroughly gone into, was translated by Dr. Le Goff and appeared in the *Archives de Médecine expérimentale et d'Anatomie pathologique* in 1916.

ON WRITING WITH THE LEFT HAND.

DR. RICHARD KERRY (Montreal) writes: Some time ago, following an accident which temporarily damaged my right wrist, I began to write with my left hand, and, with the view of making it useful for operative work, have continued to use it. I write with my left pretty much as with my right hand, though the writing, as you may see, is backhand. It should not be necessary to turn the paper at right angles to the ordinary position, and a little steady practice will develop a good deal of facility in using the hand.

THIRST AT SEA.

DR. T. F. J. BLACKER (Brighton) writes to express the opinion that the suggestion put forward under this head by two correspondents in the *JOURNAL* of February 16th, p. 220, is not practical. It could not, he thinks, be applied in the case of a boatload of men, women, and children adrift in mid-ocean. He raises also the question whether the water would not have to be raised to 37° C.

SPONTANEOUS HAEMORRHAGE INTO THE PERITONEAL CAVITY.

MR. W. PERCY BLUMER, F.R.C.S. (Edin.), late Honorary Surgeon to the Sunderland Royal Infirmary, writes: Dr. Billiard's case (February 23rd, p. 231) recalled to my mind a case I operated on about twenty years ago in the North of England. Writing from memory the facts were that a middle-aged man, a foreman in a railway goods yard, while attending to his usual duties was suddenly seized with acute pain in the appendix area. He was sent home by a conveyance and I saw him very shortly afterwards. I diagnosed acute appendicitis and recommended immediate operation. I was assisted in the operation by one of my hospital colleagues, who confirmed my diagnosis. Immediately on opening the abdomen in the usual line there was a rapid outpouring of blood. There was no time for making any exploratory examination; we immediately plugged the cavity with plain gauze and partially closed the wound. We left the wound undisturbed for forty-eight hours, when, with fear and trembling, we removed the plug very carefully. We were prepared for another outburst, but no further haemorrhage occurred, and the patient made a rapid and excellent recovery. As far as I know he is still living. As to arteriosclerosis I have no record, but this condition might help to solve an otherwise puzzling case.

HEMIPLEGIA FOLLOWING CEREBRO-SPINAL MENINGITIS.

DRS. C. J. COLEMAN (medical superintendent) and C. W. DIAS (resident medical officer), City Hospital, Lincoln, ask for information as to the pathology and prognosis of the following case, and advice as to any special treatment of the hemiplegia:

A man, aged 26, became ill with sore throat and vomiting on December 8th, 1917. On December 10th he was admitted to the City Hospital, Lincoln. A diagnosis of cerebro-spinal

meningitis was made. The temperature was 102°; retraction of the head, pain and stiffness of the neck, and Kernig's sign well marked, were present, but no diplopia or squint. Lumbar puncture was performed, 30 c.cm. of slightly turbid fluid drawn off, and 20 c.cm. of antimeningococcus serum injected intrathecally by the gravitation method. The specific meningococcus was found in the fluid drawn off. On December 14th the temperature was still raised, but the symptoms were much improved; 30 c.cm. of turbid fluid were removed by lumbar puncture. The patient continued to improve until December 21st, when he suddenly became unconscious but not comatose; there was also incontinence of urine and faeces, and paralysis of the left side of the body, including the face. Lumbar puncture was performed, and 30 c.cm. of turbid fluid under pressure removed. On the following day he was conscious and slightly better. On December 23rd he was comatose, breathing stercorously, with mucus in the throat, and more marked paralysis on the left side. On January 8th steady improvement was noted, but after that date symptoms of anaesthesia of the arm and paraesthesia of the leg developed. Throughout the illness, up to the date of the second seizure, insomnia was a marked feature, and did not respond to chloralamide, paraldehyde, or morphine. Headache of the violent type, restlessness, and delirium were absent throughout the illness.

KAPOK WOOL AS A DRESSING FOR WOUNDS.

JACQUES SILHOL strongly recommends the use of kapok wool as a dressing for wounds, as it has many advantages over cotton-wool (*Compt. rend. de l'Acad. des Sci.*, 1918, cxvii, p. 52). Kapok, or silk cotton, is a fine short-stapled wool, very abundant in Java especially. Its weight is only one-fourth or one-fifth that of cotton-wool; and it is remarkable for its impermeability to water, elasticity, and suppleness. In the treatment of wounds Silhol uses it either raw or after previous exposure to air. In irrigated wounds it absorbs not only their secretions but also such liquids as Dakin's. In dry wounds, without any other intervention, it absorbs the secretions of the wound, the blood corpuscles, and the microbes. Any pus that may be formed is remarkably poor in microbes. Microscopical examination shows that the wound contains few microbes, and that the fibres of the kapok dressing are very rich in microbes. Silhol states that, as far as his results have gone, he prefers very often the simple application of a kapok dressing to even a very well carried out irrigation by Dakin's fluid. Not only does kapok wool form an excellent covering and protection for wounds, but it is also a better packing substance for wound than cotton-wool.

HYDROPHOBIA FROM THE BITE OF A CAMEL.

In the *Review of Current Periodicals* by the staff of the Research Department of the Severance Union Medical College, Seoul, Korea (vol. ii, No. 6), there is a report by T. Neguchi, of a case of hydrophobia from the bite of a camel, which is published in the *Taiwan Igakukai Zasshi*. The patient was a keeper in the Zoological Gardens of Taihoku, Formosa, who on October 28th, 1916, was bitten on the right ankle by a camel imported from America. The wound was painful, but healed in a couple of weeks. Some time afterwards the camel died of a disease diagnosed at the *post-mortem* examination as pneumonia. On January 9th, 1917, the man noticed pharyngeal spasms on trying to drink; the other characteristic symptoms of acute hydrophobia followed, and he died on January 12th. Negri bodies were found in the brain, and the other findings were unmistakable. There was nothing in the camel indicating or even suggesting rabies, but the bars of its cage were so spaced that it would have been possible for a rabid dog or other animal to enter.

VOLUNTEER TRAINING CORPS.

"LIEUTENANT AND M.O. VOLUNTEER BATTALION," after nearly three and a half years of duty and attachment to a Volunteer battalion, finds himself in the same state of ignorance as our correspondent of last week. He has recently been gazetted lieutenant and M.O. (temporary), but has not learnt what the pay is, or whether it dates from the day of being gazetted or of mobilization. Paragraph 1, A.E.V. 4009 reads: The M.O. "performs such duties in connexion with his appointment as the C.O. may consider necessary." This notification our correspondent finds too vague and wide in scope. Our correspondent is informed that a R.A.M.C. officer must explain and teach how even the "first field dressing" is to be applied. At the same time, A.C.I. 1823 states that a M.O. may obtain a grant towards the expense of his outfit by attending at a R.A.M.C. depot and passing an examination. He asks how a single-handed, overworked general practitioner in the country is to do this. His expenses during the last three years have included the purchase of two uniforms and a rifle, expenditure on petrol in taking men to drills, and the examination of recruits at places many miles from his house at a fee of 1s. a head. There is no allowance for petrol or wear and tear of car. He calculates that, with his subscription to the V.T.C., the cost to him has been well over £50. At one time he gave first aid and ambulance lectures free, but the numbers attending dwindled and the lectures had to be abandoned. There was no authority to enforce discipline, though the contingent was no longer voluntary except in name.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

The following subscriptions to the Fund have been received during the week ending February 25th:

	£	s.	d.		£	s.	d.
Dr. Lewis McMillan	1	1	0	Mr. A. Chapman	0	10	0
Mr. J. W. Gamble	2	2	0	Dr. Frederick S. Palmer	2	2	0
Dr. H. Hay	1	1	0	Mr. W. H. Marshall	1	0	0
Carlton W. Jenkin				Mr. R. A. Scott	1	0	0
Oliver, R. A. M. C.	5	5	0	Dr. W. B. Drentham	1	1	0
Dr. R. Evershed	1	1	0	Dr. Chas. Slater	2	2	0
Dr. Cautley	5	5	0	Dr. Robert Harris	1	1	0
Dr. J. H. Ormrod	1	1	0	Dr. James Hudson	2	2	0
Dr. Black	1	1	0	Dr. S. Hamilton	1	1	0
Dr. C. B. Ker	1	1	0	Dr. E. H. Young	2	2	0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vieux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

TREATMENT OF WHOOPING-COUGH.

DR. ARTHUR J. MATHISON (Hornsey, N.) writes to recommend the treatment of whooping-cough by a mixture of ammonium bromide and thymol, thus combining an antispasmodic with an efficient internal antiseptic. "I used to add phenazone, and if I include the cases thus treated, I have a very large number indeed; but recently I have omitted it. I find that ammonium bromide and glycerin thymol co. (B.P.C.) with suitable flavouring—very much needed—form a mixture leaving little to be desired. Given early in the case, the 'whoop' may never occur, or be quite infrequent, while probably all cases are considerably modified by its exhibition. A suitable prescription for a child of 6 would be: Amm. bromid. gr. xli; glyce. thym. co. (B.P.C.) ʒiv; ext. glycyrrh. liq. ʒiv; aq. ad ʒvj. One tablespoonful three times a day."

THE CASE OF DR. J. HENDERSON BELL.

ON July 14th we briefly reported that Dr. John Henderson Bell of Chelsea had been convicted on two charges of wilfully attempting to produce a disease in two men belonging to H.M. Majesty's Forces, and sentenced to six months' hard labour for each of the two offences, the sentences to run concurrently. Leave of appeal was granted, and the appeal was heard on November 27th. The defendant, who had throughout strenuously protested his innocence, called witnesses to prove his past high character and qualifications. The conviction was, however, upheld, but the imprisonment with hard labour was reduced to imprisonment in the second division.

We have received a letter from the Rev. A. G. Pentreath, D.D., Rector of Adlerley, Market Drayton, and formerly senior chaplain to the forces at Malta, stating that he himself, and Dr. Bell's other friends as well as his patients, are convinced of his innocence, and consider him the victim of a miscarriage of justice. He appeals to the medical men in the United Kingdom to take an interest in the case, and states (1) Dr. Bell has always borne an unblemished and irreproachable character, and has been universally respected. (2) He has practised as a medical man for seventeen years; for two years he was resident at the Edinburgh Royal Infirmary; for nine months house-physician to the Brompton Hospital; and for three years assistant medical officer at Hounslow Hospital; and he had been successful in practice at Chelsea. (3) Some of the leading medical authorities in London have individually examined the facts from a medical point of view, and are unanimous in regarding Dr. Bell's behaviour in the supposed criminal action as perfectly usual and proper.

Dr. Pentreath offers to send a précis of the case to any medical man who will send a stamped addressed envelope to him at Adlerley Rectory, Market Drayton. We hope that many medical men will interest themselves in the matter and obtain the précis, for a perusal of the statement submitted to us appears to show that the evidence upon which Dr. Bell was convicted was lacking in cogency.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 6 0
Each additional line	0 0 9
Whole single column	4 0 0
Whole page	12 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postea restante* letters addressed either in initials or numbers.

SUGGESTIONS FOR THE PREVENTION OF POST-OPERATIVE THROMBOSIS AND EMBOLISM.

BY

FREDERICK McCANN, M.D. EDIN., F.R.C.S. ENG.,
SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN, LONDON.

THE spectre of death from embolism still haunts the path of the operating surgeon. These sudden surgical tragedies, although less numerous than in former times, still occur in the practice of surgeons—good, bad, and indifferent—in every country, after “clean and unclean cases,” after short operations and long operations, after easy operations or after those attended with complications, whether performed on the young or on the aged. The cause, closely linked as it is with that of thrombosis, is variously ascribed to the blood being infected with bacteria, to the recumbent posture, to the anatomical situation of the affected vein, and lastly, to the quality of the blood.

All these are no doubt contributory, or, in the language of the textbooks, “predisposing” causes. Is there not something more? Does the fault not lie in the technique employed? I believe it does, and that the chief fault is expressed by the one word “transfixion.”

There must be some common error in the practice of operative surgery to account for these fatalities, otherwise their number would ere now have been reduced to vanishing point. Some surgeons have had the courage to place them on record, others remain silent. Statistics have been furnished from the Mayo Clinic in Rochester, U.S.A., which give some idea of the frequency of post-operative thrombosis and embolism. Thus E. H. Beckman¹ writes that in 5,835 surgical operations the total number of cases of phlebitis was 16. He says:

Although we continually have a certain number of phlebitis cases following operation, we have not been able to determine any causative factor in this annoying complication. . . . We are often surprised to find a phlebitis develop in a patient who has otherwise had an ideal convalescence. In only one of the present series was there an infected wound.

Appendicectomy	...	...	1 left, 1 right
Appendicectomy, curettage and perineorrhaphy	...	...	1 left
Cholecystostomy, internal	Alexander	...	...
curettage	...	...	1 left
Drainage and pelvic abscess	...	...	1 left
Total abdominal hysterectomy	...	...	1 left, 1 right
Gastrectomy	...	...	1 left
Cholecystostomy and appendicectomy	...	...	1 left
Cholecystectomy	...	...	1 left
Kraske colostomy	...	...	1 left
Tube and ovary appendicectomy	...	...	1 left
Ovarian cyst	...	...	1 left
Mayo's operation for prolapse	...	...	1 left
Ventral hernia	...	...	1 right
Cholecystostomy	...	...	1 right
		12	4

Three-fourths of these cases of phlebitis were in the left femoral or internal saphenous veins and one-fourth in the right. None were double. This is about the usual proportion in our clinic.

L. B. Wilson² gives a record of all the cases of fatal post-operative embolism occurring in the Mayo Clinic during the years 1899–1911 inclusive.

During this period 63,573 major operations were performed, with 47 cases of fatal post-operative embolism. Autopsies were made in 41 of the fatal cases.

The fatalities from embolism represent 5 per cent. of the total number of deaths from all causes 864,—that is, 0.07 per cent.

	Deaths.
After 2,372 operations on blood vessels	2
3,266 operations on the thyroid	2
2,281 operations on the mouth	1
2,391 operations on the stomach and duodenum	3
4,507 operations on the gall bladder	9
389 operations on the small intestine	1
9,908 operations on the appendix	4
2,530 operations on the colon and rectum	5
4,501 operations for hernia	5
900 operations on the kidney	1
601 operations on the prostate	4
7,993 operations on the uterus, tubes, and ovaries	10

Of the 47 cases, 26 were males and 21 females the youngest 25 years and the oldest 72.

19 of the fatalities occurred within the first week; 21 occurred within the second week; 4 in the third week; and one each on the twenty-sixth, thirtieth, and sixty-fourth days.

In 36 cases the embolism was pulmonary, in 10 cerebral, and in 1 coronary.

In 28 of the 41 cases examined *post mortem* the primary thrombus was located in the field of operation or in the femoral veins: in 4 cases the emboli were probably cardiac; in 9 cases the seat of origin was not determined.

Such is the story to be elicited from a large series of operations. Gall bladder operations and operations on the female genitalia furnish the largest number of deaths—0.19 per cent. and 0.13 per cent. respectively. Disintegration of the blood corpuscles from toxic substances is held to explain the high percentage following operations on the gall bladder.

Although sepsis is a most important factor in causation, yet intravascular clotting apart from sepsis does occur.

Still, it is the improvement in surgical technique, especially in the direction of combating sepsis, which has helped to reduce the number of cases of post-operative thrombosis and embolism. Who can be sure that complete asepsis has been attained during an operation or the subsequent convalescence? It is assumed when all goes well, but it is not proven. Indeed, it is much more difficult to exclude the septic element in any consideration of this subject than many writers would have us believe. In spite of elaborate precautions post-operative thrombosis and embolism still remain.

Ten years ago a woman who had undergone vaginal hysterectomy for uterine cancer, when sitting up in bed twelve days after the operation suddenly fell back dead. Her death was due to pulmonary embolism. This was an operation done by the old method of transfixion and ligature of the broad ligaments, healing, as all these operations healed, with varying degrees of sepsis, typical conditions for the development of post-operative thrombosis and embolism.

Further, statistics favoured the view that thrombosis and embolism more frequently followed operation on the female genitalia than in other situations. This preponderance was explained by the nature of the tissue involved, but I came to the conclusion that the operative technique must also be at fault.

I therefore determined to give up transfixion and to operate anatomically, picking up vessels cleanly and ligaturing them without encompassing masses of tissue. The result has been that I have never had another case of post-operative embolism or thrombosis either in my private or hospital practice.

Dangers of Transfixion.

Let me now draw attention to the application of the method in abdominal and pelvic surgery.

“Never transfix a vascular area” should become a surgical axiom. By transfixion vessels are liable to be punctured and bleed either externally or into the tissues; the transfixing ligature is tied to arrest the bleeding, and the result may be that the ligature remains in the lumen of the vessel.

Now, if this ligature is of doubtful asepticity or becomes subsequently infected, the natural process of clotting in the vessel may be arrested, the clot liquefying and becoming detached in portions or in its entirety. I use the word “may,” for it is really remarkable that thrombosis and embolism are not more frequent. Although the diminution of sepsis has been a great factor in improving results, yet it is worthy of note that it is not the severe infections that are followed by these troublesome complications, but rather those of a milder type. If a vessel has been punctured the ligature should be withdrawn and the vessel clamped and tied after removal of the blood clot. Again, in the tying of blood vessels, even those of small size, it is surprising to witness the amount of “muscle” some surgeons put into this part of an operation. The object of a ligature is to approximate the coats of a vessel and to keep them in apposition, not to cut them. As the success of the modern abdominal surgeon depends so much on his capacity to tie and stitch properly, it is necessary for him to cultivate a delicacy of touch so that ligatures and sutures are nicely and accurately adjusted without undue constriction. He must further acquire the art of using thin material without breaking it, for the fault more frequently lies with the surgeon than with the material.

Pedicle needles have served their purpose and should be given up. The large sharp curved needle is a dangerous weapon. Round-bodied needles should alone be used within the abdominal cavity, and in order that they may be held easily I have had them made with the posterior half flat. The employment of the round-bodied needle constitutes a distinct advance in surgical technique. Its advantages are evidenced, for example, in stitching the uterus, where little or no bleeding results from the passage of the needle. Death from embolism has followed such a simple operation as utero-suspension. Was a cutting needle used?

There are certain situations in the abdomen where transfixion is frequently employed—namely, the broad ligaments, the omentum, and the mesentery.

The Broad Ligaments.—Transfixion of the broad ligaments is a most dangerous proceeding. These ligaments contain between their layers a venous plexus specially well developed in the presence of uterine new growths and liable to be injured by the transfixing needle. In this situation it is easy to operate anatomically, to open up the broad ligaments, and to tie the vessels separately with thin material. "Chunks" of tissue should not be left ligatured with flick material liable to cause post-operative pain and maybe thrombosis.

The Omentum.—I believe the method of ligaturing the omentum by transfixion and interlocking sutures, as generally taught and practised, to be dangerous and a cause of post-operative thrombosis and embolism. It may be argued that the needle can be passed through an avascular spot. Do all operators take this trouble? Vessels in the omentum should be caught with forceps and tied, the same technique being employed when a portion is excised.

The Mesentery.—Here, again, transfixion is dangerous, and it is easy where a portion of mesentery is excised to catch the bleeding points, and to tie them and to approximate the two edges by tying over forceps instead of stitching. Transfixing the mesentery of the appendix with a needle and puncturing vessels may easily lead to thrombosis and embolism. Deaths from this cause after a simple appendix operation are by no means so rare. The "patches of pneumonia" and localized pleurisy seen after this and other operations are most probably embolic in origin. Puncturing veins in the wall of the caecum may be another cause of thrombosis. The use of a small curved round-bodied needle, avoiding blood vessels, should prevent such an accident when covering the appendix stump.

Stomach and Intestine.—It is important also to avoid puncturing vessels in the walls of the stomach and intestine during gastric and intestinal operations. The extravasated blood in the bowel wall may easily become infected and break down.

Abdominal Wall.—Care exercised in making the incisions in the proper positions and respect for the anatomical arrangement of the structures will prevent accidents in this situation. The deep epigastric vessels may be injured unless sought for and avoided when making lateral incisions in the abdominal wall. If the injury is not discovered a troublesome haematoma may result. Moreover, in using through-and-through sutures it is better to employ a figure of 8 suture whose track can be seen and followed rather than to thrust a needle blindly into the abdominal wall, and puncture a vessel or vessels. Accurate haemostasis in the abdominal walls, as in all other situations, is most essential, so that no clots are left which may subsequently become infected.

Summary.

- (a) Do not transfix or puncture blood vessels.
- (b) Do not tie or stitch too tightly and cut into blood vessels.
- (c) Obtain accurate haemostasis, leaving no blood clots.

If by attention to improvements in technique these post-operative fatalities can be still further reduced, "tis a consummation devoutly to be wished." For this purpose neat, clean workmanship, founded on sound anatomical knowledge, is required. There is still scope for the surgical artist.

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- ¹ *Annals of Surgery*, i, May, 1913. ² *Ibid.*, December, 1912.

MYOMECTOMY OR HYSTERECTOMY.

BY

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In the treatment of uterine fibroids myomectomy has had a very limited application as compared with hysterectomy. The positive indications for the former as against the latter operation have been a single tumour in a patient under 40 years of age either pedunculated, or at least not deeply embedded in the uterus, and not giving rise to excessive menstrual bleeding. It is now, however, in most cases possible, and I hold in many cases proper, to carry out the conservative operation though all these criteria are traversed.

The drawbacks that have been urged against removing the tumour or tumours and leaving the uterus are, first, that where the leading symptom is menorrhagia the haemorrhage may continue after the operation; secondly, that other tumours may arise either *de novo* or from overlooked seedlings; thirdly, that the likelihood of pregnancy in the conserved uterus is small, and that in the event of its happening the uterine scar may give way; and, fourthly, that the operation is frequently more difficult than hysterectomy while its risk is at least as great and often greater.

There are, of course, certain cases in which the propriety of removing the uterus is in no doubt: elderly women with large and multiple tumours; cases in which the anaemia is so extreme that any further loss of blood, even the amount of a normal menstrual period, is undesirable; inflamed or degenerate tumours, or large tumours growing in the supravaginal cervix. But besides these there is a considerable class of relatively young patients who, having fibroids in the womb, seek advice on account of menorrhagia, dysmenorrhoea, or abdomino-pelvic pain. It is in this type of case that myomectomy is artistry and hysterectomy crudity.

Let us examine the drawbacks that have been alleged against myomectomy and see if they are as cogent to-day.

CONTINUANCE OF MENORRHAGIA.

If excessive menstrual loss continues after myomectomy, it is due either (a) to a small submucous fibroid missed at the operation; (b) to endometrial thickening; (c) to the fact that the uterus has remained much hypertrophied although all the tumours have been removed; or (d) to a degenerate condition of the uterine wall.

(a) *A Missed Submucous Fibroid.*—It is easily possible to miss a small submucous fibroid, say the size of a pea, if the uterine cavity is not opened and inspected in the course of the operation, for so diminutive a tumour is with difficulty felt through the uterine wall. Hence the surgeon should as a routine open the cavity in most cases, and should make it an invariable rule to do so in every one where menorrhagia is complained of. I have frequently detected and removed in this way a little nodule which, if overlooked, would have defeated the whole object of the operation. The opening of the cavity in an uninfected case (and in none other should myomectomy be attempted) adds no risk to the operation.

(b) *Endometrial Thickening.*—In certain cases of fibroids diffuse thickening of the endometrium is present, whilst in others a local overgrowth in the form of a mucous polypus exists. Both abnormalities, if not dealt with, will maintain haemorrhage after the operation. An opening into the uterine cavity discloses them. Curettage is far more efficiently performed by this route than *via* the cervix, and a sharp scoop is the best instrument to use. A mucous polypus should be similarly blated, special attention being paid to the cornua. On several occasions I have found and removed a polypus situated in one of these recesses.

(c) *Hypertrophy of the Uterus.*—With all interstitial and submucous fibroids of any size hypertrophy of the uterus enclosing them necessarily coexists. The condition is, indeed, in this particular exactly analogous to pregnancy. Involution takes place after myomectomy just as it does after labour, but is more apt to be incomplete, and such subinvolution will cause menorrhagia to persist. It is necessary, therefore, in these cases not merely to remove the tumours but to trim down the uterus to a reasonable

size. This is done by cutting away the redundant capsule of hypertrophied muscle tissue or even a segment of the uterine wall down to and including part of the mucosa.

(d) *Degeneration of the Uterine Wall.*—The degenerative states of the uterine wall included under the term "fibrosis" may coexist with fibroids, and in such cases hysterectomy should be performed, not myomectomy. The conjunction, however, is a rare one, the uterine musculature over a fibroid being, as a rule, conspicuously well developed. A smooth, flabby appearance of the uterine wall in a case marked by menorrhagia, especially if there is no enlargement of the cavity, suggests that "fibrosis" is the cause of the haemorrhage rather than the fibroids, and should determine the removal of the uterus.

RECURRENCE OF TUMOURS.

That new fibroids do occasionally form after myomectomy is undeniable, but I believe that the large majority of reappearances have their origin in small tumours overlooked at the time of the operation, for the more thoroughly it is performed the rarer are such apparent recurrences. Only on one occasion can I remember having to remove the uterus subsequently on this account.

FUTURE PREGNANCY.

Noble, from an investigation of a large number of cases of myomectomy, stated that only 10 per cent. conceived after the operation.

Such general figures must not, however, be taken at their face value; for many of the patients are over 40, and the bulk of them over 35, whilst a good proportion are unmarried. Moreover, it is undoubted that the larger number of myomectomies are performed either on unmarried or sterile married women; on the first group in order to leave them not less fit for marriage, and on the second so as to maintain intact their capability for child-bearing in so far as they may be capable. Both these groups are relatively infertile. On the other hand, the fact that a woman has already borne children frequently determines the removal of the uterus, on the ground that she has had children and does not want any more. If the present practice was reversed, and myomectomy was more particularly performed on women of proved fertility, a much larger number of pregnancies would follow the operation than at present obtains.

The fear that the uterus after myomectomy will not stand the strain of pregnancy is groundless. There is probably no tissue in the body that heals so perfectly as the uterine muscle. I have had several opportunities now of viewing through an abdominal incision the after-results of this operation, and on no occasion could a trace be seen of the incisions in the uterine wall. This is in keeping with what one finds when performing Caesarean section on a woman who has previously been delivered through the abdomen.

Some years ago a patient was sent to me for the purpose of hysterectomy on account of large fibroids complicated by pregnancy. I tidied her through till term and then delivered her *via* the abdomen, not only of a fine child, but of five large fibroids as well, varying in size from a melon to an orange. The tumours were deeply embedded and the uterine cavity was opened altogether in three places. A year later she again became pregnant, and at her request I repeated the Caesarean section when she reached term. I could find no trace of my six previous incisions, the uterus being absolutely normal.

No time is so favourable for removal of a fibroid as immediately after the uterus has been delivered by Caesarean section, for the retractile and supple state of the uterine wall miniuizes the haemorrhage and makes suturing particularly easy.

In the operation of utriculoplasty a wedge-shaped portion of the uterus is excised and the lessened organ sutured, with the object of reducing the "menstrual area." The first patient on whom I performed this operation conceived three times subsequently, and on each occasion delivery by the vagina was successfully accomplished, a fact which strikingly illustrates the reparative power of the uterine wall.

THE RISK OF MYOMECTOMY AS COMPARED WITH HYSTERECTOMY.

The risk specially attaching to myomectomy as compared with hysterectomy is haemorrhage either during or

after the operation. There can be no question that the amount of blood lost during an extensive enucleation is considerably more than would be the case if the uterus was removed with the fibroids. Nevertheless, by correct technique the amount can be kept well within the limits of safety. The tumours should be enucleated, and the beds from which they came obliterated by suture one at a time. There should be no delay in inserting the interrupted mattress sutures that effect haemostasis, and if these are insufficient a continuous mattress suture should be inserted between the interrupted mattress sutures and the continuous superficial suture that approximates the peritoneal coat. The whole of the proceedings should be carried through quickly. Where the uterus is very vascular the ovarian vessels should be temporarily clamped with ring forceps, and in exceptional cases the uterine vessels may be similarly controlled.

A much more important risk to guard against than immediate bleeding is post-operative oozing from the uterine incisions. If this occurs not only is convalescence rendered febrile, but there is a very definite danger of a coil of intestine adhering to the clot-covered uterus and causing intestinal obstruction. This, the chief danger of myomectomy, can be prevented, first, by ensuring complete haemostasis before closing the abdominal wound; secondly, by whenever possible incising the uterus through its *anterior wall* so that the suture line presents towards the bladder instead of towards the intestines; and thirdly, by (in some cases) ventrosuspending the uterus to the anterior abdominal wall along the line of the uterine incision. Ventrosuspension has also this advantage, that it prevents the diminished organ from retroverting, which it is very apt to do after the fibroids have been removed. In many instances retroversion by the weight or pressure of the tumours is already present, and should be corrected by shortening the round ligaments, or, in the event of additional defence against post-operative oozing from an anterior incision being required, by ventrosuspension.

If the precautions thus detailed be taken the average risk of myomectomy is probably about the same as hysterectomy under corresponding circumstances. There are certain cases, still within the justifiable limits of myomectomy, where, on account of the size and multiplicity of the tumours, the risk is somewhat greater. In such the pros and cons of the alternative operations must be carefully weighed, the surgeon always reserving to himself the right of final judgement on the operating table.

THE WORTH OF THE CONSERVED UTERUS.

Removal of the uterus, if the ovaries are conserved, does not produce a climacteric, though, in the opinion of some, it tends to accelerate its normal advent; but in certain women the disappearance of the monthly loss does seem to produce congestive sensations, less in degree but similar to the "flushings" that mark "the change."

Removal of the uterine body alone only unfits a woman for marriage in so far as it renders her absolutely infertile, but total hysterectomy has the disadvantage of removing what, in some individuals, is an erotogenic zone, namely, the vaginal cervix.

The conceptional value of the uterus in women still of childbearing age who have grown fibroids is less than that of similarly aged normal women even after the fibroids have been removed, because the agent, whatever it be, that makes for myomatous growth also makes for sterility. The actual comparative ratio is, however, not determinable on account of the reasons previously given.

Apart, however, from its physical value the womb has for most women a sentimental value, which, however illogical, cannot be lightly dismissed; and amongst patients on whom hysterectomy has been performed there are probably more than the surgeon thinks at the back of whose minds dwells abiding regret and rebellion against fate.

CONCLUSION.

The outcome of these considerations and the experience on which they are founded has convinced me that the practice of myomectomy as an alternative to hysterectomy should be considerably extended. I now frequently perform the conservative operation with complete success where a few years ago I should have removed the uterus.

When the tumours are small or of moderate size, the proceeding can be carried out very well through a

transverse incision across the pubic hair field. This is a great advantage in relatively young women, especially if unmarried, for it leaves no visible scar. To send a woman back to daily life without mark or blemish, cured of a serious disability and danger, is an achievement of high artistry.

LAMINECTOMY FOR GUNSHOT WOUND.

WITH A RECORD OF THREE SUCCESSFUL CASES.

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SURGEONS who have had a large experience of the spinal injuries of industrial practice cannot help being impressed by the high proportion of severe and inoperable cases found in comparison with the condition of things in war surgery. The reason for this difference is not far to seek. The coal mines furnish a large proportion of these cases, and the causal agent is so massive (a fall of roof in the pit, for example) that the lesion is necessarily widespread whether caused by direct or indirect violence. In gunshot wounds, on the other hand, a larger proportion of incomplete injuries is seen, and these are due to small missiles which, though they hit the spine, do not often make a direct hit upon the theca. When the theca is directly hit the lesion is complete in all senses of the term, and it is scarcely conceivable that even a part of the theca could be hit without causing such profound changes in the remainder of the segment as to cause, or at any rate initiate, a "complete" lesion.

Complete and Incomplete Lesions.

Complete gunshot lesions of the spine are due to direct hit of the theca, either by the missile itself or by the driving in of a part of the spine. Such cases show a complete interruption in the tracts of the cord—evinced by flaccid paralysis and loss of reflexes and sphincter control. If the theca be exposed by operation gross damage will usually be found, but occasionally the cord will appear uninjured (as has happened in my experience) and yet be completely and irrecoverably damaged.

In incomplete injuries, on the other hand, the missile hits the spinal column, but the theca is not hit either by the missile or by displaced bone, and the resulting paraplegia—

- (1) May be quite transitory and flaccid, but apparently complete;
- (2) May or may not have a transitory period of flaccidity and completeness, merging more or less rapidly into a spastic condition of any degree;
- (3) May only appear after an interval.

The pathological conditions underlying these three possibilities are pressure or irritation caused by effusion (intraspinal, subdural, or intramedullary), by granulation tissue in relation to a sinus or a retained missile, or by callus; with or without a preliminary condition of concussion. Incomplete lesions include a large proportion of conditions that hold out good hope of recovery, either spontaneously when the paraplegia is due to concussion, or in some cases to effusion, or after operation when a definite lesion is present. The indications for operation are so evident in cases of paraplegia arising after an interval that they require no discussion. When, however, a spastic paraplegia is present from the beginning the question whether or not to operate may be very difficult.

The indications for operation given by Sir George Makins from experiences in the South African campaign are so helpful and explicit that I will venture to quote them:

1. Excessive pain in the area above the paralysed segment; operation is here of doubtful practical use except in so far as it relieves the immediate suffering of the patient.
2. An incomplete or recovering lesion, when such is accompanied by evidence furnished by the position of wounds, pain and signs of irritation, of pressure from without, or possibly palpable displacement of parts of the vertebrae, that the spinal cord be encroached upon by fragments of bone.
3. Retention of the bullet accompanied by signs similar to those detailed under 2. . . .

Operation, if decided upon in either of the two latter circumstances, may be performed at any date up to six weeks, but if pressure be the actual source of trouble it is obvious that the more promptly operation is undertaken the better.

The purpose of this paper is to examine the outstanding features of traumatic paraplegia in the light of these indications and with reference to the possibility of treating underlying causes; to endeavour to show that the causes are very often extra-theal and therefore amenable to a comparatively safe operation; to indicate one or two practical points respecting the operation that have impressed themselves upon me; and to give a short account of three illustrative cases.

Prognosis.

The gravest sign is, of course, flaccid paralysis, which indicates a complete physiological interruption in conduction. It entails complete sphincter, motor, and sensory paralysis below the lesions, and is necessarily bilateral. It may, however, be quite transitory, as I have good cause to remember, having given a bad prognosis in an industrial accident of this kind, in which a month afterwards the patient was walking about. Persistent flaccid paralysis, it need scarcely be mentioned, places the case beyond scope of operation, except perhaps for the relief of girdle pain. Spastic paralysis, however, merits further inquiry, and I believe that involvement of the sphincters is of great prognostic importance.

Except in lesions of the lower cauda equina, where, in fact, involvement of the third and fourth sacral nerves frequently appears to be the salient feature, sphincter paralysis rarely appears without a high degree of motor involvement. I have met only one case, a mid-dorsal wound, and even in that, though the gait was not noticeably affected, the reflexes were very active and sensation diminished in both legs. The bladder trouble, which was of the nature of precipitancy rather than dribbling, had existed from the time of wounding; and in the absence of gross motor symptoms it is reasonable to suggest that the trouble might be due to intramedullary injury, perhaps a minute haemorrhage picking out the bladder-controlling fibres and exerting slight but not destructive pressure upon adjacent tracts. This reasoning is based upon the probability of the bladder fibres lying deeper and therefore less exposed to pressure from without than the tracts to the limbs, as the signs of a slowly increasing paraplegia would suggest. The slow progress of caries paraplegia gives good opportunity for prolonged observation. A definite order of involvement of nerve tracts is seen; motion is first affected, and very soon sensation, but a considerable degree of impaired sensation may exist with slight loss of motion. Sensation, however, is usually lost before the sphincters are affected. In recovery, sensation returns before motion, and sphincter activity precedes both. It is reasonable to conclude that a prolonged period of sphincter paralysis should affect prognosis adversely, especially when the compressing agent is displaced bone or callus, as may occur in gunshot wound. In caries paraplegia spontaneous recovery occurs in the remarkable proportion of 83 to 95 per cent. of cases (Tubby). It is to be noted, however, that many orthopaedists regard involvement of the sphincters as gravely affecting the prognosis, and this even in a condition in which the compressing or irritative agent is nearly always granulation tissue or pus, and not bone. In traumatic paraplegia, on the other hand, though in one of the cases described below (Case II) the causal agent seemed to be granulation tissue in contact with the theca, the offending body is usually something far less kind. Hence the smaller likelihood of recovery without operation, and, in fact, the probability, in the absence of operation, that complete sclerosis of the cord at the point of pressure will follow. It would be difficult to deny that sphincter paralysis is at least as grave a symptom in traumatic paraplegia as it is in caries. When it occurs from the first and does not rapidly improve, it indicates a lesion not amenable to operation; when late, it may indicate that the time for operation has passed, and this as much in relation to the fitness of the patient to undergo a severe operation as to the recovery of the cord itself.

Spontaneous Recovery.

Spontaneous recovery in concussion, when the whole thickness of the cord has been temporarily put out of

action by shock, has already been referred to, but a large number of cases of definite spastic paraplegia also improve or recover with rest. These phenomena are evidently the expression of vascular changes, varying from temporary anaemia of the cord to actual extravasation of blood in relation to the theca. It is highly probable that the spinal cord reacts to injury to its bony casing in much the same way as the brain. Cushing has shown that concussion of the brain is after all nothing more than a stage of compression and dependent upon the immediate vascular changes caused by the injury, the later stages of pressure causing anaemia and the earlier, with its clinical picture of irritation, congestion. The cord, however, is less closely applied to its dura than is the brain, and this would favour rapid "recoil" of the circulation following the anaemia primarily produced and encourage the production of minute intramedullary haemorrhages. The degree of recovery is closely related to the extent of these minute extravasations. They may be entirely absent (concussion with recovery), may be so small as only to cause a train of neurasthenic symptoms, or may cause an amount of intramedullary destruction and pressure varying from a slight nuclear or tract involvement to a complete transverse lesion.

It is hardly necessary to say that intramedullary haemorrhage is not of operative interest. Subdural haemorrhage from shock applied to the spine is a most unlikely event. If it occurred it would be small in amount, and there is ample space between the cord and the dura to allow it to develop without causing urgent pressure symptoms, and spontaneous absorption would probably follow. If the subdural haemorrhage followed a direct hit of the theca its presence would be masked by other severer signs. Intraspinal haemorrhage, however, is probably of great importance, as it is almost necessarily present in injuries to the bony tube, and, with or without the reparative effusion which accompanies the healing of fractured bones, accounts for the pressure in those cases of spastic paraplegia that recover without operation.

Distribution of the Paralysis.

With the possible exception of Case III, I have not met a unilateral lesion. One lower limb will frequently be affected more than the other, but a purely one-sided lesion in trauma must be very uncommon and the Brown-Séquard syndrome consequently must rarely be seen. Case III seemed to have shown this phenomenon in France, but by the time he reached this hospital the paralysis and anaesthesia were certainly most evident in the same limb, and the patient himself was emphatic that this had been the condition of things throughout. In the light of experimental section of the cord by Mott, Horsley, and others, however, this is what might have been expected.

A Retained Missile.

I have observed five cases in which the missile lay in the spinal canal and all were complete lesions. The temptation to remove the offending missile in such a position is great, and in three cases this was done. In one the exposure of the laminae disclosed a circular aperture through which peeped a shrapnel bullet, and the theca showed no damage. No improvement followed even in this case, and it is fair to conclude that the presence of a missile within the spinal canal is of very grave significance. Missiles in relation to other parts of the spine are fairly common, and if the theca has not been directly hit by them in their path, the paraplegia, if present, is of extrathecal origin and therefore amenable to treatment. This goes to prove that the etiological classification of gunshot wounds of the spine into complete and incomplete cases has a prognostic basis also.

The Question of Operation.

My own operative experience of laminectomy is limited to seven cases. Four were instances of flaccid paralysis with sphincter involvement and bedsores, and operation was undertaken for some specific reason—agonizing girdle pain, or the presence of a missile within the spinal canal, the removal of which, it was hoped, might improve matters. No improvement resulted; in two cases gross damage to the spinal cord was seen, and one patient, in whom the removal of the missile was followed by escape of turbid cerebro-spinal fluid, died. In the three remaining

cases, described below, operation was undertaken for spastic paraplegia of different degrees. In none was there involvement of the sphincters, and recovery of health and function was complete in each case.

To attempt to generalize from such limited experience would be of no value, but it is permissible to summarize the points that appeal to the operator. In the first place, it may reasonably be stated that the difficulties of the operation, though great, are not so formidable as is taught. The wound becomes very deep as the operation proceeds, and cozing is always troublesome. A free muscular separation, though it may weaken extension of the spine, benefits the patient by shortening the operation, and can be met by prolonged recumbency afterwards. Refraction cannot be efficiently effected by one assistant. The use of very hot lotion to stop oozing serves well to indicate those bleeding points which require ligature, and the operator should obtain as complete haemostasis as possible before the laminae are divided, for the intraspinal veins will give enough trouble without the added annoyance of blood trickling in from above. After the removal of the laminae, lotion hot enough to be really haemostatic might be harmful, and gentle patient swabbing until the fatty sheath can be opened and pressed aside is quite effective. When the dura spinalis is exposed firm pressure can be applied in a lateral direction and a complete examination made. Opening the theca admits such a great additional risk that the indications must be very definite to justify it, but my experience tends to show that in recoverable injuries the cause lies outside the dura.

It can be asserted that the special dangers of sepsis are small, provided it is not necessary to open the theca. A prolonged operation is always likely to admit a degree of sepsis even when performed under the best conditions. Hence, when a coarse decompression has been performed and the theca exposed, the surgeon may well ask himself what condition due to gunshot wound would indicate opening it with a prospect of success that would justify the risk. In each of the cases described below a degree of sepsis was present. Case I was postponed on account of the septic condition of the emergent bullet wound until it was thought unwise to put off the decompression any longer. The laminectomy wound as a matter of fact healed primarily. In Case II pus was encountered in the callus in the spinal canal and the wound was drained for a few days. In Case III operation was undertaken in the presence of a freely discharging sinus leading to the body of a vertebra; this sinus was probably the cause of the delay in recovery, acting possibly by inducing a mild localized myelitis or perhaps a local oedema of the cord. It is common knowledge that a paralysed peripheral nerve adjacent to a bone sinus, and thought previously to have been severed, will often recover spontaneously when the sinus has been efficiently dealt with.

The risks, then, of the operation in reasonably capable hands and with a practised anaesthetist are sufficiently small to warrant the statement that when there is only a chance of benefiting the patient operation should be performed. This is not to say that it should be urged upon him. In fact the patient himself, realizing he has no hope apart from operation, and that even that is slender, will sometimes desire operation when the surgeon realizes its hopelessness. Whether to buoy up the hopes of a patient doomed to permanent paralysis, or to inflict the additional misery of despair by strict truthfulness, is an ethical problem not likely ever to be settled.

CASE I.

Sergt. C., aged 31, was wounded on March 2nd, 1916, by a bullet which passed through the laminae of the seventh cervical and first dorsal vertebrae, fracturing both. Entry wound at root of the neck on the left side, healed. Emergent wound over the right acromion was a septic crater with bare bone at the bottom. On admission, March 10th, sensation was absent in both feet, dull in legs and thighs, and absent about the lower part of the thorax and up to the nipples. Movements of the lower limbs present everywhere, weakly executed, and readily fatigued. Reflexes very active and passing into clonus. No sphincter trouble. Further history is one of increasing paraplegia until voluntary movement ceased entirely and sensation was practically gone from nipples downwards. About March 28th involuntary clonic movements started in the legs, coming on in paroxysms, which awoke him at night. A necrotic patch appeared on the left heel. Fear of sepsis from the shoulder wound preventing earlier operation, laminectomy was not performed until April 22nd. The shoulder wound was covered by

a collodion dressing and the last cervical and first dorsal laminae removed. This was done piecemeal, as the laminae were represented by an indefinite mass of old and new bone, and it was very difficult to determine when the spinal canal was reached. This was, however, eventually well opened up, the fatty sheath separated, and the theca well exposed and lifted gently to free it. Pulsation good. Wound closed without drainage. Three days afterwards the patient volunteered that he could "feel his feet." Lower limbs immobile, very spastic, and involuntary movements as troublesome as ever. Within ten days the patient could, however, control the "spinal convulsions," and considerable muscular power was evident. By the end of June he could walk without support, and on August 25th was invalided, walking quite normally. Reflexes active, no clonus, anaesthesia about upper part of thorax.

CASE II.

Pte. G., aged 18, was wounded on March 20th, 1916, by a fragment of shell, which entered on the left side of the spine in the interscapular region; on the right side of the same region a counter opening had been made. Missile not removed. Admitted March 25th; x rays showed a piece of metal between the angles of the fourth and fifth ribs (right side) and damage to the right side of the fifth dorsal vertebra and neck of the fifth rib. No chest symptoms. Both wounds healed without removal of the missile and patient was sent to an auxiliary hospital on May 3rd. On May 28th the patient, who had been walking about quite actively for some weeks, was suddenly seized with weakness of both legs, especially the left, which gave way under him, and he fell to the ground. He was at once returned to this hospital. On readmission there was paralysis of the whole left leg, except for some fruitless twitchings of the front of the thigh. Superficial and deep reflexes grossly exaggerated; no Babinski. Light leg definitely weak, but all movements could be executed. No sphincter trouble. Partial anaesthesia in both limbs, with tracts of complete anaesthesia on outer side of the left leg and thigh. Wounds soundly healed. Operation June 3rd; the fifth and sixth dorsal laminae removed. When the theca was well exposed a nodule of soft vascular bone was seen projecting against the right side of the dura. The projection was continuous with a mass on the right side about the pedicles of the vertebrae, was easily lifted out, and showed a central core of soft granulation tissue, continuous with septic granulation tissue in the new bone close by. Theca gently freed and observed to pulsate well. Wound drained. Convalescence interrupted by pneumonia on second day; patient had to be placed in a sitting position with shoulders strapped to the bed-rest for two days; after that nursed on each side alternately. Temperature normal in six days. Recovery of paralysis by the end of June was nearly complete. Invalided out, walking quite normally, in August.

CASE III.

Pte. M., aged 20, was wounded on September 20th, 1916, by a shrapnel ball which entered between the vertebral border of the left scapula and the spine, and was localized as lying "behind or in the body of the third dorsal vertebra." He had been operated upon in France for removal of the missile, but his condition forbade completion of the operation. Notes from France indicated that a left motor and right sensory paralysis had existed from the nipple lines downwards.

On admission to this hospital on November 3rd, 1916, there was a discharging sinus in the centre of a wide vertical scar about two inches from the middle line. Movements of the right limbs were not affected. The left was paralysed below the knee and its reflexes were very active. Sensation was impaired on the same side, especially in the foot, and in the right limb, though not acute, was better than in the left. Condition slowly improved until hip and thigh movements were quite strong, but not more than a flicker of movement was possible below the knee. The sinus discharged as freely as ever, hence it was decided to attempt to remove the missile. This was done on January 7th, 1917, and as any attempt to explore the sinus would be dangerous unless its exact relation to the theca were known, the latter was deliberately exposed by the removal of the greater part of the third and fourth dorsal laminae. A probe was then passed forwards by the side of the left edge of the theca into the body of the third dorsal vertebra. The theca being protected by a small spatula, the ball was easily removed, together with a quantity of septic granulation tissue. The laminectomy incision was closed entirely and lateral drainage with gauze carried out along the course of the original sinns. Suppuration was free for two or three weeks, then rapidly improved, as did the paralysis. At the end of March the patient was walking with the aid of a walking-stick, and by the end of May walked quite normally.

Summary.

In Case I the paralysis, slight at first, increased to complete immobility of the lower limbs. In Case II the paralysis also existed from the time of wounding, but recovered to a considerable degree before operation. In Case II the paralysis occurred quite suddenly about nine weeks after the injury in a patient who was well and active. In no case was the Brown-Séquard syndrome (paralysis and hyperaesthesia of one side and anaesthesia of the other) seen, although Cases II and III were mainly unilateral lesions as far as motor paralysis was concerned.

Case II showed a patchy anaesthesia most marked on the outer side of the paralysed thigh, but the other limb was dull to pinprick; the fact being that when sensation is involved on both sides differences of degree are hard to detect, and, unfortunately, no attempt was made to discriminate between painful, thermal, and tactile impressions.

In each case (a) the paralysis was incomplete in the sense that sphincter trouble was absent; (b) the injury was indirect, and due to damage to the spinal column and not to the cord itself, and (c) recovery was complete.

The immediate effects of the operation in restoring or improving the circulation in the cord were not determined in any case. Decompression in laminectomy is a gradual procedure, and probably pressure is relieved long before the theca is exposed. The dura was not opened in any one of the three cases.

[The writer gratefully acknowledges the help of his colleague, Lieutenant Wellesley Simon, R.A.M.C., both in the clinical observations and the treatment.]

FIVE INTESTINAL OPERATIONS ON THE SAME PATIENT.

By HAROLD HARTLEY, M.D. LOND., F.R.C.S. ENG.,
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THE following case is interesting, not only because the patient had to be submitted to five intestinal operations in four years, but on account of its course and the difficult clinical problems it presented. The patient was a man born in 1894.

I.

Appendectomy, for acute appendicitis, at the North Staffs Infirmary in July, 1913; no drainage. Afterwards he had frequent attacks of sharp colicky pain in the right iliac fossa, but was not confined to bed.

II.

Exploratory laparotomy, at Hull Naval Hospital, in December, 1915, for severe pain in the right iliac fossa, with vomiting. The abdomen was opened near the appendectomy scar and closed without drainage.

III.

Ileostomy, for acute intestinal obstruction. He was admitted to the Stoke-on-Trent War Hospital late at night on January 14th, 1916. No satisfactory history could be obtained. The abdomen was opened by a median subumbilical incision. The small intestine was greatly distended; the large intestine loaded with hard scybalous masses. In the right iliac fossa was a mass of large and small bowel, inextricably matted together by very numerous and tough adhesions. There was great abdominal distension and profuse stercoraceous vomiting. He appeared to be moribund. A piece of ileum, as near the caecum as possible, was brought into the wound, stitched there, and opened at once. The stomach was washed out. The artificial anus acted well, but the skin around it became very foul and sore, and the man begged for a further operation.

IV.
Intestinal anastomosis, with bilateral exclusion of intestine, leaving mucous fistula. On February 11th, 1916, the artificial anus was plugged, and the soiled skin excluded, as far as was possible, by a sheet of sterilized batiste fastened down with I.R. strapping. A large flap of skin (Fig. 1) was marked out on the left side above the umbilicus, and turned over to the right. The abdomen was then opened just to the left of the middle line. The intestine was doubly clamped in two places—the ileum as near the artificial anus as was feasible, and the transverse colon in its distal third. Later, anastomosis was made between the ileum and the transverse colon (Fig. 2). Then the ileum was divided distal to the anastomosis and the transverse colon proximal to the anastomosis. Both ends of

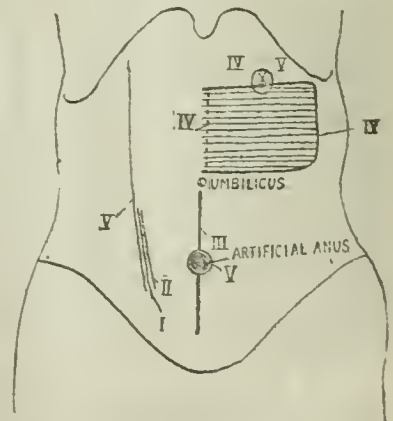


FIG. 1.

the ileum were closed, as was the distal end of the colon. The proximal end of the colon was ligatured where crushed, and the end brought to the surface at X (Fig. 1), being fastened in position by several sutures. The flap was replaced without drainage.

The fistula soon only discharged clear mucus, which was not very irritating, and rapidly began to contract and heal round the exposed bowel, which became much less vascular, and did not show such active peristalsis as formerly. The end of the transverse colon brought out at X (Fig. 1) unfortunately disappeared beneath the flap, and mucus with clear watery fluid escaped at its left lateral margin. He took food eagerly, and rapidly regained

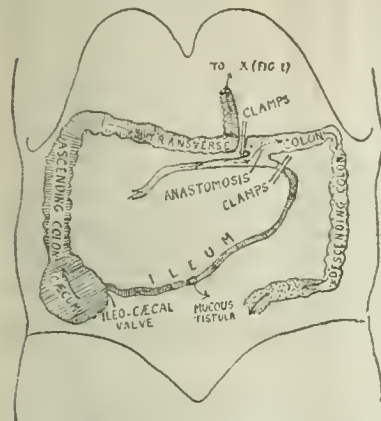


FIG. 2.—The bilaterally excluded bowel is shaded, and is the portion removed at Operation V.

weight and strength. The only disabilities remaining were the moisture from the fistula, and the fact that the bowels were always opened at least three times daily.

On August 6th, 1916, he was suddenly seized at breakfast-time with severe colic; no vomiting; no rigidity; great tenderness over caecum; temperature and pulse only slightly raised; great increase of fluid—now very malodorous—in spirits, from the fistula, where the exposed mucosa had lost its peristalsis.

On August 9th he was better and peristalsis was again seen at the fistula. On August 12th the skin at X (Fig. 1) showed signs of acute inflammation and soon discharge occurred with rapid relief of symptoms.

V.

Colectomy (July 18th, 1917).—A sponge was packed into the fistula. The incision was made through the entire length of the right linea semilunaris (Fig. 1), in its lower part invading the incisions of the first two operations. The abdomen was difficult to enter because of great vascularity, adhesions, and scar tissue. The adhesions in the right iliac fossa (see Operation III) had almost entirely disappeared. Thorough exploration was made, adherent coils separated, and all bleeding points tied. One adherent coil required inversion by a purse-string suture at the area of separation. Colectomy was started by mobilizing the caecum and ascending colon—this was easy and the mesenteric vessels were tied off very tightly with strong silk near the bowel, or in places where fat was very abundant, in the groove left by crushing forceps. Clamps were placed on the bowel side of the ligatures. More trouble was met with at and beyond the hepatic flexure because the empty part of the transverse colon was much atrophied—smaller than the ileum—and was shrunken up under the ribs owing to shortening of its mesentery. The mucous fistula was excised, and it was strange to find that six feet of ileum required removal before the blind end near the anastomosis was reached. The removal of the excluded portion of transverse colon was troublesome because of the poor access, adhesions near the anastomosis, and atrophy and irriability of this gut. The blind end was embedded in scar-tissue at X (Fig. 1), and a fresh incision had to be made encircling this pocket. Some oozing took place here, and as it was known to be previously infected tissue a split tube was left at X for two days.

He did well, and writing on October 4th, 1917, said, "I feel better now than for the last two years." Up to the present (March, 1918) he remains quite well; weighs 10 st. 10 lb., and plays football.

The following points in the case appear worthy of remark:

1. The adhesions found on January 14th, 1916 (Operation III), could not be separated by fingers and gauze. Their origin is obscure, and their almost total disappearance noteworthy.

2. The constant tendency to diarrhoea since 1913 is, perhaps, partly due to his very healthy and unrestrained appetite.

3. When he was operated upon for obstruction his moribund condition and the absence of history made the case difficult.

4. An ileostomy is a hateful proceeding, but it is the only life-saving measure to be considered in such a case. The bowel should be opened at once and the stomach washed out. Primary anastomosis should not be attempted.

5. The technique of intestinal anastomosis and bilateral exclusion of intestine presents few difficulties nowadays, but in the presence of an artificial anus special care is required to avoid infection.

6. Owing to an error of technique an adequate safety-valve was not procured for the excluded portion of colon. For a time the outlet at the ileal end was sufficient, but the instructive and interesting happenings in August, 1916, have been described to illustrate the dangers of relying upon the ileo-caecal valve to become incompetent—as finally occurred. A safety valve at both ends of bilaterally excluded intestine should always be provided.

7. It was astonishing that no less than six feet of ileum had to be removed at Operation V, in spite of the deliberate choice, at Operation III, for the ileostomy of what was thought to be a coil quite close to the caecum.

NOTES ON SURGICAL WORK IN A GENERAL HOSPITAL.

WITH SPECIAL REFERENCE TO THE CARREL-DAKIN METHOD OF TREATMENT.

BY

MAJOR J. S. DUNNE, D.S.O., F.R.C.S.I., R.A.M.C.

The following is written from notes made by me during the period of seven and a half months when I acted as officer in command of a surgical division of a general hospital at a port of embarkation. The situation of the hospital made it necessary that a certain number of beds should be left in reserve for cases from ambulance trains and ambulance transports when from any cause cross-channel traffic was held up.

Cases admitted had been treated by various of the methods advocated.

1. *Flavine*.—A number admitted from casualty clearing stations had been treated by flavine and Z paste, and had been kept by the casualty clearing station for a period of from six to ten days. The results were exceptionally satisfactory. The wounds in nearly all were closed; in some the sutures had been removed, in others the sutures were removed in this hospital. Only two showed signs of inflammation; one of these was a case of very severe multiple wounds, which would account for the incomplete operation performed. Where the patient can be kept under observation and an early and complete operation performed, this seems an ideal method of treatment.

2. *Bipp* cases did not arrive in the same satisfactory condition; most of them were thoroughly septic. In my practice, with two exceptions, bipp was used only as a sequel to the Carrel-Dakin method when the wound surface had become flat or too small for the application of Carrel's tubes. In the latter part of the period it was replaced by chloramine 4 per cent. in vaseline.

3. *Salt pack* cases arrived bathed in foul-smelling discharge; gas gangrene cases arrived with this dressing. Salt dressings were continued for a short time by one surgeon. *Bacillus pyocyaneus* was a constant complication, and the haemorrhagic granulations were a constant drain on the patient's vitality.

4. *Carrel-Dakin Method*.—Cases so treated invariably arrived in good condition, and if the complete operation had been performed and the technique strictly carried out, it was often difficult to realize that the patient was suffering from a dangerous wound.

An officer arrived after a very long train journey, sitting up on his stretcher, looking quite fit. Ten days previously he had been hit in the right lumbar region by a piece of shell casing 2 in. x 1 in.; there had been a jagged wound and rupture of the colon. Operation within twelve hours; the foreign body and fragments of clothing were removed, the lacerated muscles and fascia excised, and the rent in the colon closed. Carrel-Dakin dressings. On admission, the temperature was normal; there was one Carrel tube in the superficial wound, the remainder was closed and healed.

The Carrel-Dakin method gave the greatest satisfaction to me and was carried out thoroughly with the following technique:

Technique.

X-ray photographs accompanied the patient to the theatre. Ether soap, followed by methylated spirit and 2 per cent. iodine, were used to disinfect the skin. Free incisions were made exposing all injured structures and opening up dead spaces; the foreign bodies present were removed, and fragments of clothing looked for; all dead tissues, fascia, muscle, and fragments of bone without periosteal attachment to the shaft were excised, and all bleeding and oozing were controlled. Carrel's tubes were then placed in every part of the wound so as to ensure flow of

antiseptic towards the surface. Gauze soaked in Dakin's solution was placed lightly on the tubes. The adjacent skin surface was spread with gauze soaked in sterilized vaseline; the dressing was completed by applying a large Carrel dressing held in place by wooden clothes-line pegs. When the general condition of the patient made speed imperative, and the local conditions made complete operation dangerous, the injured part was rapidly explored, and incisions made to allow the Carrel tubes to reach the depth of the wound. This plan was so satisfactory that a second and complete operation could be performed without danger of septic absorption. The surgeon, assisted by a sister, nurse, and orderly—no more than he has for any other method—could carry out the after-dressings. The same preparations and precautions were used as for an aseptic operation as far as sterilization of dressings, instruments, and gloves is implied. The gloved hands were never permitted to touch the dressings. With each of the team doing his or her allotted part, ten large dressings could be accomplished in an hour. Sisters soon became expert, and taking the place of the surgeon, could carry out the dressings with success, the only difference being that the time occupied for each dressing was perhaps a little longer.

Bacteria counts were very efficiently carried out by a V.A.D. nurse trained in the work. The results were charted. Variations in the curve led to scrutiny of the technique, and delay in rapid improvement led one to suspect errors in technique, such as insufficient opening up of tracks, or, in comminuted fractures, necrosis of a doubtful fragment, or tubes badly placed.

Results.

Of 1,917 admissions, with 1,100 operations, there were 40 deaths. Many of these were admitted moribund from trains or hospital ships, and included 3 cases of tetanus, 2 of gas gangrene, 5 fractured femurs, and 2 unoperable neck wounds, 4 knee cases septicaemia on admission, 1 of secondary haemorrhage which developed gangrene after necessary ligation of the femoral artery, 2 buttock cases—one of these had longitudinal fracture of the neck of the femur with infection of the hip-joint—and many severe head injuries.

The success of the Carrel-Dakin method was obvious from the first. Secondary haemorrhage practically completely disappeared. There were three haemorrhages; two were reactionary, the third was a true secondary haemorrhage from an external saphenous vein, and was easily controlled without anaesthetic. The patients were cheerful and happy: dressings were not dreaded, and the nursing staff were pleased with the rapid convalescence of their charges.

Immobilization of Fractures.

The splints most in favour were Thomas's arm and leg, with or without superstructure; special splints were also obtained. At the end of the period under review, two officers who made a special study of constructing splints for individual cases were attached. I had not an opportunity of seeing splints for femurs, but their arm and lower leg splints were excellent. Compound fractures, both upper and lower arm, were amongst the up-patients very soon after admission; their apparatus, combined with the Carrel-Dakin technique, gave very good results. The large Carrel dressings are supplied to this hospital by the Irish War Hospital Supply Dépôt, Merrion Square, Dublin.

Carrel's method of instilling a potent antiseptic is both a life and a limb saving technique. Cases which arrived with the treatment in progress, even though the tubes might have been displaced in transit and a further operation proved necessary, could be approached without anxiety. In some other cases I would have amputated without hesitation as the only means of saving life but for this method.

Secondary haemorrhages need never occur if the technique is faithfully carried out. The method goes as nearly to giving complete physiological rest as is possible. Dressings need only be done every forty-eight hours, except in very septic cases, and there is none of that terrible nerve racking which other dressings entail. Patients watch the progressive improvement of their wounds with the greatest interest. In the Carrel-Dakin technique we have physiological rest reinforced by the scientific destruction of the local poison.

General Surgery.

During the period there were 481 major operations of a general surgical nature.

Appendicitis.—Of these operations, 103 were for appendix conditions, with 98 per cent. recovery. The incision recommended by Battle was used in 95 per cent. I modified it slightly by carrying the incision lower than recommended; by this I left the semilunar fold intact. Jackson's parieto-colic membrane

was found in two cases, Lane's bands in three. Two deaths occurred. The first patient was almost moribund from general peritonitis at the time of operation. The second, a Portuguese soldier, with gangrenous appendix involving the caecum, died from obstruction due to volvulus caused by a mass of faeces the size of a large orange. A case of appendix abscess was treated by drop irrigation with Dakin's solution, six or eight drops to the minute. The abscess cavity closed with extraordinary rapidity, and cases of faecal fistula yielded in a surprisingly short time.

Enteric Ulcer.—Two cases. One died a month after operation from intercurrent acute general tuberculosis, the other was transferred to England convalescent.

Acute Renal Cases.—Perinephric abscess, two; operation, recovery. Hydro-pyonephrosis, one operation; died.

Acute Cholecystitis.—One case. Operation in two stages: (1) Drainage; (2) excision of gall bladder. A pure culture of paratyphoid bacillus was grown from the contents of the gall bladder, though there was no history of this disease. He was transferred to England convalescent.

Gastric Ulcer.—One case, a Spanish sailor. The ulcer was closed, and gastro-duodenostomy performed. He was transferred convalescent.

In the work of a large hospital the best results are obtained not by the work of the officer in charge alone, but require in addition the zealous and enthusiastic co-operation of all the staff. I wish to express my thanks in particular to Captain Bourne, F.R.C.S., and to the Sisters whose careful attention to detail largely contributed to the success obtained in the use of the Carrel-Dakin method.

[Owing to want of space we have omitted reports of a number of cases, the course of which illustrated the excellent results described by Major Dunne as generally obtained.]

INFECTED FRACTURES:

TWO CASES TREATED BY LANE'S PLATES AND CARREL DRESSING.

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In the last ten months I have had over 500 cases of infected gunshot wounds, many with profound bone lesions, under my care at this hospital, and nothing but Carrel's method has been used. The results have been invariably successful; healing has been rapid, and in only two very badly infected cases have I seen secondary haemorrhage, and that only in the early stages of treatment. The charge that cases break down after apparent healing and evacuation from hospital is one that can be brought against any method of treatment. If the preliminary *débridement* has not been thorough, the surgeon will find cases breaking down; but it is not the method that is here to blame—it is the surgeon. Besides, a superficial breach of the surface of a scar of a wound treated by the Carrel method frequently ensues when massage and thermal baths are used for the stiffened joints and muscles that accompany the wound. This, again, might occur with any method of wound healing. The breaking down in any case is usually only superficial and slight compared with the great gaping wounds so wonderfully built up again by the aid of the Dakin solution.

I need not describe the method here; that is best to be found in Carrel's own book or Child's translation.¹ But it is better learnt from practice than from books. See someone who has mastered its use at work and then work at it yourself. It is not difficult, but a certain facility and sense of perspective can only come from practice, and are not to be got from precept.

One thing is of prime importance—the preparation of the Dakin solution according to Carrel's instructions. Failure usually comes from use of a faultily made solution, or from use of a carefully prepared solution which has been kept over-long and has deteriorated. In fact, the surgeon himself should be familiar with the process by which the estimation of the percentage of hypochlorous acid in the solution is made, and check this percentage for himself. If he does this he will have a proper strength of solution; if not, he may have a proper strength or he may not, and he must take the consequences in risks of failure. Nothing much can go wrong if the surgeon will spend five minutes twice weekly at the titration of his Dakin's solution. We have found that the best chloride of lime and other chemicals necessary for Carrel treatment are

those made by Poulenc Frères, Paris; but, of course, good, fresh, damp-free English chloride of lime may serve equally well.

To many the above may seem small or obvious details, but if the observance of them leads any one sceptical of Carrel treatment to a revision of his opinions and to his making full use of this new method, I believe that many lives and limbs will be saved.

I append notes of two cases which, although not gunshot wounds, may be of interest as supporting the claims I make.

G. R., on May 13th, 1917, at Landrecount, sustained by a fall from a wagon a simple fracture—spiral—at the junction of the lower and middle thirds of both bones of the right leg. Reduction was said to have been made under x rays, and a gutter plaster had been applied. He was evacuated to another hospital and then sent to us on May 21st. The bones seemed to be in good position, but there was a shortening of 2 cm.

Pressure of work on more urgent cases prevented my making a fuller examination until June 11th, when the plaster was removed, and not the least sign of union was found. Under x rays a left-handed spiral fracture of the tibia at the site above indicated was made out. Under ether, on June 21st, the fracture was exposed and muscle found intervening between the fragments. This was dislodged, and the ends of the fractured bones nibbled and freshened. An attempt was then made, with difficulty, to overcome the overlapping. The fracture being five weeks old the muscles had retracted, and the apposition was not all that could be desired. A Lane's four-screw plate was applied and the wound close sutured. An Edinburgh box splint was used.

At the operation I was short-handed for assistants during extension, and had myself to attempt, at one stage, helping with one hand to get the proper degree of torsion. The sterile foot-covering slipped, and I suppose that at this moment my hand must have come into contact with some non-sterile portion of skin, and been imperfectly re-sterilized by washing thereafter. In any case, an infection of the wound occurred; and on June 27th two of the lower stitches showed signs of infection. On July 2nd definite infection of the whole line of suture was present. The incision was opened up afresh and a Carrel tube led down to the plate, vaselined gauze applied to the skin around, and gauze pads soaked in Dakin's solution applied. Absorbent wool, covered by a layer of non-absorbent, was laid over this, and injections of Dakin's solution given by tube every two hours—that is, the usual Carrel treatment was followed. The leg was placed on a Pringle's splint for leg fracture.

The plate was removed on August 27th, when union was good, and by September 10th the wound was well healed under Carrel dressing.

On September 29th the patient was walking. There was slight eversion of the foot and some stiffness at the ankle. Massage to the whole limbs and single daily movements of knee and ankle were given during this rather lengthened treatment. The patient was evacuated, walking fairly well, to Bourbonne-les-Bains, a centre for mechano-therapy, on November 28th. The shortening was 2 cm.

The points in this case that seem to me of interest are:

1. Fracture at a site where good union is extremely difficult to obtain.
2. Definite control of a fresh infection of a clean wound during operation (even in the presence of so large a foreign body as a Lane's plate with four screws) until the bony union of a fracture is complete.

In the absence of Carrel treatment, such a case, instead of closing in ten and a half weeks, would probably fail altogether, or take three or four times as long, and necessitate several cleansing operations.

H. R. was injured on April 21st, 1917, at Verdun by a kick from a horse. He presented a badly infected compound fracture of the right tibia and fibula at the junction of the middle and lower thirds. He had received an injection of antitetanus serum on April 21st and a second on April 30th. It was impossible to say what treatment he had had in the way of dressing, but the fracture had been reduced and a gutter splint of plaster-of-Paris applied.

He was admitted to our hospital on May 2nd in the evening, and operated on thirty-six hours later. X rays had shown a comminuted transverse fracture of tibia and fibula at the junction of the lower and middle thirds; the comminution being confined to an area of about 3 cm. square in the tibia. At operation some splinters of dead bone were removed. A copious sanious discharge was present. The alignment of the upper and lower fragments of the tibia was good. The wound of the soft parts was dissected out and opened up freely. The ends of infected bony parts were nibbled off and gutters cut in the anterior surface of both fragments to allow of penetration of Dakin's solution to the cancellous tissue. Carrel dressing with five tubes was applied; and the limb immobilized in an Edinburgh box splint.

The wound continued dirty, and soft tissues remained swollen for sixteen days. Injections of antitetanus serum were made,

and seemed to have a good effect on the wound. The temperature range was from 37.4° C. to 39.4° C. The wound began to granulate well after the sixteenth day. On June 5th it was noted that the shortening of the limb was 4 cm. On July 7th the wound was well epithelialized all over, except for an area of about 1 cm. square. Movement could be elicited at the site of fracture. On July 15th a Pringle splint for fractures of the leg was used, with extension by strapping and weight. A rotating pull against eversion and a vertical pull against drop-foot were also applied.

By August 7th the surface was quite epithelialized, and under ether a Lane's plate with four screws was fixed over the fracture on the antero-internal aspect of the tibia. The wound was left widely open, and Carrel tubes and dressings applied. On August 24th the wound was granulating well, and the plaque was covered in at the upper end. On October 5th the plate was removed and the bone found to be well consolidated. The patient was evacuated to Bourbonne-les-Bains for massage and mechano-therapy on November 28th.

The shortening in this case was 4 cm., due to the comminution between the two principal fragments.

The points of interest in this case are similar to the last:

1. Fracture at a site where non-union is notoriously frequent.
2. Extremely bad infection of all parts, soft and bony, loss of bony substance, and gross trauma of the muscles and skin.
3. Definite control of the infection even in the presence of a large foreign body—a four-screw Lane's plate.

Without Carrel treatment I think this case would have required amputation at seat of election.

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GONORRHOEA COMPLICATED BY SYPHILIS.

BY

N. P. L. LUMB, TEMPORARY CAPTAIN R.A.M.C.

In the past it has been customary to look upon syphilis as a much more important disease than gonorrhoea, and considerably more attention has been paid to it than to the latter. This is evident from the fact that a patient presenting himself with signs of both syphilis and gonorrhoea is commonly given thorough antisyphilitic treatment without delay, whilst the sum total of the treatment advised for gonorrhoea is an irrigation twice a day with permanganate of potassium. This plan is unsatisfactory, and an experience of large numbers points to the fact that modern antisyphilitic treatment at times (1) stirs a latent gonorrhoea into activity; (2) leads to the development of complications; (3) renders the gonorrhoeal lesions very intractable.

These three points are illustrated by the ten cases quoted below, all of which were treated by injections of arsenobenzol compounds (either by the deep subcutaneous method or intravenously) and weekly injections of mercury:

CASE 1.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. Gonorrhoea twelve months before; no relapse since. After four arsenobenzol and three mercury injections acute prostatitis developed, followed by inflammation of the left Cowper's gland, the pus from which was found to contain gonococci. Later there was arthritis of the left shoulder.

CASE 2.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. History of gonorrhoea two months before. Acute left epididymitis developed after ten injections of arsenobenzol and five of mercury.

CASE 3.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. Past history of gonorrhoea not clear. After three mercury injections acute prostatitis developed, followed ten days later by acute epididymitis.

CASE 4.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. History of gonorrhoea six months before; no relapse since. After ten arsenobenzol and seven mercury injections acute epididymitis developed.

CASE 5.—Primary syphilis. No urethral discharge; two-glass urine test on admission: clear, no filaments. History of gonorrhoea four years ago; no relapse since. After five arsenobenzol and three mercury injections acute epididymitis developed.

CASE 6.—Early secondary syphilis. The primary lesion appeared three weeks after exposure to infection, and there was a doubtful history of a slight purulent discharge for two days, possibly of balanitic origin. No urethral discharge on admission, nor subsequently for three weeks; throughout this period the urine was under observation; it was clear and free from filaments. There had been no previous attack of gonorrhoea. Three days after the third weekly injection of mercury and arsenobenzol a profuse purulent discharge appeared and the urine became cloudy. Eventually, when the discharge had been reduced to a minimum, the urethroscope showed clearly that Litré's glands were responsible for the trouble. Very persistent inflammation of them kept up a discharge for three months.

It will be observed that in Cases 1 to 6 there was no evidence of active gonorrhoea when antisyphilitic treatment was commenced; but in four of them a definite past history of gonorrhoea, varying from two months to four years, without subsequent relapse.

CASE 7.—Primary syphilis. Gonorrhoea evident on admission. After three arsenobenzol and two mercury injections acute epididymitis and prostatitis developed.

CASE 8.—Secondary syphilis. Gonorrhoea evident on admission; two months since exposure to infection. After three arsenobenzol and one mercury injection acute epididymitis developed.

CASE 9.—Primary syphilis. Gonorrhoea evident on admission. After five arsenobenzol and two mercury injections acute epididymitis and prostatitis developed, and later a small hydrocele of the affected testicle.

CASE 10.—Primary syphilis. Gonorrhoea evident on admission. Eleven arsenobenzol and eight mercury injections were given. One month after the last mercury injection acute epididymitis developed.

In Cases 7 to 10 there was evidence of gonorrhoea when treatment was commenced.

An analysis of these ten cases shows the following frequency of occurrence of each complication: Epididymitis, 8 times; prostatitis, 4 times; cowperitis, littritis, arthritis, hydrocele, once each.

Of the four cases in which gonorrhoea was evident, epididymitis developed in every instance, and prostatitis in two of the cases. Taken by themselves, these four cases (7 to 10) are not noteworthy, though it is unusual for gonorrhoeal epididymitis to develop in the ninth to tenth week, as in Case 10; but in conjunction with Cases 1 to 6 considerable interest attaches to them.

It is impossible to state definitely what is the cause of the onset of these complications, but the evidence points to the mercury compound rather than to the arsenobenzol. In another place¹ I have described a series of cases of acute gonorrhoea treated by injections of mercury compounds, such as enesol and mercury succinamide. In some of these it was found that epididymitis and prostatitis developed, without any exciting cause, as late as the tenth to twelfth week. This corresponds with the facts observed in Cases 2, 4, and 10.

At the moment of writing there are no figures available to show what the effect on the Wassermann reaction would be of withholding mercury for the first three weeks and administering arsenobenzol alone. If this could be done without detriment there would be a reasonable chance of controlling the gonococcal invasion before the mercury could exert any effect.

The number of cases recorded is much too small to allow any generalization, but it seems advisable to review the situation and consider what is the best line of treatment in patients presenting themselves with syphilis and either active signs of gonorrhoea or a past history of gonorrhoea.

The proportion of cases in which untoward effects are noticed seems to be about 10 per cent., and, in consequence, I have adopted the following routine in every case of syphilis, varying according to whether there are active signs of gonorrhoea or a past history of it.

1. When there is a past history of gonorrhoea and no active signs.

(a) A six to eight hours specimen of urine is taken twenty-four hours after the first mercury injection and examined microscopically for gonococci after centrifuging. The presence or absence of threads is also recorded.

(b) The prostate and vesicles are examined during the first week of treatment. A smear of the expressed secretion is made and examined microscopically for gonococci.

If both (a) and (b) are negative a dose of gonococcal vaccine is given (50 million gonococci), and test (a) repeated twenty-four

hours later. If no gonococci are found, no treatment is necessary.

If gonococci are found, the urethra is examined carefully with the urethroscope to locate the infection, and suitable treatment commenced at once, varying with the nature of the lesion.

2. When there are active signs of gonorrhoea.

Irrigation into the bladder with 1 in 8,000 potassium permanganate is commenced at once, the strength being rapidly increased to 1 in 4,000 as soon as the patient can irrigate successfully. Vaccines are given from the start at regular intervals and the prostate examined about the tenth day. A straight bougie is passed at the end of the second week, and this reveals the presence of any inflamed glands of Litré.

The whole idea of the treatment is to prevent the gonococci from getting settled down in the tissues and so prolonging the attack. The intractability of some of these cases, especially when littritis is present, has been referred to elsewhere,² and it is constantly necessary to vary the strength of the irrigating solutions and the instrumental treatment according to the progress of the case. It has not been considered necessary to refer to the various mechanical ways in which syphilis may complicate the treatment of gonorrhoea, as, for example, when a meatal chancre is present or phimosis results from the presence of a syphilitic abrasion, since the correct method of dealing with them presents no difficulties.

REFERENCES.

¹ *Systematic Treatment of Gonorrhoea*, N. P. L. Lumb (Lewis and Co.), p. 55. ² *Idem.*, p. 83.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

I HAVE followed with great interest the discussion between Lieut.-Colonel Clayton Lane and Major F. H. Stewart on the life-history of *Ascaris lumbricoides*, and am familiar with the editorial note in the *BRITISH MEDICAL JOURNAL*, July 1st, 1916, which is frequently referred to by both of them in their papers (vide *Indian Medical Gazette*, August and October, 1917). I did not write on Major Stewart's letter, published in the *BRITISH MEDICAL JOURNAL*, September 30th, 1916, at the time, as no very useful purpose would have been served thereby, not enough work having been done at that time to determine the point one way or the other. Lieut.-Colonel Clayton Lane has dealt with the subject so fully in the *Indian Medical Gazette* (loc. cit.) that there is no necessity to say much more. He came independently to a similar conclusion to myself, that the passage of the ascaris larvae into the lungs of rats and mice indicated a vasculo-pulmonary circuit, as is seen in ankylostomiasis. Major Stewart's recent paper, published in *Parasitology*, January, 1918, which deals with *A. suilla* and the passage of its larvae to the lung of the pig, is very suggestive, and to my mind, though he did not always find adult ascaris in the intestines of his pigs after feeding with the ripe eggs, seems practically to prove the vasculo-pulmonary circuit. It certainly diminishes the force of the alternative hypothesis, that the lower animals act as intermediate hosts for the parasite, to practically zero. If *A. suilla* does the circuit in the pig, then it stands to reason—and this Major Stewart, I think, admits—that *A. lumbricoides* will do the same in man. If so, then there is only the other step for it to pass up the trachea, like the ankylostome, and so into the intestine, where it can become sexually mature. It is unfortunate that some of Major Stewart's pigs should have been infected before his experiments were begun, as it renders it difficult to say whether he reinfected them or not. The interval between the arrival of the larvae in the intestine and their development into adults may differ, and it may even be fairly long. The experiment to prove this point finally should not present insurmountable difficulties, and it is to be hoped that in the interests of helminthology this may shortly be carried out, preferably by Major Stewart himself.

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TREATMENT OF ORAL SEPSIS.

In my opinion, the original focus of the severer types of oral sepsis is at the margin of the gums and teeth. Mastication forces food in between the teeth, and between the gums and teeth. This food sets up a certain amount of irritation, and forms a suitable nidus for various organisms. The first problem is how to prevent food lodging in these sites; this can be solved only by efficient cleansing with a brush, which must be fairly stiff, and used after each meal in conjunction with a powder. I have found the following excellent: Mag. carb. pond. 3 parts; sulph. sublim., sapo Castil., aa 1 part; ol. menth. pip. q.s.

If gingivitis or pyorrhoea has already commenced, the affected area should be firmly swabbed with a small tightly rolled pledget of wool held in a pincette and dipped in liq. cresol saponis or any of its substitutes, taking care to remove the excess before using. A tumbler of warm water and spittoon should be ready to use immediately after. The thymol mouth-wash should be prescribed.

This method, I venture to predict, will come as a revelation to all who have laboured for weeks and months with iodine, hydrogen peroxide, and other methods, as it is so rapid in its effects; only in very advanced cases have I found it necessary to apply the liq. cresol saponis twice, and rarely three times, at two-day intervals.

In severe cases of pyorrhoea there is a dirty greyish-brown sloughing appearance at the gum margins, often jumping to the adjacent buccal mucous membrane; all these sites should be firmly swabbed, although the surfaces bleed in the process.

A similar condition is sometimes seen on the surface of the tonsils, and should be treated in a similar way; a sponge on a holder may be necessary here, dipped in sterile water or any mild antiseptic, if the person is too young or unable from any other reason to gargle. In septic conditions of tonsils and the back of the throat the ordinary chlorine gargle or swab should be applied every three or four hours after the initial swab with liq. cresol saponis.

A very septic socket may develop after extraction of a tooth, causing days and sometimes weeks of pain; if a swab soaked in liq. cresol saponis is firmly pushed into the socket, the relief is almost instantaneous, and a second swabbing after twenty-four or forty-eight hours is rarely necessary.

The pain inflicted in swabbing gums is practically negligible, but may be rather severe in the case of sockets.

I am indebted to Mr. H. Walker Ramage, L.D.S., Edinburgh, for the hint to use cresol.

Bo'ness, Linlithgowshire.

N. C. FISCHER, M.B.

PHARYNGEAL HAEMORRHAGE DUE TO LEECHES.

THE two following rather unusual cases came under my care during a single week in one of the general hospitals. The first was admitted with the diagnosis "haemoptysis" and the other as "haematemesis."

CASE I.

Pte. J. C., aged 24, stated that upon arriving in camp at dusk in the neighbourhood of Beersheba, ten days before, he took a drink of water in his cup from a running stream. A few hours afterwards he commenced coughing and brought up some blood. This continued up to the time of admission to hospital. No sign of lung trouble could be found. The pharynx was congested and his voice was distinctly hoarse. The coughing and haemorrhage continued until, during the night of the fourth day after admission, he complained of a choking sensation and difficulty in breathing. His cough was very irritable and he expectorated a considerable amount of blood. He coughed something into his mouth which he did not expectorate, as he "feared it was a piece of his lung." On the following morning he found this had stuck to his upper gum, and upon removing it found it to be a leech about one and a half inches long, which he had presumably swallowed a fortnight previously. Since then all discomfort and haemorrhage have ceased.

The patient had been in Egypt eight months and had had no previous illness.

CASE II.

Pte. A. T., aged 31, was admitted to hospital on November 24th. He stated that he was taken ill suddenly seven days before with a tickling, irritating cough, with spitting of blood each time he coughed. He was then in the environs of Ludd in Palestine. He obtained his drinking water from one of the wells; this was drawn up in a bucket, and he always used his cup for drinking. No symptoms of haematemesis could be

found. He complained of a tickling cough and sore throat, with spitting of blood. The pharynx was congested and he had pain in swallowing.

During the night of the second day after admission he expectorated half a sputum cup of pure blood mixed with a little mucus. On the following morning the right side of his face was swollen; I found what looked like dark clotted blood in the cavity left by two extracted teeth in the lower jaw, but on further examination it proved to be a leech one and a half inches long attached to the upper jaw. All haemorrhage ceased upon removing the cause of his trouble.

The patient had been in Egypt twelve months, and had had no previous illness.

I have ventured to bring these two cases under notice as the occurrence of "haematemesis" and haemoptysis arising from the presence of the leech in human subjects is sufficiently rare. It is quite possible that similar cases may arise, as it is probable that numbers of troops have drunk of water containing leeches.

As will be seen from the following report by Captain A. E. Rayner, R.A.M.C., the leech of Palestine may be found as an endoparasite of man.

The leech is lanceolate in shape, and about 1½ in. broad and 4 in. long when at rest. It is flattened antero-posteriorly, so that its ventral surface is practically quite flat; the dorsal surface is convex. Its colour is dark olive green, with a lateral stripe of gutta-percha red at the extreme edges of the body where dorsal and ventral surfaces meet. It has two circular suckers—the smaller oral sucker at the anterior end, the larger acetabulum at the posterior end. The body is divided by transverse ringed grooves into ninety-five segments. On the dorsal surfaces of many segments the nephridial openings can be seen. There are ten small black dots on the dorsal surfaces of segments at the anterior end—that is, five pairs of eyes. Of these the first and second are on the first segment, third pair on second segment, fourth pair on third segment. The fourth segment is eyeless, so that the fifth pair is on the fifth segment. There are three jaws in the oral orifice of the anterior sucker.

The leech is very actively retractile and extensible. It anchors itself firmly by the posterior sucker whilst the head and body plunge and writhe in all directions. It probably belongs to the subclass Hirudininae *Limnatis nilotica*. According to Castellani, leeches frequently occur in Algeria and Palestine as endoparasites of man, gaining entrance to the mouth or nose as he drinks from a pool. It may produce continued haemorrhage, with severe anaemia. It may act as the host for trypanosomes and other parasites.

[I am indebted to Colonel D. O'Sullivan, A.M.S., for his kind permission to publish these cases.]

J. M. BRIGGS,
Captain R.A.M.C.

Reports of Societies.

VENEREAL CLINICS.

At a meeting of the London Association of Medical Women on February 5th, with Lady BARRETT in the chair, Dr. JESSIE CAMPBELL gave an account of the work at the clinic for venereal diseases at Guy's Hospital. The patients came from the hospital itself or from outside districts, often from great distances, or were sent by private practitioners. Remarkably few belonged to the class of professional prostitutes, many being wives of soldiers or working girls. Three beds and two cots were attached to the clinic, and these were used for acute cases, or cases complicated by pregnancy, nephritis, or heart disease, also for those coming from a distance, and for children. District nurses attended patients at their homes. As all outward signs, except skin stains, disappeared after two to three injections, the patients were apt to attend irregularly, which was prejudicial to their cure. The Wassermann test was positive in a large proportion of the cases; it was often negative in pregnancy and in recurrent chancre. Of 40 consecutive patients who had undergone a full course of treatment, 27 gave a negative and 13 a positive test; of the 27 negative cases 22 were early and acute, and 5 late cases; of the 13 positive cases 2 were early and 11 late. It was thus doubtful how much reliance could be placed on the Wassermann test. Dr. TINDAL-ROBERTSON described the work at the evening clinic of the South London Hospital for Women, where her experiences were identical with those at Guy's, especially as regarded irregularity of attendance and absence of prostitutes among the patients. The tests for gonorrhoea were unreliable, and it was important that a satisfactory method of growing gonococci should be found.

Dr. AGNES SAVILL, in a year's work in the skin department of this hospital, had seen 13 cases of syphilitic and 78 cases of non-syphilitic skin disease. Of the total attendances 95 were syphilitic and 230 non-syphilitic. All but two of the syphilitic patients were married women. A syphilitic rash must be distinguished from pityriasis rosea, roseola, and drug rashes, and in the papulo-tuberculide stage from psoriasis and eczema of the palms and soles. Gummata sometimes resembled an iodide rash and condylomata a bromide rash. She had obtained very good results in gonorrhoea by ionization with a thick zinc rod and 2 per cent. zinc sulphate solution. Dr. ELSIE CHUBB said that much attention was paid to prophylactic treatment in men, while women were left altogether out of account, and this one-sided treatment would not help to eradicate the disease. Lady BARRETT said it was important to treat antenatal leucorrhoea even when no gonococci were found. Abortion did not follow careful direct treatment of the cervix. The best results were obtained by swabbing the cervix and vagina with argyrol and immediately afterwards with a 50 per cent. solution of picric acid in glycerin. Patients having 1 ad gonorrhoea should not be admitted into general maternity wards, even if apparently cured, as the disease often lighted up unexpectedly. At the Royal Free Hospital clinic the patients were also chiefly wives of soldiers and working girls who were not prostitutes, so that the suggested treatment of the prostitute class would be ineffectual in stamping out venereal disease.

NERVE INJURIES.

At a meeting of the West London Medico-Chirurgical Society at the West London Hospital on March 1st, Dr. J. A. RICE-OSLEY being in the chair, Captain E. FARQUHAR BUZZARD read a paper on injuries to nerves, their diagnosis and treatment. He predicated a thorough knowledge of the anatomy and physiology of muscles and nerves as an essential equipment for investigation. The electric battery was not necessary, and its evidence was frequently fallacious. Apart from inspection, it was impossible to say whether nerve continuity had been destroyed, but distal pain some hours after injury showed that its immediate effect had not been destruction of continuity. He uttered a warning against too readily ascribing to hysteria the terrible sufferings of many cases of nerve injury, more especially injuries of the median and internal popliteal nerves. Relief was a difficult matter; opiates should be avoided and recourse had to bromides, phenacetin, pyramidon, etc., given at night to ensure sleep. For intractable cases injections of alcohol into the nerve were recommended. Colonels DONALD ARMOUR and PERCY SARGENT, Mr. S. H. ROUQUETTE, Major H. SOUTTAR, Captain G. RIDDOCH, and Mr. H. TYRRELL GRAY took part in the discussion, which centred round the questions—when to operate, how to treat the nerve, and the suitability of various substances for its protection. All were agreed that end-to-end suture was to be aimed at, and grafts were unanimously condemned.

Reviews.

TAYLOR'S "PRACTICE OF MEDICINE."

THE first edition of Sir FREDERICK TAYLOR'S *Medicine*¹ appeared in 1890, four years after Fagge and Pye-Smith's *Principles and Practice* and two years before Osler's rival work. It has now firmly taken the place once occupied by Bristowe's treatise, so well known to a former generation, while Osler's, with its more personal and historical touches, has succeeded Fagge and Pye-Smith's exposition of medicine as exemplified by the practice of Guy's Hospital. Sir F. Taylor, as a teacher of long experience, has admirably met the student's needs by setting forth the present state of knowledge clearly, briefly, and without the statistics and references that may appeal to the more advanced reader who is working without the ever-present object of an examination before him. Similarly, from the ordinary student's point of view, it is an advantage to have included in one volume a condensed account

of skin and laryngeal diseases, on which the qualified practitioner would naturally consult special treatises, and, further, the details of treatment and the full discussion of alternative methods are hardly compatible with the requirements of space.

This volume is well balanced, exactly adapted to its purpose, and fully up to date. Since the last edition, published in 1914, the war has created new diseases, or at least brought certain affections, previously rare or unrecognized, into prominence, such as trench fever, spirochaetosis icterohaemorrhagica, and war nephritis, and these are succinctly described. Under the title "effects of strain and violent effort on the heart (soldier's heart)" an account is abstracted from Dr. T. Lewis's report to the Medical Research Committee on disordered action of the heart, for which the non-committal name of "effort syndrome" was suggested; it is at first sight rather disappointing that Sir F. Taylor does not endorse this, but perhaps the entry "effects of strain on the heart" in the last published (1906) edition of the *Nomenclature of Diseases* has influenced the President of the Royal College of Physicians in his decision. Many additions have, of course, been made, and the book has been thoroughly revised. The recent work on the treatment of acute poliomyelitis by immune serum from convalescent or recovered patients, and Allen's treatment of diabetes are duly mentioned; and the inclusion of trinitrotoluene poisoning, Dr. Cameron's views on lymphatism, and Dr. Willcox's recommendations for the dietary of beri-beri, show how carefully the changing face of medicine has been scanned. It is always possible to find something to criticize, and the method of estimation of the blood pressure, and the considerable space allotted to Arneith's count might be instanced in this case, if only to throw into greater prominence the general excellence of the work as a whole.

STUDIES IN THE HISTORY AND METHOD OF SCIENCE.

THE increasing specialization necessitated by the enormous advances of science is attended by the disadvantage that the groups of workers become somewhat isolated and acquire a narrowed horizon on which their aims are exclusively focussed. Further, in the pursuit of fresh knowledge the debt to the past is easily forgotten, and, as Sir W. OSLER points out in his succinct introduction to Dr. SINGER'S *Studies in the History and Method of Science*,² it is unfortunate that the progress of science makes useless the very works that made progress possible: the student is too apt to think that because useless now they have never been of value. The need for a comprehensive study of the methods of science has been met by the recent appearance of books and journals, and among these is the present collection of essays on the history of science, which, had not the war intervened, would probably have seen the light in a new *Journal of the History and Method of Science*. Most of these essays were in course of preparation before the war, and the author of the philosophical review of vitalism—the distinguished experimental embryologist, Dr. J. W. JENKINSON—was killed in action on June 4th, 1915, ten days after landing at Gallipoli.

Nearly half the volume is occupied by two scholarly and interesting contributions from Dr. Singer, to whom and to Sir William Osler the credit for the inspiration of this publication must be assigned. His analysis of St. Hildegard's scientific views and visions contains an extraordinary amount of research, presented in an attractive form and interspersed with shrewd observations, such as that though visions were the fashion and a common literary device in her times, there is internal evidence in the description of her visions that, like so many other distinguished people, she was subject to migraine with ocular manifestations. His valuable study in early renaissance anatomy contains the manuscript text of Hieronymo Maufredi's *Anatomy* in the Bodleian library at Oxford, transcribed and partly translated by Miss A. Mildred Westland. This text appears to be almost unknown. It was the first complete treatise on the subject originally written in Italian, and it represents with but little modification the tradition of Maufredi's predecessor at Bologna, Mondino, of whom a critical

¹ *The Practice of Medicine*. By Sir Frederick Taylor, Bt., M.D., President of the Royal College of Physicians. Eleventh edition. London: J. and A. Churchill. 1918. (Roy. 8vo, pp. xvi + 1091; 12 plates, 85 figures. 2s. net.)

² *Studies in the History and Method of Science*. Edited by Charles Singer. With an introduction by Sir W. Osler. Oxford: Clarendon Press. 1917. (Imp. 8vo, pp. xvi + 304; 41 plates (6 coloured), 32 figures. 21s. net.)

estimate is given. These two articles are copiously and finely illustrated by thirty-seven plates and twenty-three figures in the text, including two drawings by Leonardo da Vinci from the Windsor Castle collection. Dr. Raymond Crawford, the President of the Historical Section of the Royal Society of Medicine, writes on the blessing of cramp-rings—a chapter in the history of the treatment of epilepsy—and traces these rings from the time of King Edward the Confessor. Linacre, when President of the College of Physicians of London, lent his countenance to their use, which, it is suggested, may have originated in the Galenic belief that an epileptic seizure can be aborted by the application of a ligature to a limb above the starting point of the aura. In his essay on Dr. John Weyer and the witch mania, Dr. E. T. Withington details the horrors of persecution suffered by poor women who were tortured until they confessed imaginary crimes and then burnt; he points out that Weyer was the first serious opponent of the witch hunters, and that even one hundred years after the appearance of Weyer's book Sir T. Browne, the famous author of *Enquiries into Vulgar and Common Errors*, was responsible for the hanging of reputed witches. Mr. Reuben Levy throws doubt on the belief that Maimonides was the author of the unpublished *Tractatus de Causis et Indiciis Morborum*, and adduces evidence to show that it is improbable that he composed a treatise of this scope. In the concluding article, on scientific discovery and logical proof, Dr. F. C. S. Schiller, author of *Formal Logic*, discusses the limitations of the application of logic to the advance of science.

Dr. Singer is to be heartily congratulated upon the success of this beautifully printed and illustrated volume.

GAS GANGRENE.

The monograph on gas gangrene³ by ANDRÉ and JOSEPH CHALIER, containing as it does the full notes of the 103 cases upon which it is based, will be read with all the interest and attention due to the high repute of the authors. Its real merit is obscured, however, by the attempt they have made to give a precise meaning to the term "gas gangrene." Their method appears to be not to make the terminology fit the facts, but to select the clinical facts that can be brought within the legitimate meaning of the term. Thus they limit themselves to the consideration of a condition that is never originated in the head, neck, or trunk, and that is never associated with the presence of pus. If the reader will remember that the book is concerned only with those manifestations of "gas infection" which arise in the fleshy parts of the extremities, and are not characterized by suppuration, he will not be disappointed, however much he may wish the authors had adopted a wider standpoint, and employed their talent for observation and description for a more comprehensive purpose. A surgeon who has not seen gas gangrene will put the book down with a clear conception of a very important phase of infection by the *B. perfringens* and other anaërobic organisms, alone or associated with aerobic. The authors have apparently not met with the type of case, so frequent in British hospitals, at some times and places where the gangrenous process is limited to a single muscle or muscle group, and where the infection can be, so to speak, eradicated by ablation of the muscle or muscles up to their attachments. Nor do they mention, or, at any rate, lay due stress upon, the share of acidosis in producing the general toxic state—an omission reflected in their account of treatment. Three great "forms" are classified—the circumscribed, the diffuse, and the massive. Yet it seems necessary even for the authors to append a good sprinkling of "varieties"; and though they state that these may all be brought within the primary "forms," it requires no little strain. Withal, and notwithstanding what may appear vigorous criticism, the content of the monograph is valuable, quite valuable enough to withstand much more trenchant attack.

NOTES ON BOOKS.

WE have received from Lieut.-Colonel J. LLOYD JONES, I.M.S., a reprint of an article by him on "The young delinquent, his care and after-care," published in the *Social Service Quarterly*, Bombay, January, 1917. Colonel

³ *La Gangrène Gazeuse*. By André Chalié, Ancien Chef de Clinique Chirurgicale à la Faculté de Lyon, and Joseph Chalié, Ancien Chef de Clinique Médicale à la Faculté de Lyon. Paris: Félix Alcan. 1917. (Demy 8vo, pp. 388; 59 figures. Fr. 8.80.)

Lloyd Jones is Chairman of the Managing Committee of the David Sassoon Reformatory, Matunga, and in this article he reviews briefly what has been done in this direction. He points out that in Bombay provision has to be made for delinquents at an earlier age than at home—namely, from 8 or 9 onwards to 18. He relates the foundation, by the benevolence of the late Mr. David Sassoon, of the Matunga Reformatory and Industrial Institution (now mainly kept up by the Government), giving some details of the system pursued, and urging the importance of manual instruction under competent teachers, who know how to teach not merely how to manufacture, so that the pupils may become qualified for employment in suitable handicrafts, amongst which he mentions motor car and other engineering work. He deprecates street trading for juveniles. He rightly lays stress on the influence on character of a wise and sympathetic superintendent, able to maintain good discipline, and to direct into useful channels energies previously misdirected, consideration being taken of the mental and physical degeneracy by which so many juvenile delinquents are handicapped. After-care by voluntary associations is rightly insisted on as indispensable for success.

The volume on *Concrete Cottages*,⁴ by Mr. ALBERT LAKEMAN, is a highly practical work, illustrated by a number of photographs and drawings and by the report of the assessors who adjudicated in the competition for concrete cottages to be erected at a cost not exceeding £125, the amount to be exclusive of builder's profit, sanitary fittings, land drainage, etc., or the cost of drains and their connexion with sewers. The plans and drawings show considerable variety of treatment, the design which won the first place having a flat roof, a feature which may or may not prove to be well adapted to the climatic conditions of Great Britain. One of the sections of the book deals with methods and details of construction, four types of walls being enumerated—namely, those made of (1) hollow or solid blocks, (2) of concrete, plain or reinforced, filled in between vertical shuttering built up *in situ*, (3) concrete filled into horizontal moulds, each producing one side of the building and raised into position when sufficiently hardened, and (4) concrete poured in a more or less liquid state into wood or iron moulds erected complete to form the structure. The last plan does not seem to be of practical importance unless large numbers of cottages are being erected at one time. The book also contains designs for small garages and farm buildings, and a section giving general information for the builder as to plant and materials. The book is not one which could be criticized without going into details which would take us too far, but it can confidently be described as a thoroughly practical guide.

⁴ *Concrete Cottages: Small Garages and Farm Buildings*. Edited by Albert Lakeman, M.S.A., M.G.I. 1918. London: Concrete Publications, Ltd. (Roy. 8vo, pp. xii + 170; 169 figures. 5s. net.)

MEDICAL AND SURGICAL APPLIANCES.

An Improved Tourniquet.

DR. HEATON C. HOWARD (London, W.) has devised a modification of Petit's well-known tourniquet. It possesses the following features: (1) The pad is separated from the band, so that when the requisite amount of pressure is applied there is a space on either side of the pad by which complete constriction of the limb is avoided. (2) A counter pull, enabling the band to be applied easily and accurately. (3) A fastening providing a simple method of fixing the band, and of releasing the band and pad. It has been in use for over two years, and encouraging reports have been received. It is made by J. H. Montague, 69, New Bond Street, London.

ACCORDING to the *New York Medical Journal*, the laboratory of the U.S. Army Medical School at Washington shipped 8,843,047 c.c.m. of vaccine to Europe in the six months between April 1st and November 1st, 1917. Sufficient antityphoid vaccine has been sent to inoculate 1,051,604 men; of the double vaccine (paratyphoid A and B) to vaccinate 77,352 men. Since production of a triple vaccine (typhoid and both paratyphoids) on a large scale was begun, enough has been shipped to vaccinate 1,489,902 men. Each cubic centimetre of the triple vaccine contains 1,000,000,000 typhoid bacilli and 750,000,000 of each of the two paratyphoids. The United States army uses the Rawling strain of typhoid bacillus, isolated from a patient at Netley in 1900. The stock from which the typhoid vaccine is made is composed of lineal descendants of these germs propagated in artificial mediums during the last seventeen years. The paratyphoid vaccines are a combination of four strains, two British and two American.

COMPULSORY RATIONS.

REGULATIONS FOR INVALIDS.

GENERAL REGULATIONS AS TO PERMITS FOR INVALIDS.

In view of the difficult position in which doctors are likely to be placed in granting certificates to invalids for extra quantities of certain foods, it has been decided by the Ministry of Food, on the advice of the Committee of Reference of the Royal Colleges of Physicians and of Surgeons, and of the Central Medical War Committee, that for the time being these can only be allowed as follows:

1. *Sugar*.—Extra sugar shall only be allowed for persons with difficulty of swallowing solids due to organic disease—for example, cancer of the tongue, cancer of the oesophagus, gunshot wounds of the jaws.

2. *Meat, Butter, and Margarine*.—Extra meat and fat may be allowed for patients suffering from diabetes and from tuberculosis, also from coeliac disease and pancreatic insufficiency. No extra meat can be allowed for making beef-juice, beef-tea, or broth.

3. *Milk*.—Priority may be granted for milk as follows: In cases of acute illness—for example, pneumonia, typhoid fever, acute abdominal conditions—the doctor in attendance may give a certificate, on the receipt of which the milkman shall be empowered to supply the quantity of milk for one week. This certificate shall not extend for a longer period than one week, unless permission has been obtained from the Local Food Office. Extra milk may also be allowed for pregnant and suckling women; for invalids suffering from the following chronic diseases: nephritis, tuberculosis, certain gastric and intestinal conditions—for example, gastric and duodenal ulcers, gastrostaxis, enteritis, dysentery, and diarrhoea; recognized diseases and disorders associated with malnutrition, and for patients who are unable to take solid food.

Procedure.—Complete instructions with respect to the above are being issued to Local Food Offices, to which all applications must be sent, accompanied by a certificate signed by the doctor in charge of the patient. Each certificate must name the disease or condition from which the patient is suffering, and on account of which an extra ration is requested.

Duration of Validity of Permit.—No permit for extra rations shall be valid for more than one month.

Bread and Cream.

The Committee state further, with regard to bread and cream: (a) There is not sufficient evidence that the bread at present used is in any way injurious to health, nor that any disease requires bread made from "superior flour." (b) There is no disease for which cream should be allowed. Pending further instructions all inquiries respecting bread or cream should be referred to the Ministry of Food, Palace Chambers, London, S.W. 1.

DIETARIES FOR TUBERCULOUS PERSONS IN SANATORIUMS AND HOSPITALS.

The Local Government Board, in consultation with the Ministry of Food, has had under consideration the position of institutions for the treatment of tuberculosis in relation to the system of compulsory rationing now in force in London and the Home Counties, and to be extended, as is understood, to the rest of the country on March 25th. The following scales have been temporarily approved by the Food Controller. They are to apply only to patients actually suffering from tuberculosis. Officers of sanatoriums, unless themselves suffering from tuberculosis, must comply with the general scale of rations—namely, meat 1½ lb. (children under 10 to be allowed 10 oz.), butter and margarine 4 oz., sugar 8 oz. For the purposes of the rationing scheme "meat" is defined by the Ministry of Food as including butcher's meat and pork, bones, offal, suet and sausages, bacon and ham, cooked, tinned, preserved and prepared meats, venison and horse meat, and poultry, rabbits, game and hares. In certain instances a larger amount of these foods may be regarded as the equivalent of the rationed quantity of butcher's meat.

Dietaries for Tuberculous Persons in Sanatoriums and Hospitals.
Weekly Allowance of each Article "as Purchased."

	For Persons without much Constitutional Disturbance.		For Persons with Constitutional Disturbance.	
	Men. 14 pints	Women. 14 pints	Men. 21 pints	Women. 21 pints
Milk				
Meat (including suet) ...	3½ lb.	3 lb.	3½ lb.	3 lb.
Bacon	½ lb.	½ lb.	½ lb.	½ lb.
Fish	½ lb.	½ lb.	1 lb.	1 lb.
Cheese	½ lb.	½ lb.	4 oz.	4 oz.
Oatmeal	½ lb.	½ lb.	½ lb.	½ lb.
Pulses	½ lb.	½ lb.	—	—
Bread	4 lb.	3 lb.	3 lb.	3 lb.
Flour	½ lb.	½ lb.	½ lb.	½ lb.
Potatoes	5 lb.	4 lb.	2 lb.	2 lb.
Cereals	½ lb.	½ lb.	½ lb.	½ lb.
Sugar	½ lb.	½ lb.	½ lb.	½ lb.
Jam, syrup, etc. ...	½ lb.	½ lb.	½ lb.	½ lb.
Margarine and other fats	10 oz.	10 oz.	10 oz.	10 oz.

The scale for children under 10 will be three-fifths of the corresponding scale for the adult woman.

NOTE.—At any time it may be necessary to substitute equivalent amounts of other foodstuffs for not more than 1 lb. of meat or 7 pints of milk per week.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee, held on Tuesday, February 12th, nineteen cases were considered, and £198 voted to eighteen of the applicants. The following is a summary of some of the cases relieved:

M.B., C.M. Aberd., aged 67, who practised in India and Africa, and acted as ship's surgeon. Left hemiplegia recently. Only income, interest on £70 invested. His wife is now trying to obtain some employment. Has three daughters, all married, and unable to help. Voted £26 in twelve instalments, and referred to the Guild.

Widow, aged 51, of M.R.C.S. Eng. who practised at Stalham, Norfolk, and died in April, 1917, from tuberculosis. There were seven children, three of whom have died from tuberculosis. The eldest son, aged 22, is a lieutenant in the army. Only permanent income £15. Applicant has recently had to give up post as bookkeeper, so as to enable her to look after the other three children, who are delicate. Wants help towards the education of the youngest boy, aged 12. Voted £5, and referred to the Guild.

Widow, aged 40, of M.B. Irel. who practised at Hampstead and died in 1908. Applicant was left without means, and one daughter, now aged about 16, who is at a boarding school. Friends assisted her to establish a nursing home on the East Coast, but, owing to the war and air raids, she had to give it up in 1915. Has since had several posts, but, owing to indifferent health, has been unable to continue; is now looking for light employment. Voted £5, and referred to the Guild.

Orphans—boys, 17 and 15, girl, 12—of L.R.C.P. Glasg. who practised near Manchester and died in 1917. Mother also dead. Father died leaving debts and no provision for the children. Friends are endeavouring to collect money to provide them with a suitable home and education, and application has been made to the Fund for assistance. Voted £25, and referred to the Guild.

Widow, aged 69, of M.R.C.S. Eng. who practised in London, and died in 1893. Applicant is crippled and quite helpless. Income, rent of one house, £44. This is taken up by paying mortgage. Earns a little by painting. Relieved three times, £34. Voted £12 in twelve instalments.

Widow, aged 55, of M.R.C.S. Eng. who practised in Wiltshire and died in 1914. Applicant was left entirely without means, with one daughter, now aged 24, who is unable to help. Applicant is now working as a domestic help at a very small wage. Relieved five times, £40. Voted £12 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W. 1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

British Medical Journal.

SATURDAY, MARCH 9TH, 1918.

LUNACY LAW AND EARLY MENTAL DISORDERS.

THE need for amendment of the Lunacy Law, recently referred to in these columns, is a matter of such importance and has awaited solution so long that no apology is needed for reverting to it and examining it more fully.

The essential complaint is that mental disorders, so far as the great bulk of the people is concerned, have been regarded and treated from a different standpoint and on a different basis from physical disorders, with the result that the sufferers from mental disorders have failed to benefit from the modern advances in our views of disease and its prevention. Though in no department of medicine is the need greater for the earliest and most skilled treatment, yet hitherto these disorders have not been looked upon from a public health point of view, and in numberless cases the tendency of the existing law is to cause remedial treatment under the most advantageous conditions to be postponed until the disorder is so firmly established that the chances of cure are much lessened. This arises from the fact that the law governing these matters starts from the point of view of the lawyers, who are concerned to arrange how the public is to be protected from danger, how the individual is to be saved from false imprisonment, how his money is to be protected if he is wealthy, and how the money is to be found and spent for his maintenance if he is not. They do not look at the matter from the point of view of the public health, which asks how these sick persons are to be best treated so that they may be cured as early and in as many cases as possible. The lawyers' point of view is not unimportant, but it has been allowed to overweight the administration, has failed to a large extent from the public health point of view, and has inflicted hardships on the individual not foreseen by the Legislature at the time the law was made. Since then movements made in the interest of the public health have required some relaxations of the old rigid legal and financial views. Of this tendency instances are afforded in the Mental Deficiency Act, 1913, with its approved homes, in the compulsory powers for dealing with infectious diseases and tuberculosis, and in the financial support given to clinics for venereal diseases.

The medical profession, and the British Medical Association in particular, have for long years been alive to the defects and have taken steps to urge their remedy, but in vain. The war in this, as in other matters, has made it necessary to deal with the problem in a fresh, untrammelled way, and has provided an object lesson which should greatly aid us in reforming our civil procedure.

The ways in which the law acts as a deterrent to early treatment are in the main three. The first is the need for certification before any patient can be treated in a rate-aided institution for mental diseases; the second is the stigma of pauperism which the law inflicts on those so treated; the third is the want, for the most part, of arrangements for dealing with early cases of mental disorder in such a way as not to

brand the ailing person with insanity in his neighbours' eyes and all the disastrous consequences that flow from this, while yet maintaining a procedure which shall guard the safety of the individual and the public. In the army none of these difficulties stand in the way; large numbers of cases of recent mental disturbance have been dealt with in special hospitals for "functional nervous disorders" without certification in the vast majority of cases. Thus Major Eager, R.A.M.C., reports that at the Lord Derby War Hospital at Warrington, out of 3,800 cases, certification for transfer to an institution for the insane became necessary in 192 cases only, and in many of these only after many months' treatment without certification. At the Maudsley Hospital in London, which is now used by the War Office for similar purposes to those for which it was intended in civil life, the patients are treated without certification; whereas when the London County Council again takes over the hospital, unless the law is first changed, it will only be able to use it for certified patients, and the institution will technically be an asylum, instead of a hospital for voluntary patients and early cases as intended by the donor. The soldiers suffer from the stigma neither of insanity nor of pauperism, military discipline supplies the necessary powers of control, and there is no obstacle to the best treatment being supplied at the earliest stage of the illness.

What is urgently wanted is to bring these advantages within reach of the great mass of the civilian population when they are in danger of mental breakdown. Some reformers would advocate a complete recasting of the lunacy laws, and there are arguments in favour of such a course, but at the present time any such attempt would certainly involve great delay, and perhaps prove impracticable. The judicial system of certification which is the basis of the present law is common to the lunacy laws of practically every other country, and constitutes an important safeguard which Parliament is not likely to abandon, and there are large numbers of chronic cases for whom the provisions of the present law are desirable, and in the main unobjectionable. Moreover, there seems to be no great difficulty in drafting amendments to the present law which would achieve the desired results. Legislative proposals with similar objects were made in 1889, 1890, 1904, and 1905, and in 1914 the then Home Secretary (Mr. Herbert Samuel) promised to see what could be done in this direction by administrative action, without, however, any apparent result. The present time, when it is being proposed that the provision for persons of unsound mind now made under the Poor Law should be transferred to the county councils, together with all the Poor Law buildings, and when there is a prospect that all matters affecting public health may be brought under a Ministry of Health, would seem to be a favourable moment for bringing the question again before Parliament.

Generally speaking, what it is sought to bring about is that treatment on hospital lines shall be available for mental disorders, and that the procedure shall be of such a character that the patient on his own motion, or on the advice of his friends, shall be ready to take advantage of it at an early stage of his malady, as he would take advantage of an ordinary hospital, without coming under the Poor Law and without certification. The patient must not be brought into contact with the chronic insane, and every care must be taken that the hospital is not associated in the public mind with confirmed insanity.

While there is general unanimity as to the broad aims, when it comes to giving effect to them in detail

many debatable matters arise. For instance, it is asked what classes of mental disorder are to be considered suitable for such treatment. It is agreed that confirmed cases of long standing are unsuitable, but among the cases of recent origin some are of very gradual onset, and for a long time, or, indeed, throughout the whole period of their malady, it may be doubtful whether they could properly be certified as insane. Other cases may at the onset be acute and yet the prospect of recovery may be hopeful, so that they are not to be accounted confirmed cases. Is it desirable to distinguish cases on the ground of certifiability or on the grounds of recent origin and probable curability? For instance, are suicidal and violent cases all to be relegated to the asylum under certificates, or are they to be given the benefit of hospital treatment uncertified? Again, what powers of control and detention are to be given? This necessity may arise at any time in a recent or doubtful case, if the patient is not to be certified forthwith and sent to an asylum.

Another question is, What other cases are to be received in these hospitals? It is important not only that they should have a name, such as "Hospital for Nervous Disorders," that will not alarm or deter the patient, but also that the name should accord with the fact, and that patients suffering from disorders of the nervous system other than mental cases should be treated there; in the opinion of some its doors should be open wide to accept cases of organic and functional nervous diseases of all kinds.

We are now in a position to consider how the buildings for this purpose should be provided and maintained, where they should be situated, and the nature of the accommodation they should afford. Clearly the cost must fall on the public purse, presumably through the county councils. Possibly a Poor Law building may prove useful in some cases. It seems clear that the buildings, however provided, should be quite separate from the asylums; whether any of them should be wards or blocks of general hospitals is a matter for discussion, but there can be little doubt that they should where possible be associated with, even though locally distinct from, hospitals with teaching schools, so that both for students and practitioners the practical study of insanity and its treatment may be made feasible. Others would be required in every large centre of population. In all cases in-patient as well as out-patient accommodation would be necessary and facilities for research work on the spot and for the use of new methods of treatment. In the past differences have arisen as to whether such hospitals should or should not come under the supervision of the Board of Control, but opinion seems to point more and more to an affirmative answer, particularly with the prospect of the establishment of a Ministry of Health to which the Board of Control would presumably be subordinated. The question also arises whether notification of cases admitted to these hospitals is necessary or desirable, and if so, under what conditions, how soon, and by whom. It has also been suggested that patients declining to avail themselves of treatment should be notified by their doctor to the medical officer of health.

So far we have considered the provision necessary for those dependent upon rate-aided institutions. An amending Act should, however, include provisions granting similar facilities under proper safeguard to the well-to-do. For though these classes have had the advantage that they could be admitted as voluntary boarders to licensed houses or registered hospitals, there are many cases for which skilled treatment

is desirable who are able and willing to pay for it, but are unwilling to go as voluntary boarders where insane patients are received. This provision has not been extended to rate-aided institutions, and it is a hardship on those who could not afford to pay for themselves in a licensed house or registered hospital that it has not been open to them to enter the public asylums as voluntary boarders. It might be well to amend the law in this respect too, though it is doubtful whether the need would be so urgent if the proposals outlined above for special hospitals were carried out.

BARS TO THE VICTORIA CROSS.

In the summary of casualties and honours in the military medical services in 1917, which was given in the *JOURNAL* of February 9th, the belief was expressed that a clasp to the V.C. had been given only some four times. Dr. Wilfred L. Myles (Pontllanfraith) writes to suggest that this is incorrect, and that the only two clasps awarded since the institution of the decoration in 1856 have been those gained by Temporary Lieut.-Colonel A. Martin-Leake, R.A.M.C., and the late Temporary Captain N. G. Chavasse, R.A.M.C. Our correspondent bases his opinion on a passage in the introduction to the *History of the Victoria Cross*, by Philip A. Wilkins, published in 1904: "The Warrant authorizes a bar to be attached to the riband for any further act of conspicuous bravery on the part of the owner of the Cross, but no such bar has ever yet been issued, although statements to the contrary have frequently been made." Dr. Myles supposes that the mistake arose from the fact that three of the Crimean winners of the Cross—Admiral Sir W. N. Hewett, R.N., Captain G. F. Day, R.N., and Sergeant-Major John Berryman, 17th Lancers—were mentioned more than once for bravery during that campaign, whence the belief that a bar or clasp had been awarded them. As no official list of winners of the Victoria Cross since its institution is published, we have submitted the question to the War Office, whose reply confirms Dr. Myles in his view. The Assistant Military Secretary informs us that the only recipients of bars to the Cross have been the late Captain Noel Godfrey Chavasse, V.C., M.C., R.A.M.C., and Captain (now Temporary Lieut.-Colonel) Arthur Martin-Leake, V.C., R.A.M.C. The medical profession has every cause to feel proud of this unique distinction which is now placed beyond the region of doubt.

MALARIA CONTROL.

Two experiments on malarial control are related in Bulletin No. 88 of the United States Public Health Service. A town or community unit was taken, and antimosquito measures alone were applied to it, while in a rural unit each family or house received individual consideration, being protected by screening, or having quinine given in immunizing doses, supplemented by the sterilization treatment of carriers upon their detection by blood examination. The plan for these studies was prepared by the late Surgeon R. H. von Emdorf, formerly in charge of malarial investigations. Active field operations were begun in April, 1916, under the immediate supervision of Assistant Surgeon R. C. Derivaux, one of the writers of the present report. Surgeon von Emdorf died suddenly in September, 1916, and the completion of the studies was carried out by Drs. Derivaux, Taylor, and Haas. The results of the first experiment were very encouraging, and the amount of malaria in the township was greatly diminished and kept under good control. The results of the second experiment, as might be expected, were less convincing, especially that part dealing with the prophylactic use of quinine. Two doses of 5 grains each were directed to be taken in the morning and evening of two successive days each week, preferably on Saturday and Sunday,

making a total of 20 grains a week. For sterilization adults were given 10 grains daily, in two doses of 5 grains each in capsule, for thirty consecutive days. Such doses are much too small, and have recently been shown on numerous different occasions to be totally inadequate. The wonderful figures given are manifestly due to the infrequency of the blood examinations. If these had been carried out in greater detail such statements as the following could hardly have been made: "Of the 69 carriers to whom quinine was given for sterilization (in the amounts mentioned above), 62 remained under observation and were available for re-examination; of this latter number, 3 were found to have remained infected, a reduction or 'sterilization rate' of 95.17 per cent." This looks very marvellous, but an explanation is forthcoming when another statement, made on page 44 of the report, is taken into account—namely, "No re-examinations (of the carriers) were made upon completion of treatment, determination of the sterilization being provided for in repetition of the general parasite index." Even granting that this index was compiled from thick blood films, one examination is quite insufficient for estimating whether a patient is cured or not. It can hardly be doubted that if the 62 individuals had been followed more closely, and numerous blood examinations made, many would have been found still to be infected. Further, no risk of reinfections is taken into account. Though these results are open to criticism such experiments are not to be condemned. On the contrary, it is only by conducting well-thought-out schemes like those described that progress in the stamping out of malaria will come about. Destruction of mosquitoes and individual prophylaxis by living in mosquito-proof houses seem to be more useful than quinine administration, though the latter cannot be dispensed with as an adjunct.

THE FUTURE OF THE INTERNATIONAL RED CROSS.

It is to be feared that there is no longer any room to doubt that seven officers and forty-seven other ranks R.A.M.C. and eight women nurses lost their lives when the hospital ship *Glenart Castle* foundered. She was outward bound and had no wounded on board. The Admiralty states that it is "quite clear that she was sunk by an enemy submarine." She appears to be the seventh hospital ship torpedoed by enemy submarines. One of these was the Franco-Russian hospital ship *Portugal*, attacked on March 30th when near Of, in Eastern Anatolia. She sank in one minute with the loss of one hundred lives, including many women. This feat of war may have been accomplished by Austria, but the other six ships, all British, were torpedoed by German naval officers, who well knew what they were doing. The first hospital ship attacked seems to have been the *Asturias* when off Havre on February 1st, 1915. The torpedo missed then, but on the night of March 20th-21st, 1917, she was struck by one better aimed; 31 of the medical services and crew were killed, 39 were injured, and 12, including 2 women, were drowned. The hospital ship *Gloucester Castle* was torpedoed in mid-channel on the night of March 30th-31st, 1917, but all the wounded were saved. The *Donegal* was torpedoed on the evening of April 17th, 1917, and 29 wounded and 12 of the crew were drowned. The *Lanfranc* was torpedoed on the same evening, when 19 British lives were lost and 15 German wounded drowned; 152 wounded Germans were rescued by British patrol ships which the Germans failed to sink. The *Dover Castle* was torpedoed in the Mediterranean on May 26th, 1917, at 6 p.m., and again at 8.30 p.m.; six men were killed by the explosion, but all others on board were saved before the vessel sank. The *Rewa* was torpedoed, like the *Glenart Castle*, in the Bristol Channel, at midnight in the first week of January, 1918; all the wounded were saved but three of the crew were missing. The *Glenart Castle* had had previous experiences of the risks of this war. On

August 15th, 1914, when called the *Galician*, she was held up by a German converted merchant cruiser (*Kaiser Wilhelm der Grosse*) while homeward bound from Capetown. Next day the German cruiser signalled, "On account of your women and children I will not sink the ship." By March 1st, 1917, wretchedness of most unclean thinking had brought the German mind to a much lower ethical state. On that day the ship, which meanwhile had changed its name and become a hospital ship, was badly injured, presumably by a torpedo, in the Channel, but all the wounded she was then carrying from France were saved and the ship herself was got into harbour and repaired. Other British hospital ships sunk were the *Braemar Castle*, *Anglia*, and *Britannic*, but it was never conclusively proved that their loss was due to torpedoes and not to mines. But we may rest the accusation on the seven hospital ships deliberately torpedoed. The accusation lies against the German people, as a whole, but particularly against the German Emperor and Empress, the heads in that country of the organization of the Red Cross, whose symbol they had sworn to respect; and against the German intellectuals who justify the actions of their rulers. The manifesto of some eighty or ninety German professors, issued at the beginning of the war, justifying the atrocities then committed only in Belgium, will not have been forgotten, but it is not so generally known that by a recent comb-out of all the German universities the signatures of some nine hundred professors and the like have been obtained to a similar pronouncement. The officers and men of the R.A.M.C. and the nurses who have lost their lives in these ships gave them to their country and to the great cause for which the Allies are fighting as truly as the men killed at Mons, or Ypres, on the Somme, or at Vimy Ridge, or Messines. The heartfelt sympathy of the profession they have honoured will go out to their relatives. But there is the wide general question, What is to become of the Red Cross system? Germany, which was a party to the conventions, broke all her undertakings at the very beginning of the war, as was shown last week in the quotations from the white paper, and has gone on breaking them ever since, as is shown by the torpedoing of hospital ships to-day. Can she be admitted to any international organization of the Red Cross in the future? What guarantees for good behaviour could she give which any other nation will accept? And what is the position of the Austrian Red Cross? It held an International Red Cross Conference less than a year before the war, and though few Red Cross atrocities have been traced to the Austrian Empire, it is a thick and thin supporter of the German Empire.

THE ONWARD MARCH OF TUBERCULOSIS.

THE world-wide limitation of the supply of foodstuffs and the consequent restrictions of civilian dietary have begun to show varying results as regards public health. Reports from crowded communities go to prove that in many respects there is a diminution of disease of the gouty type, so often attributable to dietetic errors, but a decided increase in tuberculosis. The city of Vienna, always a hotbed of tubercle, has suffered a great extension of the disease and a marked rise in the death-rate, and similar results are only too likely to follow in other large cities with restricted food supply where the disease has already become firmly established. Mindful of this probability, the municipal authorities in Chicago¹ have taken vigorous steps to cope with the danger, and since August last the whole State of Illinois has been subject to drastic regulations, enforceable by fine or imprisonment, whereby all cases of open tuberculosis are kept under close observation, and debarred from transgressing the well-known precautionary measures for the protection of themselves and their immediate surroundings. School children

¹ City of Chicago Municipal Tuberculosis Sanitarium. *Monthly Bulletin*, January, 1918.

are rigorously protected from all known sources of infection, whether in the home or the classrooms, and the sale of milk, groceries or other provisions on premises occupied by a consumptive person is absolutely forbidden until such person is removed or rendered innocuous by arrest of the disease. The time would appear to be ripe for some such compulsory powers to be provided in this country. Not only are the existing measures insufficient for their purpose but they are not even enforced. It would appear that notification has served to detect only a small proportion of the existing cases of tuberculosis, and the majority of them must have been sources of danger for many months. Information and instruction have been widely disseminated, but hardly any attention has been paid to the teaching that they have conveyed. The country has accepted compulsion with respect to food supply in order to assist in checking the advance of the visible enemy on the Continent, and it is to be feared that only similar compulsion will serve to stop the onward march of the invisible, but not less deadly, enemy that threatens us at home.

LUMBAR PUNCTURE FOR OBSTINATE HEADACHE.

It has long been known that severe headache results in many cases from increased intracranial pressure. Instances have been recorded in which relief from such headaches has occurred after the spontaneous discharge of cerebro-spinal fluid from the nose or from the ears, or from both. Hence it is not unnatural to suppose that severe recurrent headache may in some cases be due to sudden increase of the pressure of the cerebro-spinal fluid, whatever the cause of this increase may be, and that lumbar puncture should relieve such headaches. Professor Mingazzini of Rome has recently¹ published an account of forty-seven patients treated on these lines. All these patients had more or less permanent or continuous headaches not relieved by the ordinary methods of medical treatment; six were men, forty-one women. Cases with tuberculosis, syphilis, granular kidney, chronic alcoholism or excessive tobacco smoking, epilepsy, and intracranial tumour, were excluded from this series of patients. In every case the cerebro-spinal fluid withdrawn was found to be normal on examination, free from globulin, and containing only a few lymphocytes. As a rule, the lumbar puncture made the headache worse for a few days, but a definite cure was obtained in twenty-four cases and a considerable improvement in fifteen more. No benefit resulted in the remaining eight. One patient, a woman of 60, who had had frequent headaches since her youth and daily for the preceding six months, was cured by a single lumbar puncture; another patient, a girl of 22, who had had headaches for two years, after typhoid fever, received no benefit from the puncture. It was noted that if the pressure of the cerebro-spinal fluid was normal or low, lumbar puncture failed to relieve the headache; it was successful where the pressure was found to be high. The results seemed independent of the quantity of fluid withdrawn; thus no improvement might follow the removal of 15, 20, or even 30 c.cm., while cure might follow the withdrawal of 10 or even 5 c.cm. Analysis of the histories of the patients seemed to show that the treatment acted best in cases in which the headaches had begun at the age of 10 or 20, and had later become permanent for no appreciable cause. The patients not improved by the puncture were those in whom the headache had been permanent from the outset, or had begun later in life and become permanent after lactation or the onset of some illness, or was associated with a neurosis, such as trigeminal neuralgia or epilepsy. Permanence of the headache for more than a year seemed to make a cure by lumbar puncture unlikely. The pathology of these headaches Professor Mingazzini leaves, as he found it,

obscure. They are thought to depend on increase in the quantity and pressure of the cerebro-spinal fluid, due to some upset in the balance between secretion and absorption. Some connexion between the choroid plexuses, the main secretors of the fluid, and glands with internal secretions, such as the ovaries or testes, has been thought to exist; this would explain, in part, the frequency of monthly headaches in women and the general tendency of headaches to grow less with advancing years.

EPIDEMIC JAUNDICE IN A DANISH ISLAND.

Dr. J. Kamp and Dr. T. B. Wernöe¹ state that in the Danish island of Bornholm a disease prevailed for many years the chief characteristics of which were jaundice, diarrhoea, and extreme prostration. In the period 1900-1915 there were between 200 and 250 cases among a population of only 5,000 to 6,000. In 1908 alone there were 70 cases, and there were 48 in 1912. In other years there might be only about a dozen cases. The village of Nexø was the centre of this disease, and even the sporadic cases observed at a distance from it could invariably be traced back to Nexø. Besides the jaundice, which usually lasted many weeks, there was tenderness over the gall bladder, and the area of liver dullness was increased. The watery, mucous stools were often blood-stained, and the associated colic was, as a rule, confined to the umbilical region. The diarrhoea was intractable and persisted for weeks and even months. The patient's general condition recalled the typhoid state, and complications were numerous, including haematuria, haemorrhage from nose and mouth, bronchopneumonia, myocarditis, and abscess of the liver and brain. The disease would break out again and again in the same house, attacking the same or different persons at irregular intervals. In such houses the domestic animals, notably calves and young pigs, suffered from recurrent attacks of severe enteritis. When, in 1914, steps were taken to isolate the patients in hospital, the number of cases soon diminished, and during the last three years none occurred. Examination of the blood, faeces, and urine was usually negative; only twice was the paratyphoid B bacillus found. It was also found twice in material obtained from sick calves and pigs. On these rather slender grounds the authors attribute the disease in both man and domestic animals to this microbe, which, they suggest, was imported to the district from California by an old workman who had contracted a dysentery-like disease there as a young man. He suffered subsequently from blood-stained diarrhoea every spring and autumn, and had recovered from a liver abscess. He did not seek medical aid until he was 60 years of age and moribund. The examination of the blood, faeces, and urine in this case was negative.

TUBERCULOSIS IN CHILDREN.

A COMMITTEE of the National Association for the Study and Prevention of Tuberculosis in America has published certain standards for the diagnosis of tuberculosis in children. The report has been critically examined by Dr. M. Fishberg of New York, and his remarks² contain points of interest, but many of them apply only to pulmonary disease, whereas the report of the committee deals with tuberculosis as a whole. He objects to the idea of standardization of diagnostic methods on the ground that many of the symptoms so standardized may be caused by other pathological conditions. Pulmonary tuberculosis in children between 5 and 10 years of age is as seldom met with in American clinics as in our own, but a very large proportion of children between those ages show a positive reaction to tests. The tuberculous lesion which is so fatal to infants under 3 is of bronchopneumonic type, and is only too common. Tracheo-bronchial adenopathy is frequently present in the first decade, and may give rise to

¹ *Il Policlinico, Sez. Medica, Rome, xxiv, July, 1917.*

¹ *Ugeskrift for Læger, November 1st, 1917.*

² *New York Medical Journal, November 24th, 1917.*

symptoms, and even physical signs, which are liable to be misinterpreted. Dr. Fishberg considers that the classification of such cases as consumptive and their treatment by segregation from the ordinary round of life is greatly to be deprecated, since the vast majority do perfectly well without any treatment at all.

THE CASE-BOOK OF SHAKESPEARE'S SON-IN-LAW.

DR. R. W. LEFTWICH read an amusing paper before the Shakespeare Association on March 1st on the case-book of Doctor John Hall, Shakespeare's son-in-law, who practised in the early part of the seventeenth century at Stratford-on-Avon. The original MS. of the case-book—a small duodecimo volume—is in the British Museum. The 180 "cures" which it described were arranged in no sort of order; only 21 were dated, and Hall's syntax was so awkward and his Latin so much abbreviated as to make the descriptions in parts unintelligible. One of the cases, for example, was marked "Feb. 3," which looked like a date, but must have meant tertiary fever. Hall's own practice, for which, in Dr. Leftwich's opinion, he had been licensed by the Bishop of Worcester, extended as far from Stratford-on-Avon as Gloucester, Northampton, and Ludlow. Yet he was no very skilful physician, even judged by the standard of his time. He was weak in details of diagnosis, though of details of a less relevant order he was full; his female patients, for instance, were described as fair, pious, and chaste, and many of the cases ended with a pious reflection. His armamentarium was almost exclusively herbal. In mentioning metals and stones as therapeutic agents Shakespeare was in advance of his son-in-law. Hall had a liking also for the disgusting remedies of the Middle Ages. One of his prescriptions was white wine with ten crushed garden worms, but the patient so treated declared himself deeply grateful, and that Hall had been a father to him! He did not often dip into astrology, though he gave occasional directions as to the taking of medicine at the time of new and full moon. It was claimed for him that he was the first to use antiscorbutic remedies—various grasses and watercresses in beer. Dr. Leftwich concluded by observing that it was hard to forgive Hall for his silence respecting Shakespeare. With the opportunities of a Boswell, he left not a biography but a case-book.

THE President of the Local Government Board has appointed Mr. J. B. Lawford, F.R.C.S., consulting ophthalmic surgeon to St. Thomas's Hospital, to be an additional member of the Advisory Committee appointed to advise the Board on matters relating to the care and supervision of the blind.

LIEUTENANT-GENERAL SIR ALFRED KEOGH, G.C.B., on relinquishing the post of Director-General of the Army Medical Service, has been appointed by the King to be a Companion of the Order of the Companions of Honour for services in connexion with the war. The Order, which was instituted last year, consists of one class only. Sir Alfred Keogh is the twenty-first Companion and the first member of the medical profession to receive this honour.

AMONG the fifteen candidates who have been selected by the Council to be recommended for election into the Royal Society are three members of the medical profession: Dr. Charles Bolton, Physician to University College Hospital; Surgeon H. B. Guppy, R.N. (retired); and Dr. Thomas Lewis, cardiac pathologist and assistant physician to University College Hospital. Of the consulting physicians, physicians, and assistant physicians to University College Hospital four are already Fellows of the Royal Society. Six physicians on the staff of one hospital holding this distinction must constitute a record.

Medical Notes in Parliament.

The Medical Treatment of Conscientious Objectors.—In the House of Commons on February 28th, in Supply, a debate was initiated by Mr. Whitehouse, raising amongst other questions the treatment of conscientious objectors. Sir George Cave, in his reply, said that there had been more than 5,000 of these men in prison from time to time. The total number of deaths in prison was two, both due to sudden and severe attacks of pneumonia. In both inquests were held, and in both the jury found a verdict of death from natural causes, adding a rider in each case, wholly acquitting both the prison doctors and the prison authorities of any neglect or want of care. The total number of deaths among the men in the camps, of whom there must have been somewhere near 4,000 altogether, was 8, or 2.5 per 1,000 per annum, and he would be very much surprised to learn that that was not a very satisfactory figure even as regards men of this age. Dealing with a specific case mentioned by Mr. Whitehouse which had been transferred from Dartmoor to a camp and had died there of diabetes, it appeared that sugar was not found in the urine until a day before his death. The case appeared to have been an unusual instance of acute diabetes. A medical record was always sent with a man, and on leaving Dartmoor he was medically examined and a report made showing what kind of work he was fit for. Special inquiry into what was called the strike of conscientious objectors at Dartmoor was made by Major H. Terrell, M.P., who heard evidence and statements from the conscientious objectors as to the man who died of diabetes; the findings of the coroner's jury seemed to have been correct. The number of conscientious objectors who had become insane was 13; in every case there were pre-existing causes, and the insanity was due neither to the conviction nor to the treatment. Of the 13 men mentioned, 12 were at once removed to asylums; the other was handed over to the care of his wife. Arrangements had been made with the War Office by which, if a prison doctor gave a certificate showing that a man was unfit for military service, it was accepted as conclusive. Every such case was reported to him, and he had directed the release of 28 such men. During the debate, Major Terrell gave an independent account of his visit to Dartmoor. The complaints he had met with were that the doctor had not certified men for discharge early enough, and that in certain instances he acted harshly. One specific case made by the secretary of the men's committee was as to a man who was insane, and was put into a padded room; the men were asked to take charge of him, but refused; the patient was then sent home and discharged; it was understood that he was now in an asylum. Another complaint was that a masseur was not provided at Dartmoor for two men who had met with accidents. He said that every complaint was investigated, and if there was any justification the matter was rectified.

R.A.M.C. and the Air Force.—Colonel Gibbs has stated that the transfer or attachment of R.A.M.C. officers could not be carried out until the actual formation of the Air Force. All steps were being taken to complete the arrangements for the medical care of the new force.

Sterilized Tuberculous Meat.—Mr. Clynes stated that he was aware that in most Continental cities carcasses slightly affected with tuberculosis were sterilized and used for human food, and that a certain amount of such meat was being so treated in Scotland. The advisability of extending this method was under consideration.

Tuberculous Discharged Men.—In reply to Major Davies, Sir A. Griffith-Boscawen stated that the Ministry of Pensions had no power to pay the expenses of treatment of discharged disabled men suffering from tuberculosis so far as provision is otherwise made for them. Arrangements had, however, been made to defray the cost of treatment in advanced cases, and in early cases sent for prolonged treatment and training to farm colonies. The insurance authorities had also been assisted to provide additional grants-in-aid to secure preferential treatment generally for discharged men. With regard to a substantial proportion of the men it was incorrect to say that they were not suffering from the disease when they entered the army but had contracted it during the period of military service.

Maisons Tolérées in France.—In reply to Mr. Lees Smith, on March 5th, Mr. Macpherson said that, as far as his information went, the question of placing *maisons tolérées* in France out of bounds did not arise unless British troops had been misconducting themselves under circumstances which in the interest of discipline rendered it necessary to place such institutions out of bounds.

A LINNEAN SOCIETY has recently been established in Sweden, the object of which is to diffuse information as to Carl Linné or Linnaeus (1707-78). In fulfilment of this purpose the society will publish writings of the famous naturalist and his pupils; throw light on the personality of the man from modern points of view; draw up a catalogue of all known memorials of him and his work, and found a complete Linnean library. The president is Dr. Tycho Tullberg, a lineal descendant of Linné.

THE WAR.

SECOND REPORT OF THE COMMITTEE ON PYREXIA OF UNKNOWN ORIGIN AND TRENCH FEVER.

THE DIAGNOSIS OF P.U.O. FROM ENTERIC.

THIS question was, as stated in the first report (BRITISH MEDICAL JOURNAL, January 19th, 1918), one of the objects which the Committee set before itself. That report dealt with 170 consecutive cases in which that diagnosis was purposely not made. The next 200 cases form the material of the present report. The clinical examination has been in the charge of Captain Horsley Drummond; the pathological has been carried out by Captain W. H. Perkins, who was specially detailed for this purpose. Their report was, with a few emendations, adopted by the Committee, which has throughout been in constant touch with the work.

The clinical examination of these cases, in addition to a careful record of symptoms, signs, temperature and pulse, has included also observations on blood pressure, on the atropine escape, and in a few cases on the cytology of the blood.

On the pathological side cultures have been made from the blood in all cases admitted at a sufficiently early period of the disease, and while the patient remained in hospital specimens of stools and urine have been bacteriologically examined twice weekly. The agglutinin titre has been determined at least thrice in every case.

The diagnosis of enteric fever in former days rested upon the clinical symptoms, the recovery of the organism, and the formation of a specific agglutinin in the blood, which was shown by Widal's test. The introduction of prophylactic inoculation has rendered the diagnosis much more difficult.

Certainty can only be attained by the recovery of the organism. But since inoculation against typhoid, and especially since the triple inoculation now in use has been practised, experience has shown that in only about 40 per cent. of cases which (1) clinically appear to be enteric, or (2) give the agglutinin reactions of enteric, or (3) afford evidence of both kinds, can the organism be recovered from the blood or excreta, even though the former be examined early and the latter repeatedly. This clinical

experience has been confirmed by *post-mortem* evidence, for the characteristic lesions have been found, though the organism could not be recovered.

On the other hand, the mere presence of agglutinins is no longer of the same cogency, since they remain as a product of prophylactic inoculation. In the course of an enteric fever, however, there is an increase of the agglutinins and a consequent rise in titre, which reaches its maximum about the third week of the disease. This rise and a subsequent fall of titre to the normal level constitute the "agglutination curve," which has now been invested with great importance in the diagnosis of the enteric fevers.

In the present series of 200 cases the agglutination test as an aid in diagnosis has been utilized in all, the method adopted being that associated with the name of Professor Dreyer.

Specimens of blood from all patients have been examined at intervals of four days, and the agglutinins for typhoid, paratyphoid A and paratyphoid B quantitatively determined. The technique elaborated by Professor Dreyer has been followed in all particulars. Readings have been recorded after immersion of the agglutination tubes for two hours in the water bath at 55° C. and controlled by a further reading at the end of twenty-four hours. The titre of the serum at which standard agglutination occurs has been arrived at by means of Dreyer's interpolation table, and the results of the tests in the cases recorded in Table II are expressed in standard agglutinin units.

It may be stated at once that in none of the 17 cases there recorded has an organism been isolated from blood, faeces, or urine. From the pathological standpoint the diagnosis has been arrived at solely on the results of the agglutination test.

It must be remembered that the practical value of this test as a diagnostic measure has been much questioned. It has been asserted that febrile diseases other than enteric may influence the production of agglutinins for typhoid and the paratyphoid organisms; but in the present series of 200 cases over 90 per cent. fail to show that agglutinin response which is characteristic of enteric infections. The results of the clinical examination of these cases have been recorded in Table I.

The first 8 cases are those which to the clinician most closely suggested an enteric infection—those which, before the results of the agglutination test were available, he viewed with greatest suspicion. The remaining 9 cases

TABLE I.—Summary of Clinical Signs and Symptoms met with in Seventeen Cases of Obscure Fever.

No. of Case.	General Appearance.	Symptoms.			Class. ¹	Fever.	Pulse. ²	Tongue.	Spleen.	Spots.
		Headache.	Pain.	Vomiting.						
1	Well	Chiefly morning	Not marked	1st day	O	10 days	Higher	Fairly clean	Large throughout	Present
2	Well	Chiefly morning	Very slight	1st day	O	9 days	Followed T.	Slightly furred	Large throughout	—
3	Toxic	Not marked	Severe in legs	—	C	23 days	Higher	Furred	—	Present
4	Well	Slight	Slight	—	O	8 days	Followed T.	Furred	Large throughout	Present
5	Toxic	Chiefly morning	Very slight	—	C	15 days	Higher	Furred	Large throughout	—
6	Toxic	Slight	Not marked	—	C	19 days	Followed T.	Dry and red	—	Doubtful
7	Toxic	Marked	Not marked	2nd day	C	13 days, swinging type	Lower	Furred	Enlarged 12th day to evacuation	—
8	Toxic	Marked	None after onset	—	C	14 days	Followed T.	Furred	Slightly enlarged 4th to 13th day	Present
9	Well	Very slight	Not marked	—	C	8 days	Followed T.	Dry and red	Slightly enlarged adm. to 17th day	—
10	Toxic	Very slight	Very slight	—	B	Low, irregular	Higher	Furred	Enlarged 3rd to 20th day	—
11	Anaemic	Only at onset	Slight	1st day	B	Normal on 4th day	Slow	Furred	—	—
12	Toxic	Only at onset	Severe	—	A 1	Typical relapse 7th day	Followed T.	Furred	Large 4th to 14th day	Present
13	Well	Only at onset	—	—	O	8 days	Followed T.	Slightly furred	Large 4th to 21st day	Present
14	Toxic	Very slight after onset	Not marked	1st day	A 2	Relapse on 5th, 8th, 12th, 17th days	Higher	Dirty	—	—
15	Well	Very slight	Very slight	4th day	O	6 days	Followed T.	Furred	Enlarged 8th to 26th day	Present
16	Flushed	Slight	Slight	—	A 2	Relapse 7th day	Higher	Furred	—	—
17	Well	Chiefly morning	Not marked	—	O	9 days	Followed T.	Fairly clean	Enlarged 8th to 59th day	Present

Diarrhoea as a symptom occurred in one case only (No. 8)—slight at onset.

¹ For classification see first report.

² "Higher" and "lower" mean higher than would correspond to the T., allowing a pulse of 80 for T. 99°, a pulse of 90 for T. 100°, and so on.

TABLE II.—Showing the Results of Agglutination Tests in Seventeen Cases of Obscure Fever.

No. of Case.	Atropine Escape.	Blood Pressure (mm. Hg).	Leucocyte Count.	Agglutinations (Standard Agglutinin Units).				Diagnosis.
				Day of Disease.	T.	A.	B.	
1.	Test positive; two records: (1) E. = 8 (2) E. = 6	(i) 115 (ii) 125	—	8 12 16	7 37 32	40 90 70	13 130 147	Paratyphoid B.
2.	Test negative. E. = 41; 14th day.	(i) 145 (ii) 125	—	8 12 16	20 18 16	0 0 0	78 113 216	Paratyphoid B.
3.	Test positive. E. = 8	140	—	9 13 17 21	18 31 36 36	8 8 8 39	7 13 20 20	Paratyphoid A.
4.*	Test positive; two records: (1) E. = 11 (2) E. = 13	(i) 95 (ii) 115 (iii) 115 (iv) 120	4,000	8 12 16 20	47 63 61 36	35 46 60 46	129 147 176 156	Group infection.
5.	Test positive; three records: (1) E. = 14 (2) E. = 16 (3) E. = 6	(i) 125 (ii) 145 (iii) 135 (iv) 145	—	8 12 16 20	32 37 65 32	23 114 137 78	4 56 78 44	Group infection.
6.	Test positive. E. = 10	(i) 160 (ii) 145	—	8 12 16 20	44 44 44 36	33 30 21 40	64 100 113 67	Paratyphoid B.
7.	—	—	5,000; 4,000; 4,000; 7,000; no parasites found	8 12 16	77 61 61	2 3 6	30 90 130	Paratyphoid B.
8.	Test positive; two records: (1) E. = 16 (2) E. = 12	128	—	8 12 16	24 61 61	60 160 190	4 6 32	Group infection.
9.	—	125	—	8 12 16 19	84 145 169 245	47 90 100 90	78 100 90 90	Typhoid.
10.	—	(i) 112 (ii) 105 (iii) 120 (iv) 120	—	8 12 16 20	6 18 80 70	0 0 0 0	20 88 26 22	Typhoid.
11.*	Test negative. E. = 34; 10th day.	—	5,000 10,000	11 15 19	83 107 122	70 116 101	103 103 130	Group infection.
12.*	—	(i) 115 (ii) 130	—	7 11 15 23	190 280 314 280	13 17 13 8	68 68 68 68	Typhoid.
13.	Test negative. E. = 22; 13th day.	(i) 105 (ii) 98	7,000	10 17 21	16 28 33	18 20 34	6 7 10	Group infection.
14.	—	(i) 110 (ii) 130 (iii) 130	—	8 12 16 20	40 33 33 54	30 30 25 22	5 18 32 44	Paratyphoid B.
15.	Test negative. E. = 26; 18th day.	(i) 120 (ii) 123	2,000	12 17 21 25	47 70 65 36	51 60 60 51	20 25 20 9	Group infection.
16.	—	(i) 105 (ii) 110	—	8 12 16	28 44 70	35 43 70	14 25 30	Group infection.
17.	Test negative. E. = 28; 21st day.	(i) 100 (ii) 110	—	8 12 16 20	15 10 10 9	9 15 15 14	9 44 32 50	Paratyphoid B.

N.B.—All the patients referred to in the above table had received a triple (T.A.B.) vaccine.

* In Cases 4, 11, and 12 the serological evidence was considered insufficient to warrant a diagnosis of enteric, but as doubt arose they are quoted in full. Case 12 is important, as it was a case of Class A 1 (see previous report) with a typical relapse on the seventh day.

presented no features which clinically differentiated them from the many other cases of obscure fever which have come under observation, and which the pathologist on the results of the agglutination test regarded as free from enteric infection. Here it may be noted, moreover, that in many of the cases in which the agglutination test failed to reveal any evidence of enteric infection the clinical picture more closely simulated that of enteric fever than it did in the 9 cases above mentioned.

It may, perhaps, be necessary to consider briefly the cardinal signs and symptoms of enteric infection as met with at the present time amongst triply inoculated men before referring in detail to those presented by the 17 cases.

A continued fever of a few days' duration, a slow pulse, an enlarged spleen, and a few spots, headache, the toxic

look, and a furred tongue, with, perhaps, some abdominal distension or tumidity, are all more or less constantly met with. None of the 200 cases under observation have presented any abdominal signs or symptoms, but all of the other phenomena mentioned above have been recorded many times among those cases in which no pathological evidence of enteric infection is forthcoming.

In a recent report of the P.U.O. Committee attention has been drawn to the types of temperature now met with in these cases of obscure fever, and the frequent occurrence of an enlarged spleen and the presence of spots has been recorded.

In Table I a summary of the clinical signs and symptoms met with in connexion with these seventeen cases is presented, and the temperature charts show that there is no uniformity in the course of the pyrexias they depict, every

type of chart recorded in the previous report being represented.

The pulse was noted to be regular in all cases, and tended for the most part to correspond with the rise and fall of the temperature; in three cases it was slow, but in the majority it remained at a proportionately higher level than the temperature.

Enlargement of the spleen (palpable spleen) was found in 12 of the 17 cases. The spleen was described as being on the whole larger than that commonly met with in most cases of trench fever, but in a few undoubted cases of the latter disease a spleen equally large and as persistent has been noted. A chart is appended indicating the onset of the splenic enlargement, and its duration whilst under observation.

Spots were detected in 8 cases, and appeared chiefly on the abdomen and the sides of the chest. They were fleecy in character, and apparently identical with the type of spot which is frequently seen in many cases of obscure fever. These spots differ in several particulars from the spots commonly associated with typhoid infections. The latter are described by Osler as

hyperaemic spots which appear from the seventh to the tenth day, usually at first upon the abdomen. They are slightly raised, flattened papules which can be felt distinctly by the finger, of a rose-red colour, disappearing on pressure, and ranging in diameter from 2 to 4 mm. They come out in successive crops, and after persisting for two or three days they disappear, occasionally leaving a brownish stain.

The spots observed in cases of obscure fever vary in number from three or four to 200 or more. They appear as early as the second day or as late as the third or fourth week of the disease, and are found usually on the abdomen, chest, or back. They are pink in colour, are not raised above the surface nor palpable, and disappear in twenty-four hours or less. They vary in size, but are commonly larger than the typhoid spot. Their outline is less regular, and they disappear on pressure.

All the 17 cases complained of pains in the head, for the most part confined to the frontal region and the back of the eyes. Persistent morning headache was a feature in 4 of the cases—a symptom by no means common in cases of trench fever unless a relapse is about to take place later in the day.

Nine of the patients were drowsy and toxic looking, and in 6 cases the toxæmia persisted sufficiently long to warrant a provisional diagnosis of enteric fever being entertained. Many cases of trench fever when seen early present a distinctly toxic appearance, but this they rapidly tend to lose.

In 15 cases the tongue was furred, and in 2 it was described as being red and "beefy" looking. In no case did the tongue remain furred for long. The marked pains in back and shins, which are common in trench fever, were only persistent and severe in 2 cases. All but one of the cases complained to some extent of backache and shin pains, but on the whole their occurrence was not a prominent feature of these cases.

Assuming for the moment that these 17 cases were, as shown by the agglutination test, cases of enteric fever modified in their severity by triple inoculation, and reviewing the clinical observations made on them, it becomes obvious that none of the signs and symptoms recorded, singly or in combination, are in any way characteristic of the disease, and that therefore a diagnosis of this condition based entirely on clinical observation is impossible. How, then, can an enteric

infection be differentiated from the many closely related obscure fevers?

Much has been written of the value of the atropine test associated with the name of Major Marris; more remains to be written when it has been more widely applied by many different observers. Its results in the few cases in which it has been applied in this investigation may be briefly noted. The test was applied in 11 of the 17 cases and was positive in 6 (54 per cent.). The test made on 58 other pyrexial cases in which the agglutination test proved negative was positive in 12 cases (20 per cent.).

The value of the agglutination test as a diagnostic measure may be once more considered. An experience of several hundred cases of pyrexia of unknown origin justifies the conclusion, based on clinical observation, that the vast majority are not due to an enteric infection. A large proportion of them can be identified with that relapsing type of fever which has been described as "trench fever."

In 1915, when McNee and Renshaw, and Hunt and Rankin investigated very many cases of this disease for evidence of enteric infection, they were dealing entirely with a disease as it appeared in men who had received a typhoid vaccine only. In such cases a single agglutination test is sufficient to determine the presence of paratyphoid infection, as the production of any agglutinins for paratyphoid A or paratyphoid B is sufficient evidence of

infection by these organisms, provided that a standardized agglutinable culture is used in making the test.

At the time of their observations, therefore, the diagnosis of paratyphoid fever was a matter of extreme simplicity and precision, but in the large number of cases they examined they found no evidence of its occurrence. Their conclusions, based on an agglutination test less complex and more definite than that of the present time, accord very much with, and confirm, those that have been arrived at in the present investigation.

There are those who may remain unconvinced by the results

of the agglutination test in the 17 cases attributed to enteric infections, and would maintain that the rise in agglutinins shown in Table II is not sufficient evidence of infection.

It may be pointed out that while these cases of obscure fever were under examination, cases more toxic and more severely ill were entering the isolation division of the hospital as cases of "suspect enteric fever." Such cases were investigated in exactly the same manner as were the 17 cases referred to above.

In some of those cases from which the infecting organism was isolated the result of the agglutination test, though perfectly definite, was no more characteristic than many of the results depicted in Table II, and in some was even less striking.

CONCLUSIONS.

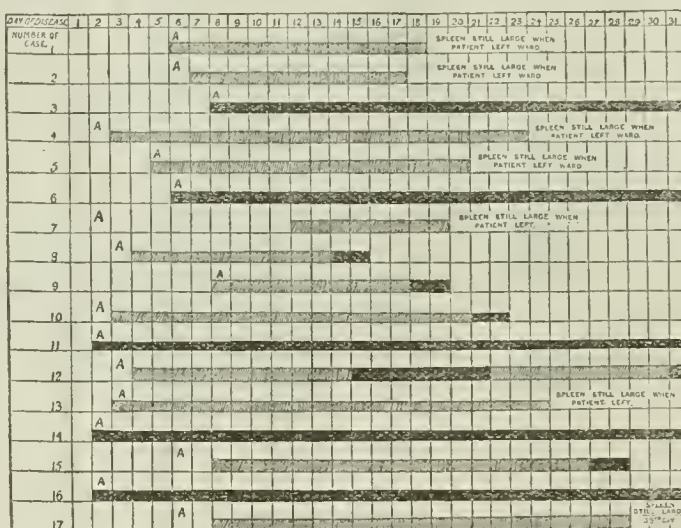
1. Of 200 cases admitted under the diagnosis of P.U.O. or trench fever, 7 or 8 per cent. were proved on serological evidence to be enteric.

2. While in hospital the clinical symptoms of these cases were no more distinctive of enteric than those of many others in which the serological evidence was negative.

3. Bacteriological evidence was never obtained.

REFERENCES.

¹Hunt and Rankin, *Lancet*, November 20th, 1915. ²McNee, Renshaw, and Brunt, *BRITISH MEDICAL JOURNAL*, February 12th, 1916.



Shaded lines indicate enlarged spleen. Black lines indicate no splenic enlargement. A = Day of admission.

PUBLIC HEALTH APPOINTMENTS DURING THE WAR.

We have received from the honorary secretaries of the Society of Medical Officers of Health a copy of the following resolution, passed by the council of the society at its last meeting (January 18th, 1918):

That the Society of Medical Officers of Health deeply regret that local authorities have made many permanent appointments since August, 1914, in the Public Health and School Medical Services. That this society earnestly deprecates such a course being approved by the Local Government Board or the Board of Education, as it is unfair to those men now absent on war service and so penalizes patriotism; further, it is not in the public interest that these responsible posts should be permanently filled at a time when the competition is restricted, and the most able and suitable young men are unable to apply.

A second resolution requested this and certain other journals to refrain from advertising any posts in the Public Health and School Medical Services, except those that are to be filled for the duration of the war, or until six months after the conclusion of peace.

The resolutions are, we are informed, intended to apply to both women and men.

The point raised in the above resolution has not escaped the attention of the British Medical Association. On July 4th, 1917, a letter was addressed to the Local Government Board recalling the terms of the circular issued by the Board to local sanitary authorities in May, 1915, urging them in connexion with appointments of medical officers to endeavour as far as possible, by rearrangement of duties among other officers, to avoid making any fresh appointment during the period of the war, or, failing that, to arrange for the work being carried on for the period of the war by practitioners engaged temporarily. After expressing the appreciation with which the Association and the profession generally had regarded the attitude thus taken up by the Board, the Association inquired whether certain then recently made appointments had been sanctioned as permanent. Two specific appointments believed to be permanent were mentioned, and the Local Government Board, in a reply dated July 16th, stated that these two appointments had been sanctioned permanently by the Board, the one having been made on July 8th, 1915, and the other on January 4th, 1916. The Board, however, added that about the middle of January, 1916, it had limited the sanction of appointments of medical officers of health to the period of the war and had continued that practice since. The matter will be further considered by the Public Health Committee of the British Medical Association at its next meeting.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Wounded.

Captain J. T. Heffernan, R.A.M.C. (temporary).
Captain F. W. Tidmarsh, Canadian A.M.C.
Captain H. C. Trumble, Australian A.M.C.

MEDICAL STUDENT.

Hendry, P. G., Gunner, Royal Garrison Artillery, third son of the Rev. P. G. Hendry, of Paxton, Berwickshire, medical student, Edinburgh University, accidentally killed, February 6th.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, issued on March 4th, contains a list of rewards for gallantry and distinguished service in the field. The acts of gallantry for which the decorations have been awarded will be announced later in the *London Gazette*. The following medical officers are included in the list:

Bar to the Military Cross.—Temporary Captain G. L. Thornton (M.C. gazetted January 1st, 1918).

Military Cross.—Temporary Captain R. D. Bell, R.A.M.C.

A bar to the D.C.M. has also been awarded to a non-commissioned officer of the A.A.M.C., and the D.C.M. to nine non-commissioned officers and two privates of the A.A.M.C., and to eight non-commissioned officers and two privates of the R.A.M.C.

The following officers of the R.A.M.C. are included in a further list of names recommended for distinguished and

gallant service and devotion to duty in the dispatch from the Field-Marshal Commanding-in-Chief the British Armies in France dated November 7th, 1917: Temporary Captains H. D. Field (died of wounds), and K. T. Limbery (killed).

The names of the following officers are as now stated and not as notified in the list of mentions in dispatches published in the Supplement to the *London Gazette* of December 24th and December 28th, 1917 (BRITISH MEDICAL JOURNAL, January 5th, 1918, p. 32): Captain (Acting Lieut.-Colonel) C. S. Brebner, M.D., R.A.M.C.; Captain E. O. Watson, A.A.D.C.

England and Wales.

THE TREATMENT OF TUBERCULOSIS.

At the meeting of the London Insurance Committee on February 28th it was stated that 459 persons were receiving sanatorium treatment, and 357 awaiting it. Owing to the large number of discharged tuberculous soldiers requiring residential treatment, the Committee was finding considerable difficulty in obtaining accommodation; about 120 ex-soldiers were in the sanatoriums, and 140 on the waiting list. Dr. Noel Bardswell, the Committee's medical adviser for sanatorium benefit, suggested that a number of country houses should be secure and adapted to the requirements of small sanatoriums. The policy had been reluctantly adopted of shortening the average length of treatment in a sanatorium instead of exercising greater rigour in the selection of cases for benefit; the condition of affairs was still far from satisfactory. The Committee resolved that extra nourishment should be given as a part of domiciliary treatment of tuberculosis, only with the approval of the Committee's medical adviser and only to patients who were awaiting admission to an institution, or who had recently been discharged and were returning to employment.

MILK FOR CHILDREN AND MOTHERS.

The Local Government Board has issued a circular letter to county councils and sanitary authorities with reference to the Milk (Mothers and Children) Order, February 8th, 1918, the effect of which was stated in the JOURNAL of February 23rd, p. 242. The letter calls the attention of medical officers to the importance of doing nothing to favour the abandonment of breast feeding. The quantity of milk which may be ordered to be supplied at less than cost price in ordinary cases has been determined by the Food Controller as follows:

(a) For children under 18 months, not more than one and a half pints daily. (b) For children between 18 months and 5 years, not more than one pint daily. (c) For expectant and nursing mothers the quantity specified by the officer referred to in this paragraph. If dried milk or preparations of milk are used the quantity should be such as would, when properly reconstituted, approximate to the quantities of fresh milk given above.

The definition of "necessitous cases" is left to the discretion of the authority, but it is stated that in some districts a scale has been adopted, based on the income of the family, after taking into account the number of children. The Ministry of Food notifies that it has purchased a large quantity of full cream dried milk suitable for infant feeding, and a quantity of half cream dried milk, and is prepared to receive application from medical officers of health, infant welfare centres, and other similar institutions, for a supply at cost price. In arranging dinners for expectant and nursing mothers the local authority must act in consultation with the Local Food Committee in respect of any food which is subject to an order of the Food Controller or of the committee.

Scotland.

EARLY TREATMENT OF MENTAL DISTURBANCES DUE TO WAR STRAIN.

In his report for 1917 on the Royal Edinburgh Mental Hospital, Morningside, Dr. George M. Robertson has a story to tell very similar to that he told last year. There is no evidence that since the outbreak of the war the amount of insanity has increased, and among the working-class population in the district from which patients are drawn by Morningside there has been a decrease, most

marked in regard to men, and mainly due to the absence of so many of the younger on military duty. The strain of the war has been the exciting cause of much insanity among them, but the vast majority are being dealt with by the military authorities. Among women, though there have been many cases of mental breakdown from excitement, overwork, worry, and anxiety, on the whole the strain produced by the war has not resulted in an increased amount of insanity. It is suggested that the higher wages earned and the separation allowances regularly received have relieved domestic worries and uncertainties. Alcoholic excess was assigned as the direct or exciting cause in 15½ per cent. of the male admissions—slightly less than the average for the seven years before the war. As to alcoholic excess as an indirect or predisposing cause among men, it appeared that the legislative restrictions upon the sale of alcohol were mainly to be credited not only with the slight improvement which has taken place, but with the defeat of the operation of the rule that increased wages are associated with an increase in drunkenness. With regard to women, the amount of insanity attributed directly to alcoholic indulgence was under 3 per cent., or about one-third of the average for the seven previous years.

In a section of his report dealing with shell shock and war strain Dr. Robertson pointed out that the most marked nervous disorders were least frequently met in the firing line. Emotional disturbances and consequent states of confusion might occur there, but they were evanescent. If they were followed by an interval of calm, known as the "phase of contemplation" or the "period of meditation," then the more marked disorders might develop. If taken in hand at once close to the firing line they rapidly vanished under the influence of suggestion. If allowed to become established as a habit, the cure became much more difficult, but the same methods were ultimately successful at the base. Dr. Robertson said that in what he termed the incubation stage the mind, owing to a morbid suggestibility following on the emotional disturbance, instinctively but involuntarily fastened on some idea which expressed itself in a nervous disorder—loss of voice, or hearing, or sight, or the power of speech, or difficulty of breathing, or of standing, or walking, or paralysis of many kinds.

In discussing the importance of providing facilities for treating mental disorder in its earliest stages, Dr. Robertson said that public opinion was growing more averse to sending persons suffering from short and recoverable attacks of insanity to asylums, "as thereby not only does a certain stigma, unjust though it be, attach to them, but they also require to be legally certified as lunatics." The problem arose at Morningside in connexion with Craig House, a separate establishment for private patients. There was a consensus of opinion that a simple increase of asylum accommodation, by the erection of one or two more villas within the grounds, was not the most desirable way of meeting an urgent want. Therefore the proposal was made to provide nursing homes, not in the grounds, in which patients suffering from the early stages and the curable forms of mental disorder could be separately treated without the necessity of certifying them. A provision of the Scottish lunacy laws enables patients of the classes described to be kept for six months in nursing homes with a view to their recovery, but certain doubts as to the interpretation of the law caused delay. It has, however, been possible at once to make the experiment for officers suffering from the more serious effects of shell shock and war strain. With the assistance of the military authorities homes for them were established outside the boundaries of Morningside, but under Dr. Robertson's supervision. He goes on to observe that there is no essential difference between the case of the soldier who becomes insane in the defence of his country and that of a woman who suffers from an attack of puerperal mania, and that it is an injustice not to accord to the civilian privileges similar to those which have been provided for the officer. He draws the following conclusion:

The medical treatment of mental disease must be freed from all unnecessary legal shackles and indignities. The question is no longer a theoretical one, but an urgent practical one. In view of what has been done for soldiers, medical men will not accept the assertion that the adoption of similar measures is impossible for their patients. It is intolerable that the lives and happiness of people at the present day should be marred by

a certain interpretation of an Act sixty years old, suitable for conditions of society which are now non-existent, yet determining present-day views and problems of medical treatment which were unthought of when our forefathers passed the Act. The law very properly is not in advance of public opinion, but it is in a most unwholesome condition when it lags so far behind as do some of the procedures in lunacy.

Ireland.

POOR LAW MEDICAL OFFICERS' SALARIES.

THE medical officers of the Enniskillen union, having been refused an increase in their salary on three different occasions by the board of guardians, tendered their resignations, to take effect from February 19th. The guardians, by thirty-seven votes to seven, decided that they would not consider the doctors' applications until they withdrew their "threatening notice." The result is that, owing to the high-handed action of the guardians, the poor of the Enniskillen union have now no doctor whose duty it is to afford them medical relief, and are altogether dependent for their medical treatment on the humanity and charity of the doctors who resigned because the board of guardians did not consider them entitled to the wage of a farm hand. The Irish Committee of the British Medical Association some time ago took legal advice as to the powers of the Local Government Board to fix the salaries of the Poor Law medical officers. In the opinion of the solicitors consulted there is very little doubt that Section 8 of the Medical Charities Act, as amended by the Local Government Board, 1898, gives the Irish Local Government Board power "when they see occasion from time to time to regulate the amount of salaries or allowances payable to such officers respectively." It is believed that the Local Government Board, in the interests of the sick poor, for whose medical treatment it is responsible, cannot much longer defer interference in order to fix the salaries of Poor Law medical officers. In one Irish union a dispensary doctor for his services may receive £100 a year, whilst in another union, for doing possibly less work, another dispensary doctor may be in receipt of £200 per annum. Even the larger salary of £200 is totally inadequate and, at all times, was much below the working expenses of the average Irish dispensary district with an area of twelve miles square.

LOCAL GOVERNMENT BOARD AND EXTERN PATIENTS.

At a recent meeting of the Dungannon guardians the clerk said that the medical officer had certified that, in his opinion, a patient from Coalisland should be sent to the Samaritan Hospital. The case was developing very seriously, and should have immediate special treatment, and perhaps go through a serious operation. In view of the recent decision in the King's Bench (Dublin) that only destitute workhouse inmates could be sent, at the cost of the rates, for treatment at extern hospitals, the clerk wrote to the Local Government Board, which replied that if the guardians decided to send this woman for special treatment, as recommended by the medical officer, and, if a surcharge should subsequently be made, full consideration would be given to any appeal for remission thereof.

Correspondence.

SANATORIUM TREATMENT OF THE TUBERCULOUS SOLDIER.

SIR,—I agree with your correspondent (March 2nd, p. 272) that it is high time that some really practical and effective scheme for the treatment of soldiers and sailors suffering from tuberculosis should be formulated and put into practice. To be effective, any rational scheme must be, as far as possible, immediate in its effect, continuous in action even for several years, economical and convenient; but, above all, it must be designed so as to benefit the great majority of sufferers. Since sanatorium treatment can never benefit 10 per cent. of the sufferers, responsible authorities must look about for some alternative method. The alternative system must rely upon those discoveries of science which have banished typhoid fever from our armies and prevented thousands of deaths from tetanus.

Most of the critics of the value of tuberculin as a diagnostic and curative agent base their views on second-hand opinion. Tuberculin has never had a fair trial. Surely now is the time for a trial. I dare to say, on the strength of very extensive experience, that the diagnosis of early tuberculosis by specific methods when other methods fail and the treatment of tuberculosis in early and even late stages by various forms of tuberculin will revolutionize our present methods of dealing with the problem of tuberculosis. I ask for such a trial on behalf of these afflicted sailors and soldiers. It will be found that not only will thousands gain some respite from the sad fate that surely threatens them, but even tens of thousands will be restored to relative, and many thousands also to apparently absolute, health. The medical authorities at the War Office would do a great national service by appointing a small committee of experts to consider the problem from this aspect.—I am, etc.,

W. CAMAC WILKINSON, M.D., F.R.C.P.,
Pathologist, Bermondsey Military Hospital.

London, W., March 5th.

GENERAL ANALGESIA BY ORAL ADMINISTRATION.

SIR,—Dr. Gwathmey is so careful in his statements and so modest in his claims that as a rule he leaves little to criticize. In his contribution to the *BRITISH MEDICAL JOURNAL* of March 2nd (p. 254), however, he makes one statement which is surely too sweeping, when he says:

A 65 per cent. solution of ether in oil has been used in many thousands of cases of oil ether colonic anaesthesia without any sign of local irritation . . . as has been proven . . . by the fact that no case of dysentery or bloody diarrhoea has been observed.

Dr. Gwathmey may only be referring to cases in his own practice or within his knowledge. He appears to have been fortunate, as I should think there are few hospitals in which this method has been tried that have not had at least one or two cases of post-anaesthetic dysentery and bloody diarrhoea.

I was probably one of the first in this country to give the method a trial, but, whilst fully realizing its value in certain cases, it was the occurrence of these symptoms in one of my earlier cases that led me to reserve its use for very special occasions, with the result that between 1913 and 1917 I did not once avail myself of it.

The oral administration appears to answer very well for painful dressings, but I cannot think it will come into vogue for operations for which patients must be removed to the theatre. What strikes me as truly wonderful is that the analgesia is produced without any preliminary excitement or ill after-effects.

Is it quite certain that this method of analgesia is safer than anaesthesia? We want the results of a few thousand cases for purposes of comparison, say, with open ether.

Finally, I should not feel on perfectly safe ground if I introduced a drachm of chloroform into a patient's stomach. Granted that absorption is regular and slow and elimination constantly going on, well and good; but may there not be individuals who absorb rapidly and fail to eliminate? If so, I can imagine trouble when some 30 or 40 minims were circulating in the blood.—I am, etc.,

London, W., March 5th.

G. A. H. BARTON.

TRANSFUSION OF PLASMA.

SIR,—I have been reading with interest recent articles in the *JOURNAL* on blood transfusion in casualty clearing stations. Apparently one of the chief troubles is the question whether or not the recipient's plasma will haemolyze the corpuscles of the donor.

Surely this difficulty might be avoided by not transfusing the corpuscles at all, but only citrated plasma, which would be easy to keep and easy to give. There is abundant clinical and experimental evidence that it is not the corpuscles that are wanted, but the ideal fluid for keeping blood pressure at its proper level, and the apparent advantage of blood is, no doubt, due to its permanent value in this respect and to its food value. A man apparently dying from haemorrhage is not dying from lack of haemoglobin, else severe cases of anaemia would die long before they do, but from draining away of fluid, resulting in devitalization and low blood pressure.

May I at least recommend a trial of this method, controlled, let us say, by an equal number of whole blood

transfusions and an equal number of gum acacia (not less than 6 per cent.) cases?—I am, etc.,

GORDON R. WARD,
Sevenoaks, March 3rd.
Captain R.A.M.C.(S.R.).

THE TREATMENT OF WOUNDS BY FLAVINE.

SIR,—Major Pearson, in the *BRITISH MEDICAL JOURNAL* of March 2nd (p. 271), in commenting on Colonels Pilcher and Hull's favourable report on 5,000 cases, has summarized his experiences to the effect that "no substantial differences were observed between flavine and the other substances in regard to the control of sepsis." He employed flavine in the form of gauze "wrung out in 1 in 1,000 solution." His results are not surprising in view of the fact that the gauze was wrung out. The "advocates" of flavine have recommended the use of gauze soaked in flavine solution—a very different thing. As regards the point whether flavine should often be intermitted or discontinued in the later stages of wounds, this was suggested in our second report (*BRITISH MEDICAL JOURNAL*, July 21st, 1917), and has been borne out by the work of Drummond and McNee;¹ see also Browning and Ligat,² and Carslaw.³—I am, etc.,

London, W., March 2nd. C. H. BROWNING.

SUPPLY OF ARSENOBENZOL DRUGS TO GENERAL PRACTITIONERS.

SIR,—Syphilis is spread very largely by girls who are not prostitutes, and who often do not know that they have been infected. In practice they do not go to the venereal clinics even when they know or suspect that they are infected; they are partly ashamed to go, and then in the provinces the clinics, based as they are on the larger general hospitals, are often a long way off, and the patient not only has to lose a day's work in order to attend, but subjects herself to the malignant gossip of a small ignorant community if she does.

If they consult anybody but that harmful person the prescribing chemist, it is to a private practitioner they turn, but he cannot obtain a supply of salvarsan or its substitutes from the local authority unless he has himself attended a course of instruction at a venereal clinic, or otherwise demonstrates his familiarity with the administration of the remedies by intravenous injection. But, as Colonel Harrison has shown, these preparations can be given with equal efficacy intramuscularly, a method which requires no special skill. What is wanted, therefore, is that remedies for intramuscular use should be supplied by the local authority free of charge to any practitioner for use in cases that would otherwise come under the aegis of the venereal clinic. Along with the "amateur" we must class those cases of syphilis insontium who could not be driven to any public institution. The two taken together constitute a fertile source of infection not being adequately if at all combated by the regulations as they at present stand.—I am, etc.,

Sheringham, March 4th.

A. KNYVET GORDON.

HEALTH AND ECONOMICS.

SIR,—During the war it has been wrong, if avoidable, to use the telephone, telegraph, or parcels post; all are being run at a loss, and to use them is to increase the country's burden. Thus enterprises which in private hands were, and would now especially have been, great national assets have become great national liabilities. In a word State management has wrought national harm out of national good.

In 1912-13 the State undertook the treatment of the poor and of a caste it included in the poor. In four years tuberculous mortality has risen by 12 per cent. The figures do not wholly present the gravity of the case. By 1915, for a population largely reduced by the subtraction of the forces, the absolute number of tuberculous deaths had largely increased. The M.O.H. for Manchester has pointed out that in his district the fatality among the poor began to increase in 1913; it is scarcely doubtful that the mortality among the well-to-do is on the decline; therefore it follows that the process in the Manchester district is a general one, and even more than a 12 per cent. rise must have taken place among the special protégés of the Commissioners.

¹ *Lancet*, October 27th, 1917.

² *Ibid.*, November 17th.

³ *R.A.M.C. Journ.*, October, 1917.

It is another lesson, which should surely not have been needed, that whatever, outside its proper province, the cruel, stupid hand of State touches, it blisters. Remember that this rise was predicted. No man can, without bias, compare the wage-rate and tuberculosis curves as far back as we can go, having an eye on the history of the times, without asking himself whether it is not the constructive legislation "for the good of the poor" that is to blame for this dreadful result. All are agreed on the importance of environment—that is, of the economic factor. What is the good of prattling about environment when every remedy you suggest is a blow to the value of wages, that factor in environment which given, involves, which denied, negatives, all other factors? But I think that few realize how sensitive an index of economic conditions is the tuberculosis death-rate. Just as extraordinary falls in the rate reflect Peel's first free trade measures, the repeal of the Corn Laws, the repeal of the Navigation Acts—so all the great wars, sometimes even a group of little ones like the Zulu and Afghan, leave their mark in an upward fluctuation some two or three years after.

It is certain that real wages and tuberculosis mortality are in inverse ratio; equally that wages vary inversely with prices or taxation. As under Walpole, so under the Manchester school, with its corollary Gladstonian finance, wages rose steadily beyond all previous records. Under the latter we know that the tuberculous death-rate fell steadily and so rapidly that had the decline continued till to-day at the same rate the mortality would only have been half of what it is. But after 1896 wages began to fall in value. The mortality still declined, but more slowly. In 1913 the Insurance Act began to be operative. Though it has much work yet to do in that way, it has already lowered the value of wages, probably more than anything since the Corn Laws; the tuberculous death-rate began forthwith to rise.

It needed no great foresight to predict this result; it did and does need an obsession to be blind to its possibility. No one would question that a war which left on the country a capitalized burden of £400,000,000 would affect the tuberculous mortality. But the burden of the Act must be as much as that at the very least; and in its effect on the poor you must add, not subtract, the premiums which would have been paid, Act or no Act: for voluntary insurance increases wages.

Is the Association to stand by and see these men die without criticism or inquiry because, forsooth, it is a politician's matter? As if a doctor should suspect a wife of poisoning her husband and refuse to inquire because he has nothing to do with conjugal relations. Besides, our leaders are interfering with politics; when they urge the present formation of a Ministry of Health, they are corroborating the fashionable policy of making the poor poorer, in order to maintain officials who shall inquire into and gloss over the effects of poverty. On men dying of already too many officials, they propose—at this time of all times!—to let loose another horde. Well might Sir William Chance tell them that England was going mad. As representing a science, they have nothing to do with politics; they have all to do with facts. Explain it how you will, *laissez faire* from the public health point of view was a brilliant success, State collectivism is a dismal failure. If the policy of which the National Insurance Act is the supreme expression is really killing off the poor, and the leaders of the Association do not inquire, they have forfeited the right to speak for a profession which has made it its legitimate boast that it has put the public welfare before all other things.—I am, etc.,

Rayleigh, Essex, Feb. 24th.

B. G. M. BASKETT.

FORMS AND REFORMS.

SIR,—Your article, "Forms and Reforms," in a recent number of the JOURNAL was no doubt intended to be a composite picture. It is, however, a description, almost photographic in its accuracy, of the conditions prevailing in a military hospital in which I served for the greater part of last year. If you had added the want of courtesy displayed by those in administrative authority towards civil practitioners who, at the urgent call of the War Office, had offered their services to the country, the picture would have been complete.—I am, etc.,

March 5th.

LATE CIVIL SURGEON.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE Degree Committee of the Special Board for Medicine announce that the work submitted by J. E. M. Mellor, entitled "Research into the habits of flies in relation to the public health," is of merit as a record of original research. The Special Board for Medicine has formulated regulations for the Nita King Research Scholarship on Fevers.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE annual report for the year ended February, 1918, shows that whereas in normal times the total number of students (day and evening) amounted to about 2,200, the number last session was 1,240; but of these 121 were members of the naval and military forces for whom special courses were provided, and 159 attended special vacation courses, so that the actual number of ordinary students was 960, of whom 547 were women. The total number of day students registered is 758. This includes 12 refugee students; deducting these, the total is 746, a decrease of 96 in the year, and of 598 as compared with the corresponding date in 1914. The number of medical students shown is 63 (all men, and including two refugee students), but during the year it was arranged to admit women students to the courses for the second examination for medical degrees and of the Conjoint Board. For many years women students have attended the courses for the first examination for medical degrees, but have been obliged to go elsewhere for the remainder of their medical course. Under the new arrangement they can take at the College the medical course up to the second examination—that is to say, the whole of the course given at the College as distinguished from the medical school. Twenty-one women students are attending the medical courses in the College during the present session. The new revised list of past and present members of the College who are taking an active part in one or other of the services connected with the war, containing 2,500 names, will shortly be issued. Of these no fewer than 195 have fallen. The list of honours received is long, and includes one Victoria Cross and a clasp to the Victoria Cross.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Election of Council.

IN accordance with the new regulations to enable Fellows of the College beyond the United Kingdom to vote at the annual election, the secretary of the College issued on March 8th a circular letter to the Fellows informing them that a meeting of the Fellows will be held at the College on Thursday, July 4th, at 2.30 p.m., for the election of four Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir W. Watson Cheyne, Bt., K.C.M.G., C.B., M.P., Mr. Bilton Pollard, Sir John Bland-Sutton, and Mr. Walter Spencer. Blank forms of the requisite notice from a candidate of his nomination may be obtained on application to the secretary, and must be received by him, duly filled up, not later than March 18th. A voting paper will be sent by post to each Fellow whose address is registered at the College on Tuesday, April 2nd. We understand that Sir Watson Cheyne will not seek re-election.

The Services.

TERRITORIAL DECORATION.

THE Territorial Decoration has been conferred upon Major H. Legh de Legh, M.D., and Major James L. Loudon, both of the R.A.M.C.(T.F.).

Obituary.

C. R. STRATON, F.R.C.S. EDIN.

WILTON.

WE regret to record the death on February 22nd, after a long illness, of Mr. C. R. Straton, of Wilton, near Salisbury. He was the son of Mr. Charles Straton, W.S., of Edinburgh and New Brunswick, and was born in Edinburgh in 1842. For some time he followed his father's profession, but afterwards determined to adopt medicine and received his medical education at Edinburgh, obtaining the diploma of L.R.C.P. Edin. in 1866; in 1882 he became F.R.C.S. Edin., and in 1889 L.S.Sc. Durh. He gained distinctions all through his studies, both in law and medicine, and was house-surgeon to Lord Lister in Glasgow, and remained his friend. He joined his uncle in practice at Steeple Langford for a time, and then settled in Wilton, where he enjoyed a large practice and the confidence and respect of the public throughout South Wiltshire. He was appointed

medical officer to the Wilton district and workhouse, holding the former appointment for forty-five years. He was medical officer of health for the Wilton Rural and Urban Districts, and certifying factory surgeon, and was a visitor of the Fisherton and Laverstock lunatic asylums. He was an active member of the committee of management of the Salisbury Infirmary and of the Salisbury Nursing Home, and an organizer of the Salisbury Public Medical Service. He took an active part in the work of the district, was three times mayor of Wilton, was a director of the Wilton carpet factory, and shared in every local enterprise or institution from the diocesan synod to charity organization and the local War Savings Committee.

Mr. Straton was long a member of the British Medical Association and took an active share in its work. He was president of the Southern Branch in 1900 and vice-president of the Section of Public Health at the annual meeting at Sheffield in 1908. He was for many years a member of the Council of the British Medical Association, served on the Parliamentary Bills Committee, and afterwards on the Central Ethical and Insurance Acts Committees.

He had many interests outside medicine and public work. He was a Fellow of the Entomological Society and an authority upon oak galls and gall flies; he translated Adler's book on *Alternating Generations* (1894) from the German and added valuable notes upon English varieties. He gave attention to every department of natural history and for nearly half a century was an indefatigable worker in the South Wilts and Blackmore Museum, acting as curator of natural history. He was a member of the Salisbury Field Club, of the Wiltshire Archaeological Society, and of the Salisbury Microscopical Society. He often lectured upon his favourite subjects, chiefly at the Salisbury Museum, but also at Haslemere.

A piece of work which took him seven years to complete, and one by which his name will always be remembered by historians, is the *Survey of the Lands of William, 1st Earl of Pembroke*, published in 1909 by the Roxburgh Society in two fine quarto volumes. It involved a transcription from the original parchment rolls of the sixteenth century, in the crabbed and contracted monastic Latin of the period, and a translation. He prefixed to it an essay on the life and administration of a great manor, which produced on the reader a very strong impression of his learning, breadth of view, and powers of description.

He married in 1875, but his wife died twenty years later. He leaves four sons, of whom three are either now serving or have served during the war as officers in the R.A.M.C. The fourth, a private, is serving in a garrison regiment.

At a meeting of the Wilton Town Council and board of guardians appropriate tributes to Mr. Straton's memory have been paid. The funeral, which took place at Wilton, was attended by a large number of friends and representatives of various bodies, the British Medical Association being represented by Dr. Harman and the Salisbury Division by Dr. Willcox.

WE regret to announce the death of Dr. GRACE R. CADELL on February 19th at Mossbank, Rumbling Bridge. After obtaining the triple qualification Scotland in 1891 she held the post of surgeon to the Edinburgh Hospital for Women and Children, was consulting obstetrician to the Hospice, Edinburgh, and later became registrar at the New Hospital for Women, London. Dr. Cadell took a keen interest in woman's suffrage, and had been a militant suffragist.

DR. A. HAMPTON BREWER, who died on January 28th, at the age of 75, was one of the oldest and most respected of Hackney practitioners. He received his medical education at St. Bartholomew's Hospital, where several generations of his family had studied, and where his uncle, Dr. Henry Jeafferson, was senior physician. After taking the qualifications of M.R.C.S. and L.S.A. in 1864, and L.R.C.P. in 1865, he acted as assistant for two years to a Wokingham practitioner, and then joined Dr. Jones of Dalston, whose daughter he subsequently married. He soon got together a large private practice, and was long associated with the Provident Department of the Metropolitan Hospital, the success of which was largely due to his energy and enthusiasm. Dr. Brewer had much wished

to complete fifty years of practice at Dalston, but about a year before this period was reached his health had failed, and, in deference to medical advice, he retired at the close of 1917, and spent the last months of his life at his country residence in the Isle of Wight. His professional work was his chief interest in life, but he had several hobbies, such as poultry breeding, gardening, and carpentering. In his youth he was a great athlete, and remained to the end fond of sport of all kinds. Once as a student he walked from London to Bristol in four days. Dr. Brewer took little share in politics of any kind, but his opinion on public questions was much sought after and respected. His death is deplored by a wide circle of friends and patients. Five of his six sons joined the army in the present war; two of these took commissions in the R.A.M.C., and the youngest lost his life at Gallipoli.

Medical News.

THE Ministry of National Service has issued revised general directions for the guidance of Commissioners, Deputy Commissioners, and members of medical boards.

THE number of certified midwives who have given notice of their intention to practise within the county of London during 1918 is 554, a decrease of 25 on the number for the previous year.

Lieut.-Colonel Thomas Wallis, M.D., and Colonel J. Arnall Jones, M.D., have been appointed treasurer and almoner respectively of the new priory of the Order of St. John of Jerusalem, established for the principality of Wales and the county of Monmouth.

THE Minnesota State Pharmaceutical Association has issued a paper on war emergency formulas by Mr. F. A. Upsher Smith, chairman of its committee on dispensing. The paper contains suggestions for economy in the use of glycerin, sugar, and alcohol. The secretary, Dr. E. L. Newcomb, to whom we are indebted for a copy, observes that the recommendations as to the substitution of fresh infusions for alcoholic fluid extracts, tinctures, and elixirs, and the prescribing of salts, such as the bromides, in the form of a slightly flavoured mixture in place of an elixir, would very often tend to benefit patient, physician, and pharmacist.

THE Medical Research Committee has appointed a special committee to consider the methods of manufacture, biological testing, and clinical administration of salvarsan and its substitutes used in this country, and the results of these, and to propose to the Medical Research Committee specific investigations aimed at improving those methods and results. The Committee consists of Dr. H. D. Rolleston, C.B., temporary Surgeon-General R.N. (chairman), Professor F. W. Andrewes, M.D., F.R.S., Professor Wm. Bulloch, M.D., F.R.S., Dr. H. H. Dale, F.R.S., Lieut.-Colonel L. W. Harrison, D.S.O., R.A.M.C., and Dr. F. J. H. Coutts, Assistant Medical Officer, Local Government Board (secretary). The Committee is arranging to invite the assistance of others who are in a position to offer evidence or advice towards the solution of particular problems arising within the scope of this inquiry.

THE annual reports of the school medical officer for London since 1914, based upon an annual examination of some 200,000 children, have indicated an all-round improvement in the physical condition of the children during the war; that the number of children found at medical inspections to be under-nourished greatly decreased. The results for 1917 show that the improved conditions were fully maintained. During the third term of 1917 the inspection of all the entrant children, which had been discontinued from the beginning of 1916, was resumed, and the results of this term's examinations were the best that had ever been attained; the percentage of children found in a poorly nourished condition was considerably less than half the percentage so found in 1913.

AT a meeting of the Llandudno Season Extension Committee, when Dr. E. R. Woodhouse was in the chair, the possibility of making the place a winter resort was discussed. Dr. Parry-Edwards, County M.O. Carnarvonshire, said that Llandudno had a high average of bright sunshine—1,600 hours a year; in the month of March, the worst at Llandudno, the maximum temperature for eight years was 48° F., the minimum 38°, and the mean 43°; the average rainfall was not high—32 inches. The death-rate was low—11 per 1,000—as was also the infant mortality, 92 per 1,000. He wound up by suggesting that means should be taken for bringing the Trefriw waters to the town. The Trefriw spring in the Conway Valley is a very strong chalybeate water, in which the iron occurs as proto-sulphate.

Letters, Notes, and Answers.

Authors desiring reprints of their articles published in the *British Medical Journal*, are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the *British Medical Association and Journal* are:

1. EDITOR of the *British Medical Journal*, *Atiology*, *Westrand, London*; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the *British Medical Association* is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the *British Medical Journal* are devoted will be found under their respective headings.

LETTERS, NOTES, ETC.

THE following appointments of certifying factory surgeons are vacant: Burghhead (Elgin), Newport (Isle of Wight), Fethard (Tipperary).

DR. C. N. FOLEY (10, Tollington Park, N.4) writes to say that he has held the appointment on and off for eleven years of medical officer to the Falkland Isles Co., Limited, and would be pleased to give any information to intending applicants for this post if they would care to communicate with him.

THE NIGHT SCREAMING OF CONGENITAL SYPHILIS.

In a note (p. 248) reference was made to this subject, which has attracted the attention of many physicians since Eustace Smith first indicated its diagnostic significance. An x-ray photograph demonstrated by Dr. Cameron in a recent clinical lecture (*Guy's Hospital Gazette*, July, 1917) affords an explanation of the cause of the screaming in at least some cases. The skiagram was obtained from an infant six weeks old, one of male twins. There was no other sign of syphilis save a slight tendency to snuffles and a little pallor, which became significant when comparison was made with his twin brother, who showed no signs clinically of congenital syphilis, though, like his brother and mother, he gave a positive reaction to the Wassermann test. The mother brought the child for pain in the legs, and it was possible to palpate a thickening near the right knee-joint. The skiagram showed marked periosteal overgrowth. Dr. Cameron spoke of the case as periostitis and epiphysitis of congenital syphilis, or "syphilitic pseudo-paresis." He called attention to the difficulty of appreciating the precise situation of tenderness in a baby, and observed that the mother has generally better opportunities for observation, so that it is well to pay attention to her opinion, if she is sure that the arms or legs are tender on movement.

WAR PHOTOGRAPHS IN COLOURS.

AN exhibition of official war photographs, organized by the Ministry of Information, was opened at the Grafton Galleries, London, on March 4th. It consists for the most part of greatly enlarged colour photographs of scenes on the Western and Eastern fronts. The pictures are strikingly realistic, and illustrate many phases of life, suffering, and death in the battle area. A considerable number have a strong medical interest. We see wounded men being carried on stretchers across a shell-pitted field; British and German wounded lying side by side on stretchers; German walking wounded pouring into an advanced dressing station after the battle of Menin Road; a stretcher case at an aid-post, with his rifle as a make-shift leg splint; a remarkable silhouette of a wheeled stretcher and bearers; foot inspection by the battalion medical officer in a front line trench; a parade of walking wounded at a field ambulance; and several scenes in hospital. There is also a photograph of a shell bursting close to an advanced dressing station, over which floats unheeded the Red Cross flag. Among the more gruesome pictures are large reproductions of dead Germans and of the carcasses of horses beside a desert track. We could wish that the catalogue of this remarkable exhibition had not been composed in the style of the popular illustrated daily, with its mixture of bombast and facetiousness.

THE STERILIZING OF HYPODERMIC SYRINGES.

DR. P. J. FINEGAN (Carlingford) recommends the following method of sterilizing hypodermic syringes, which he learnt from Dr. Rankin of Belfast: The metal fixture for holding the syringe in its case is placed in the upturned metal case cover with 2 drachms of methylated spirit. The metal hypodermic syringe case, three-quarters full of water, is placed on the fixture with syringe and one needle, and the

methylated spirit lighted. In a few minutes the syringe is sterilized; if warm water is used 1 drachm of methylated spirit will be sufficient.

EMERGENCY RATIONS OF VARIOUS ARMIES.

THE emergency ration adopted by the United States army about twenty years ago consisted of biscuit, bacon, pea-meat, and coffee, and was calculated to yield 4,110 calories; it included also salt, pepper, and tobacco. We learn from the *New York Medical Journal* that a new emergency ration has been devised composed of wheat flour, meat, and dried milk compressed to about the size of a dog biscuit; some pea-nut butter in a paraffined packet is added, and the whole enclosed in a sealed waterproof wrapper; the weight is about 4 oz., and the nutritive value 2,400 calories. The American army also had a "travelling ration" consisting of bread, canned beef, beans, tomatoes, coffee, and sugar, calculated to yield 2,735 calories. The emergency ration of the French army consisted of biscuit, rice, dried vegetables, meat, soup, salt, sugar, and coffee. It was made up in packages for two days, yielding from 2,130 to 2,515 calories, according as to whether the soup was made with bean or pea-flour. The emergency ration of the German army consisted of field biscuit and tinned meat, preserved vegetables, coffee, and salt. It was calculated to yield 2,766 calories, and each soldier carried two. The emergency ration of the British army used to consist of four cakes of chocolate with some dried milk protein. It was wrapped in vegetable parchment paper and packed in a hermetically sealed tin; the ration weighed 6½ ounces net.

THE OLDEST ENGLISH HOSPITAL.

MR. D'ARCY POWER has published in the *Journal of St. Bartholomew's Hospital* a mid-seasonal address he gave last December, which is a kind of historical dream of the hospital, and the best of his in that vein which we remember. If Rahere's foundation was truly a hospital and not an almshouse then it is the oldest English hospital, beating the Angers Hospital founded by Henry II, for which that honour is claimed, by some twenty years or more.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending March 4th:

	£	s.	d.		£	s.	d.
Messrs. Allen & Hanbury	10	10	0	"Beta"	1	1	0
Mr. G. Rammell Footner	10	0	0	Sir Alfred Pearce Gould	5	0	0
Colonel David Wilkie	1	1	0	Mr. E. Spencer Evans	0	10	0

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

MEDICAL MEN AND TRIBUNALS.

In consequence of the passing of the Military Service Act, 1918, the Local Government Board has issued revised and consolidated Regulations and Instructions to Tribunals, which will come into operation on March 11th, superseding all previous Regulations and Instructions. Regulations 23 and 41, which concern medical men directly, are as follows:

23. In the case of any application concerning a duly qualified medical practitioner, other than an application solely on conscientious grounds, made to a local tribunal, the form of application, together with the documents (if any) in the possession of the tribunal relating to the application, shall be sent forthwith to the Professional Committee for which provision is made by Regulations made under the principal Act. The decision of the tribunal on the application shall be in accordance with the recommendation of the Professional Committee, and a certificate of exemption, if recommended, shall be issued accordingly, provided that—

If application is made on conscientious and also on other grounds, the tribunal shall, after receiving the recommendation of the Professional Committee, hear and determine, if the applicant so desires, the application on conscientious grounds in the same manner as an ordinary application for a certificate of exemption made under these Regulations.

41. In any appeal against a decision made on an application concerning a duly qualified medical practitioner the recommendation of the Professional Committee obtained in accordance with Regulation 23 shall, as regards any grounds other than conscientious grounds, be binding on the Appeal Tribunal.

The provisions in the Regulations as to referring applications by medical practitioners to the Professional Committee apply also to the cases of medical practitioners who are attested.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE *BRITISH MEDICAL JOURNAL*.

	£	s.	d.
Seven lines and under	0 6 0
Each additional line	0 0 9
Whole single column	4 0 0
Whole page	12 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the *British Medical Association at the General Post Office, London*. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Notes ON SURGERY AT SALONICA.

BY
COLONEL SIR T. CRISP ENGLISH, K.C.M.G.,

AND
COLONEL R. E. KELLY, R.A.M.C.,
CONSULTING SURGEONS, BRITISH SALONICA FORCE.

THE campaign of the allied armies in Macedonia has lasted two years, and the present time seems fit for the record of some surgical experiences amongst the British troops in this area.

There are many ways in which this campaign differs considerably from that in France; the extreme cold of winter, the moist heat of summer, the prevalence of malaria and dysentery, difficulties in transport, are all factors which influence the surgical problems.

Malaria, for example, has been most annoying to the surgeon; acute attacks are frequently precipitated by wounds or by any surgical procedure. Moreover, it is found that an acute attack delays or may completely arrest the process of healing; in severe cases the granulating surface

changes in appearance, becoming greyish-brown in colour with a varnish-like brown discharge; under quinine treatment the healthy condition of the wound has usually returned in four or five days. There is the further difficulty that rises of temperature in the case of a wounded man may be due either to malaria or sepsis; the only rational plan is to assume that the raised temperature is due to the latter until the presence of malaria is proved microscopically; even then the temperature may be septic rather than malarial. Chronic malaria has produced little material effect on the healing of wounds, though convalescence is somewhat retarded and the effects of hæmorrhage more felt. The simulation of appendicitis in cases of malaria has been disconcerting; acute pain in the right iliac fossa, onset with vomiting, tenderness, and rigidity may all be present, but a mistake has usually been avoided by the absence of leucocytosis or the discovery of the malaria parasite.

With regard to dysentery, the abdomen has occasionally been opened following a mistaken diagnosis of appendicitis; the caecum and appendix have been purple in colour, very thick and very oedematous, an appearance which reminds one that suture of a dysenteric perforation may be a matter of some difficulty.

The prolonged moist heat of the Macedonian summer also influences the healing of wounds. Its enervating

effects, combined with the prevalence of malaria, have certainly diminished the resistance to infection, and the men wounded in the autumn have not, as a whole, shown the same active recovery as those wounded in the spring.

TRANSPORT.

It need hardly be said that local conditions have caused many difficulties as regards transport of wounded. The tangled mass of hills, scored by innumerable steep-sided douglas, and the scarcity of good roads, necessitated experiments in various forms of transport. It is difficult to say which of these is best, for all have their advantages. The following are in use at the present time:

1. *Travois*.—This consists of a pair of shafts, 15 to 17 ft. long, drawn by a single mule; the patient is slung in a horizontal position. This travois is actually a good deal more comfortable than it looks, and has the advantage that it can be got round a sharp corner. The dis-

advantages are that it may tear or cut telegraph or telephone wires, the ends must be reshod at frequent intervals, and over rough ground it is hard work for one mule.

2. *Mule Litter*.—A single stretcher is slung from horizontal shafts between two mules. This form of transport is expensive both in mules

and men; it is also evident that in very hilly country it is difficult to turn round sharp corners, but it is less tiring than the travois to the mule, and has the further advantage of being easily converted, so that the patient may be carried in the Fowler position.

3. *Cacolet*.—Here a single mule has a double burden. A seat is arranged on either side of the pack-saddle; the distance over which the patient is carried must be short, and obviously the cacolet is suitable only for sitting cases.

Ambulances.

Apart from this, extensive use has been made of the horse ambulance and the motor ambulance; the latter form of transport does all the work between the casualty clearing stations and the base, except so far as railways are available. In good weather the motor ambulances have been able to reach the field

ambulances, and even the advanced dressing stations. The transport over long stretches of country of men wounded in the chest and abdomen was one of the many difficult problems. This applies especially to the abdominal cases, in which speedy transport to an operating station is a matter of urgency. On the whole the travois has worked satisfactorily in these cases, producing a minimum of jolting over rough tracks and roads. In order to attain the Fowler position, two methods are in use—either the canvas of the stretcher is

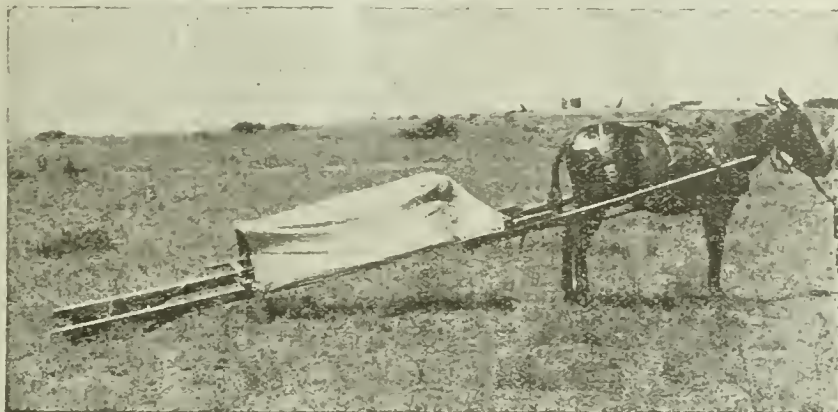


FIG. 1.—Travois.



FIG. 2.—Mule litter.

lengthened and fixed by iron supports to alter its shape to that of a deck chair, or, simpler still, two triangular wooden wedges are strapped to the stretcher to support the back and thighs.

WOUND TREATMENT.

The general treatment of wounds has followed the evolution seen in other theatres of war. At first the ordinary eusol dressing was most in use. A reaction in favour of the hypertonic saline solution and salt packs then set in; and, finally, Carrel's method of treatment has become the method of choice.

Recent difficulties in evacuation from this area by sea have been all to the advantage of the wounded man, for they have resulted in his receiving continuity of treatment—that is to say, a large number of wounded men have been kept in this country until their wounds have healed, and in many cases treatment has been completed in an orthopaedic dépôt. In this way we have had the opportunity of studying wound treatment in all its phases, and of observing the wounded man from the time of his injury to the final stages of his treatment.

It has always been obvious that a wound should if

standard method in many of the hospitals. Other forms of wound treatment have been in use, but we have not yet seen with them the same consistency of results, the quick sterilization of the wound and its secondary suture, which certainly occurs with Carrel's method. We need not labour the point that good results can only follow the strictest attention to details as laid down by Carrel himself; any half-hearted application of the method or modification has resulted in disappointment. It so happened that the majority of the men wounded during the fighting of last spring were dealt with throughout by this plan of treatment. It was started in the casualty clearing stations, continued on the ambulance trains, and completed at the base. There has been no diffi-

culty in carrying out the treatment during what is commonly called a "rush" after heavy fighting. Arrangements for dealing with large numbers were carefully planned beforehand; the surgeons worked continuously in the theatres, whilst medical officers and sisters, specially trained in the method, carried on the treatment in the wards.



FIG. 3.—Cacolet.



FIG. 4.—Advanced dressing station.

possible be continuously treated by one method, and that if an ideal method could be found it should be made the standard plan of treatment. Carrel's method of treatment appeared to us to approach most closely to the ideal, and during the past eight months it has been used as the

A series of 1,000 consecutive cases, mostly serious, is being published by Major Basil Hughes, D.S.O., R.A.M.C., and show conclusively the excellent results that have been obtained; this series includes 248 cases of fracture of the bones of the extremities and 176 cases of injuries to joints.

A second series of 1,000 consecutive cases is on the point of completion.

As a result of the introduction of Carrel's method, a plan of treatment has evolved which we have recommended as appearing to give the best results. There is nothing new in what is advised; it is simply that the opportunity of co-ordination has occurred. This plan is applicable to those patients who may make a complete recovery in this country within a short time, and also to those who, for one reason or another, stay here for a time before being transported to Malta or England.

1. In the Regimental Aid Posts and the Field Ambulances.

Little is done in the regimental aid posts and field ambulances beyond the general cleaning of the injured area and the application of a dressing; eusol dressings are advised, as they most closely fit in with the subsequent treatment. The finest work that these units can do is the rapid evacuation of the wounded to the clearing station.

2. In the Casualty Clearing Stations.

Carrel's method is commenced in the casualty clearing stations. To repeat: we have recommended this as the standard method of treatment, for it gives all that one wants in early sterilization of the wound with subsequent secondary suture. The method requires surgeons who have learnt it and sisters and orderlies who are trained to it. The initial stage, the operative work on the wound, is of supreme importance; the thoroughness and accuracy with which this is done largely determines the ultimate results.

3. Transport to Base.

On the ambulance train or during other means of transport to the base arrangements are made that the regular sterilization of the wound is not interrupted.

4. At the Base Hospital.

(a) The process of sterilization is continued. The bacteriological condition of the wound is at once investigated; this examination is usually limited to the estimation of the average number of organisms in a field. As soon as the bacteriologist reports the wound ready for suture this is done. Bacteriological control of the progress of the wound is an essential part of the treatment, and the only reliable guide as to its readiness for secondary suture; the clinical appearance of the wound surface has again and again proved deceptive in this respect. The count of the average number of organisms in a field requires no expert knowledge and no elaborate apparatus; it can be done quickly, and is applicable, therefore, to a large number of cases. Recently a number of wounds have been sterilized within the first week; this is mainly due to improvement in technique, and especially to the early performance of

thorough excision—by way of example, two cases of compound fracture of the femur have been sterilized and sutured successfully before the end of the first week.

(b) The orthopaedic side of the question is considered side by side with the actual treatment of the wound. This aspect is sometimes overshadowed by attention being focussed on the healing of the wound; many of the disabilities seen at a later stage are due to neglect of the orthopaedic aspects in the early stages.



FIG. 5.—Compound fracture of femur. Photograph of wound immediately after secondary suture on sixteenth day. Primary union.

5. Orthopaedic Convalescent Dépôt.

The patient is received into this unit as soon as his wounds are soundly healed; he here receives massage, exercises, electricity, and "curative" work, according to the nature of his disability. Further details of this dépôt are given below.

6. Secondary Operations.

Secondary operations are necessary in a certain proportion of cases; these are mainly for the correction of deformities or for the repair of damaged nerves. Under ordinary circumstances the operations are performed after the patient leaves this country; but when the operation will fit the man for duty and when there is delay in his evacuation, the operation is done here.

OTHER METHODS OF WOUND TREATMENT.

Through the courtesy of Dr. C. H. Browning, of the Bland-Sutton Institute of Pathology, samples of proflavine and brilliant green were received and are being used in various forms in a series of cases in one of the general hospitals. The report on this series is not yet completed.

Bismuth-iodoform paste has been employed in a small number of cases, mostly cases with sinuses; a few fresh accidental wounds have also been treated by this paste, but their number is too small to warrant any comparative statement. Our advice has been that this paste should be reserved for those wounds in which sterilization and suture are impossible or have failed.

Primary suture without the use of any special antiseptic has been performed in many cases of wounds of the scalp.

abdomen, articulations, and soft parts; in those cases in which a satisfactory and very early excision of the wound has been possible, primary suture has been a decided success.

WOUNDS OF SPECIAL PARTS.

The following are the main principles that have been adopted for special groups of wounds:

1. Head Injuries.

All gunshot fractures of the skull are operated upon as early as possible and are kept in the unit of operation for at least fourteen days; this unit may be a casualty clearing station or a stationary hospital, according to



FIG. 6.—Group of patients with fractures of humerus treated by Carrel's method.

circumstances. All scalp wounds are excised and explored.

In cases other than those with mere fissures, all loose fragments of bone are removed, and then with freshly sterilized forceps a further half-inch of the surrounding bone is excised; the dura is not opened, if intact; but in cases of penetration the brain for a distance of half an inch is gently explored with the finger and any foreign bodies removed. General opinion is opposed to the extensive use of the horseshoe flap, sliding flaps and primary suture being used in those cases in which the operator feels that he has excised the infected area.

2. Penetrating Wounds of the Chest.

The chief difficulty in these cases has been that in certain areas transport over long distances by road has been necessary. These patients travel very badly, and they have therefore been kept as a rule for at least fourteen days in the casualty clearing stations before commencing their journey by easy stages to the base. On the other hand, when evacuation has been by train, uncomplicated cases are sent down after the third day. Of a series of 105 cases so evacuated, including 72 with definite haemothorax and 23 with pneumothorax, 18 (17 per cent.) subsequently required drainage and 30 simple aspiration.

No operation has been performed for removal of foreign bodies from the lung.

3. Penetrating Abdominal Wounds.

The principle of early operation whenever possible has been in force from the beginning. In certain areas the difficulties in recovering wounded and their rapid evacuation to a clearing station have been considerable. But keen work by the field ambulances has overcome these difficulties, and the majority of the cases reach the clearing station within twelve hours of injury.

Captain E. G. Gauntlett, D.S.O., F.R.C.S., recently reported a series of 28 laparotomies for penetrating wounds with 15 recoveries. In 14 of these cases perforations of the intestine were sutured, and 11 recovered. During the same time at the corresponding base hospital there were admitted 45 cases of penetrating abdominal wounds. Of these 33 had been operated upon in clearing stations and all recovered; 23 involved the small intestine, 5 the large intestine, and 7 the solid viscera. Of the 12 cases operated upon at the base 9 recovered; operation for injury to the small intestine was successful in 7 out of 8 cases.

For wounds of the hepatic and splenic flexures of the large bowel, and wounds of the spleen and diaphragm, we have found that Perthe's incision gives good access; for cases in which a projectile has traversed the upper part of the abdomen from side to side a complete transverse

incision cutting through both recti has allowed perfect exposure; it is sutured with surprising ease, and heals well.

4. Fractures.

Compound fractures are of all injuries the best evidence of the value of Carrel's method. Major Basil Hughes, in his paper already mentioned, brings out two striking points: (1) That in his series of fractured femurs reaching the base, in no case in which Carrel's treatment was started in the casualty clearing station was the limb

lost; (2) that the majority of cases of fractured femur had healed, and were up in walking splints in five to seven weeks after their injuries.

Two illustrations are appended (Figs. 6 and 7) showing patients with fractures of the humerus and femur treated by Carrel's method.

A special department for the treatment of fractured jaws was instituted early this year. All such cases are moved to this department as soon

as they are fit to travel, and are placed under the dual care of a surgeon and a dental surgeon, who have fashioned some beautiful interdental splints.

5. Joints.

It is generally recognized that of joint injuries about half affect the knee-joint; in a total of 176 consecutive cases in one of our base hospitals 85 concerned the knee. Therefore, in considering joint injuries, those of the knee bulk largely both by reason of their frequency and their difficulties.

Opinion as to the best treatment has passed through many phases. Practice in this area has crystallized, and at the present time the following principles are generally accepted:

(a) Rigid fixation in a Thomas splint.

(b) Removal of excess of fluid from the joint; in other words, treatment directed to keeping the tension of the joint at zero; immediate bacteriological examination of the fluid.

(c) Early and complete operation for all cases except those of through-and-through bullet wounds. This, of course, includes a skiagram, the removal of foreign bodies, and the excision, as far as possible, of all contaminated tissues.

(d) The joint cavity is closed whenever possible; the other parts of the wound are also sutured without drainage when an early clean excision has been done; otherwise they are treated by Carrel's method.

In badly infected joints the results have been disappointing in spite of all the recognized forms of treatment, and a large proportion of this group has ended in amputation. We have, however, been surprised to find on occasion that a secondary excision has saved the limb; we recommend, therefore, that an immediate excision be done for cases in which the bones



Fig. 7.—Cases of compound fractures of the femur.

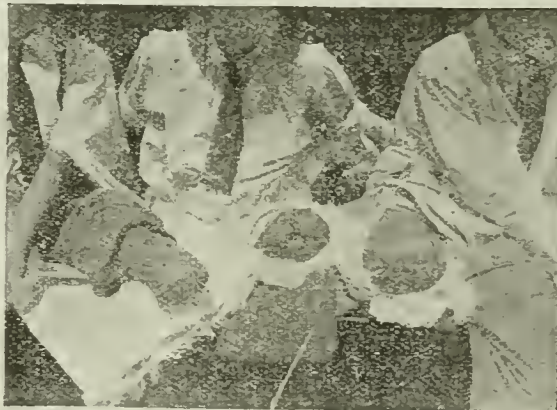


Fig. 8.—Amputation stumps; flaps sutured over Carrel's tubes.

are badly damaged and infection has become established.

6. Burns.

No. 7 paraffin has appeared to us the most efficient form of treatment for burns at the present time. The painlessness of even large dressings and the excellence of the resulting scars are very striking features.

7. Special Infections.

Gas Infection.

There has been a larger amount of gas infection than we had expected from the nature of the country. In the fighting of last autumn it was definitely observed that the number of cases depended directly on the nature of the soil over which fighting took place; there was an immediate jump in the figures as soon as the troops reached villages and cultivated soil. Later the onset of wet weather again increased the proportion of cases of gas infection. In one casualty clearing station statistics were carefully worked out by Captain St. J. D. Buxton, and it was found that gas infection occurred in 3.98 per cent. of all wounds.

Tetanus.

The incidence of tetanus has so far been remarkably

low. As far as we can ascertain there have been only four cases of tetanus amongst the British troops here. Two of these cases died; both had received accidental wounds; in one it was an apparently trivial scratch of the finger and no prophylactic serum was given. One case of anaphylaxis following the injection of anti-tetanic serum has occurred. The patient had had an injection of antitetanic serum in November, 1916; in August, 1917, he received a slight wound of his right leg, and 500 units of serum were given; he vomited after the injection, but soon after was fit to return to his unit. Four hours later he vomited again, became collapsed, and was sent back to the field ambulance. On arrival there he was collapsed and slightly cyanosed; his radial pulse was impalpable, there was considerable oedema of the scrotum and penis, and an urticarial rash on the thighs and chest. With treat-

ment by stimulation, atropine, and adrenalin he recovered in forty-eight hours.

SURGICAL CONVALESCENT DÉPÔT.

A special surgical convalescent dépôt has been in existence during the last four months. Its aim has been to start the important surgical after-treatment in those wounded who for various reasons are unable early to reach the orthopaedic centres at home. Moreover, the simplest form of orthopaedic work carried out at the commencement of convalescence means a great saving of time, and is of inestimable value to the moral and physical well-being of the patient. The principles followed are those which have been laid down by Colonel Sir Robert Jones,

C.B., the Director of Military Orthopaedics.

Each patient on admission has prescribed for him a particular and graduated form of exercise and massage suitable for his disability. These exercises are carried out in a gymnasium, where, under the direct supervision of a medical officer and by means of simple hand-made machines, the disabled muscles and joints are improved.

But, in addition to these methods, great stress is laid on

manual exercises performed in a workshop—the "curative" workshops, as they are called. In them the patient improves his muscles and joints unconsciously; his mind is fixed on the work done rather than on his disability. In the joiners' shop the exercises of sawing, planing, and hammering improve the power of the arm, whilst in using a treadle lathe the exercise of pedalling improves all the muscles and joints of the lower limb.

In another part of the camp

simple sun-dried bricks are made. The acts of digging and mixing the clay, and the bending over the moulds constitute excellent exercises for the arm, back, and thigh muscles. Gardening furnishes similar results.

Finally, under the direction of a metal worker and a saddler, we have started a splint factory. Simple splints in wood and iron are made to measure, and we can now turn out the Thomas's walking calliper splints and a simple

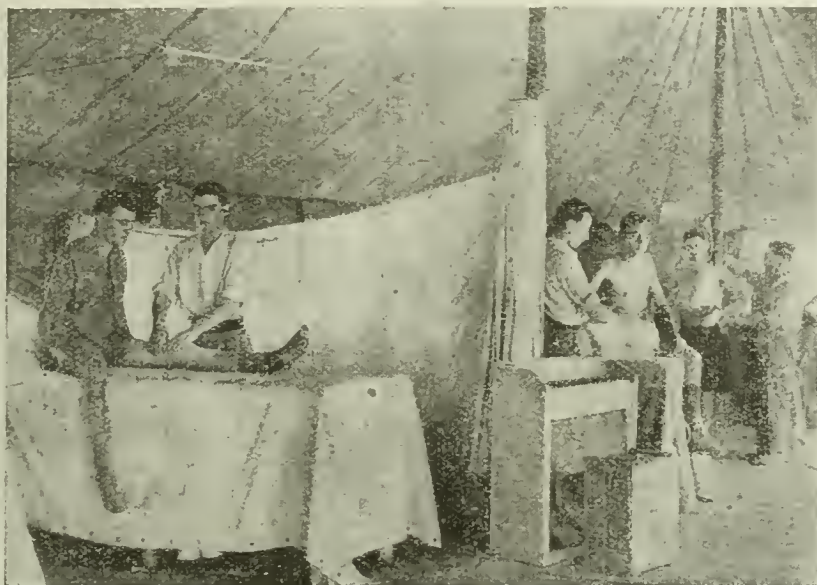


FIG. 9.—Tent for massage.



FIG. 10.—Brick-making.

form of artificial leg. This is fashioned with the upper joint like a Thomas's knee splint and with the lower end simply in the form of a wooden peg.

The few photographs give an idea of the camp and the class of work done there. The success of this camp has been due to the energy and enthusiasm of its commanding officer, Lient. Colonel F. Apthorpe Webb R.A.M.C.(T).

SERBIAN PATIENTS.

Certain of the British hospitals serving in Macedonia have been attached to the Serbian army, and thus we have had an opportunity of studying the surgical aspects of Serbian patients.

Dealing first with non-military diseases, it may be noted that appendicitis is comparatively rare amongst the Serbs; on working out the proportion of cases requiring operation per 1,000 admissions to hospital we find that there have been approximately four times as many cases amongst British troops as amongst Serbs. It is stated that Russians suffer much more frequently from appendicitis than Serbs.

Herniae are common in the Serbs, and a large proportion of inguinal herniae are of the direct type; in one of our hospitals over 30 per cent. of inguinal herniae were direct. Serbian surgeons themselves think that the increased liability to herniae is due to the relative fullness of the abdomen in Serbian children, due to the bulky carbohydrate diet, which weakens the floor of the inguinal canal, and also to the fact that at an early age they carry heavy weights over very hilly country. Surgical tuberculosis has been small in amount, except as regards the epididymis, where it has been observed fairly frequently.

As regards wounds, the Serbs have proved excellent surgical patients: Major K. W. Monsarrat reports that recovery from shock has been rapid, major operations have been well stood, and septic wounds have healed extremely well—for example, in a series of thirty-one amputations through the mid-thigh or at the hip, no case was lost from shock, and only in a few instances was saline infusion necessary. Anaesthetics were taken excellently and pulmonary complications are rare.

Approximately 7 per cent. of shell wounds developed gas infection, and tetanus occurred approximately in one case per 1,000 wounded, with a mortality of 45 per cent.

INTERNATIONAL SURGERY.

The presence of the allied armies in Salonica naturally suggested an interchange of views on matters surgical.

An International Surgical Society was therefore formed under the presidency of M. le Médecin Inspecteur Ruotte, the Director of the French Medical Service in Salonica. Meetings are held once a month, cases being shown and short communications read. In addition, visits have been made to the hospitals of our allies and much of interest

and value has been learnt—for instance, these visits have encouraged the establishment of surgical dressing-rooms in our general hospitals corresponding to the "salles de pansements" found in almost all the hospitals of the other armies. These dressing-rooms deal with all the minor dressings and a large number of walking cases; they economize time and personnel and allow attention in the wards to be concentrated on the treatment of the serious cases.

Surgery at Salonica has been made easy by the ever-ready help and encouragement of those who have directed the medical service there; to them our most grateful thanks are due. For the photographs which accompany this paper we would express our gratitude to Lient-Colonel E. J. Williams, D.S.O., C.A.M.C., and to the Survey Department, Royal Engineers.

THE Medical Research Committee has issued a report upon 2,360 enteritis "convalescents" received at Liverpool from various expeditionary forces (Special Report Series, No. 7, V). The investigations were both bacteriological and protozoological, and formed part of the combined studies arranged by the Committee in 1915 at the chief centres in the country at which military patients and convalescents were being received with the diagnosis of dysentery or "enteric" from the Mediterranean and other areas. In the first part of the report Professor Glynn and his colleagues describe the technical methods used, with special reference to agglutination tests. A very high estimate was formed of the value of the typhoid and paratyphoid emulsions of the Oxford Standards Laboratory, and the technique suggested by Dreyer for their use is considered to be the "best method for routine work in the army," giving also the additional

advantage of convenient standardization. The Oxford dysentery emulsions were not found so eminently satisfactory, but it is thought that recent improvements in them will give better results. The second part deals with specific bacteriological observations, the results of which are correlated as closely as possible with those of other workers elsewhere. The third part gives the main results of protozoological examinations, under the direction of Professor J. W. W. Stephens, made in parallel series with those of the bacteriologists working in the same material.



FIG. 11.—Splint-making.



FIG. 12.—Thomas's calliper splint: Artificial leg.

INFECTED WOUNDS OF THE KNEE-JOINT.

BY

K. W. MONSARRAT, MAJOR R.A.M.C.(T.F.),

SALONICA ARMY.

THE total number of cases which are reviewed here is 38. All were either Serbs, Russians, or Bulgars, admitted to hospital during the period August, 1916, to August, 1917. In all cases the condition was an infected wound involving the joint. Several were in the charge of my colleague, Captain L. D. Woods, R.A.M.C., surgical specialist in the hospital, to whom I wish to make my acknowledgements.

Of the total, 13 were admitted either four days or later after being wounded, 25 within the first four days.

The Influence on Results of Early Surgical Treatment.

Of the 25 cases treated within four days of the receipt of the wound—

18 recovered without amputation.
4 recovered after amputation.
3 died.

This shows a recovery of 72 per cent. without amputation. Of the 13 admitted on the fifth day or later—

4 recovered without amputation.
3 recovered after amputation.
6 died.

This shows a recovery of 30 per cent. without amputation.

The following table gives these figures, but distinguishes further between the cases with bone lesion or retained foreign body, and those of infected joint wound without these complications.

A. With Bone Lesion or Retained Foreign Body.

Early admissions (within four days):

Recovered ...	...	...	...	14
Amputation ...	...	...	...	2
Death ...	...	...	...	1

Late admissions:

Recovered ...	...	...	...	4
Amputation ...	...	...	...	2
Death ...	...	...	...	5

B. Without Bone Lesion or Retained Foreign Body.

Early admissions:

Recovered ...	...	...	...	4
Amputation ...	...	...	...	2
Death ...	...	...	...	2*

Late admissions:

Amputation ...	...	...	...	1
Death ...	...	...	...	1†

* One case multiple wounds, death following amputation at shoulder.

† Gas gangrene of whole limb, the wound being of knee-joint.

Another point of importance showing the influence of early treatment is the recovery of function in the joint.

Of the 22 cases surviving without amputation 13 left hospital with recovery of function in the joint—that is to say, with a greater or less range of voluntary movement. I am unable to say how many of these eventually recovered with a "useful" joint, but the majority were at any rate promising. The point is of chief value in showing that the joint changes did not in these cases go on to complete destruction.

Of these 13 cases—

3 were admitted the day following the wound.
4 were admitted on the second day following the wound.
5 were admitted on the third day following the wound.
1 was admitted on the seventh day following the wound.

That it was by no means always the least complicated case which made a good functional recovery is shown by the following two histories:

Case 25.

No. 4483. Admitted December 1st, 1916. Wounded November 27th. The projectile passed through the knee-joint and fractured the femur. The joint was infected.

Operation.—Wounds excised, fragments of femur removed. Transverse incision above patella into joint. Joint washed out with saline. No drainage, no sutures.

December 7th, 1916. Wounds clean.
January 25th, 1917. Wounds healed; good movement in joint.
March 5th. Discharged to duty. Pain less and almost normal range of movement.

Case 35.

No. 7152. Wounded May 15th, 1917. Admitted May 18th, 1917. Entrance wound above outer upper quadrant of patella; wound traverses femur, comminuting the junction of shaft and

condyles; exit wound below adductor tubercle. Temperature on admission 100.4°.

Operation.—Wounds excised, loose fragments of femur removed. Joint full of pus and blood. Transverse incision above patella into joint. No drainage material used into joint; tube passed through special incision down to trigone of femur at site of fracture. No sutures.

May 24th. Pyrexia. General condition good. Wounds healthy.

May 28th. Inflammatory swelling of joint structures subsided.

July 12th. Good movement in knee-joint. Lower end of upper fragment of femur is displaced somewhat backwards.

These groups of figures indicate the urgency of operative treatment in infected knee-joint wounds, and the fair results which may be expected in cases so treated.

I am unable to give the bacteriology of the majority of the infections. I am aware that some surgeons attach much importance to this as a guide to treatment; for my own part I do not, for two reasons: firstly, that I have seen knee-joints left unopened because they were reported as staphylococcal infections, but went completely to the bad and ended in amputation; secondly, because there is no danger in opening a knee-joint if certain things be done and others left undone. Bacteriology and the cytology of the effusion are of importance in prognosis, but that they provide a reliable guide to treatment is contrary to my experience.

Operative Treatment of Early Infections.

Punctured penetrating wounds of the joint with effusion are not included in this communication. All that is required in such cases is fixation. This should be both absolute and prolonged. In early infections—that is to say, in cases in which the infection is not so established as to have disorganized the joint—the details of operative treatment are as follows:

(a) Excision of the wound, or wound, including the capsular and synovial membrane wounds.

(b) Evacuation of effusion.

(c) Removal of foreign bodies and of detached bone fragments.

(d) Transverse incision into the joint a fingerbreadth above the patella 4 in. in length.

(e) Either (and usually) no sutures or catgut suture of the excised wound passing through synovial membrane only. No drainage material passed into the joint.

(f) Fixation on splint, with fixed extension and elevation of the limb to an angle of 45 degrees at the hip-joint.

It is usually necessary to maintain the patency of the transverse incision into the joint by passing a pair of dressing forceps at the daily dressing for three or four days. The results shown in the cases of which details are given here appear to me to demonstrate the value of this method of operative treatment in cases in which infection is not advanced.

When the joint wound is complicated by fracture the question of a *primary* resection of the joint may be entertained if the stability of the joint is otherwise doubtful. This operation has probably a very limited utility; it is only likely to be successful in early cases in which the infection is not acute. It was not carried out in any of the cases reported here except Case 16, in which a resection was done elsewhere before admission.

Indications for Amputation.

When cases submitted to arthrotomy continue to exhibit signs of active infection on the days following operation a secondary amputation should be done; no lesser procedure is likely to be successful. Delay in amputating in such cases beyond the third day after arthrotomy is likely to be dangerous.

Case 34.

No. 7090. Admitted May 16th, 1917. Wounded May 14th. Grenade wound. Entrance to inner side of ligamentum patellae; joint distended. No exit.

Operation.—Foreign body removed from head of tibia; wounds excised; transverse incision above the patella. No drainage.

May 19th. Joint condition unsatisfactory. Three Carrel's tubes inserted, two down into lateral joint pockets, one down to wound in head of tibia.

May 24th. General and local condition worse; temperature last night 101°, pulse 120; this morning temperature 101.6°, pulse 116.

May 25th. Death.

Amputation was delayed too long in this case; during the last two days it was judged inadvisable owing to the general condition.

A secondary formal resection has been advocated in some of these cases of established infection as an alternative to amputation. It is certainly advisable to confine it to cases in which there is definite reason to believe that the infection is of a subacute type. The objections are:

- (a) The danger of uncontrollable septic osteitis.
- (b) The probable instability of the resulting "joint."

No evidence has yet been produced to show that if resection is done in these cases of established infection and the bone surfaces are separated a stable limb is likely to result.

Amputation is advisable if infection of the joint is complicated by a serious bone injury, if, for example, the condyles are shattered or a fracture extends from joint into shaft and infection is well established. Amputation is further indicated if the joint wound is complicated by injury to the femoral or popliteal artery or by section of internal or external popliteal nerves.

In the treatment of patients transferred from other units and admitted in the subacute stage, in which the joint is more or less infiltrated with septic granulation tissue and there are various operation wounds more or less providing drainage, in my opinion the choice of procedure lies between:

(a) Leaving them alone carefully splinted and only operating if some secondary collection in the thigh or leg presents itself.

(b) Amputation. This should be chosen when signs of general infection and septic intoxication persist; when secondary collections or tracks are present in the popliteal space; when it is obvious from the extent of the bone destruction that a weight-carrying limb cannot be anticipated. A large proportion of the cases with posterior collections and tracks end in secondary haemorrhage. Bone loss, which will leave crippling deformity and joint disorganization, which has resulted in falling back of the tibia from the femoral condyles, will always lead to a decision to amputate.

The cases fall into two groups—that belonging to the autumn and winter of 1916 and that belonging to the months of May, June, and July, 1917. In the earlier group the method of arthrotomy advocated above was not employed as routine; in most of them drainage tubes were placed in the joint, and in other respects the operative procedure differed from that adopted in the later group. The results obtained in the nine cases belonging to the later group were much superior to those obtained in the earlier, and this fact in my opinion is due to—

1. Operation at the earliest possible time.
2. Early removal of foreign bodies and loose bone fragments.
3. Careful wound excision.
4. Omission of drainage tubes and sutures.
5. Provision of drainage by transverse incision above the patella combined with elevation of the limb.
6. Complete fixation, with fixed extension.

Case 1.—C. 5. Admitted August 22nd, 1916. Shell wound of left knee. Removal of shell fragment; wound excision; arthrotomy. Recovery.

Case 2.—F. 8. Admitted August 23rd, 1916. Shell wound of right knee. Removal of foreign body; wound excision; arthrotomy. Recovery.

Case 3.—B. 7. Admitted August 24th, 1916. Bullet wound of left knee. Removal of bullet; wound excision; arthrotomy. Recovery.

Case 4.—B. 5, Bulgar. Admitted August 16th, 1916. Shell wound of right knee; fracture of femoral condyles; septic osteitis established. Arthrotomy; incisions. Death August 27th.

Case 5.—534. Admitted August 21st, 1916. Gunshot wound of left knee. Subacute infection. No operation on admission. Arthrotomy August 29th. Transferred convalescent October 30th.

Case 6.—1218. Admitted August 27th, 1916. Gunshot wound of left knee; fractured femur. Amputation through thigh September 1st. Death from septicaemia October 23rd.

Case 7.—2032. Admitted September 14th, 1916; wounded September 12th. Gunshot wound of right knee. Shell fragment in femur, with fracture of external condyle into joint; infected. Foreign body removed; arthrotomy; no drainage; no sutures. February 19th, 1917: Function of joint good; only slight restriction of extension. Transferred February 26th.

Case 8.—2007. Admitted September 14th, 1916. Wounded September 12th. Gunshot wound of left knee; infected. Removal of foreign body; arthrotomy. November 29th: Transferred; healed; fair movement in joint.

Case 9.—2048. Admitted September 14th, 1916. Removal of foreign body; arthrotomy. Further incisions for secondary collections September 24th and 29th. Transferred November 22nd. Convalescent; ankylosis.

Case 10.—1434. Admitted August 27th, 1916. Gunshot wound of right knee. Compound fracture of femur; infected. Wound excision, arthrotomy the same day. Incisions for secondary collections September 29th and November 6th. Amputation through the mid-thigh November 24th. Transferred February 12th, 1917.

Case 11.—1180. Admitted August 27th, 1916. Gunshot wound of left knee. Arthrotomy August 29th. Progress unsatisfactory. Death from septicaemia September 25th.

Case 12.—2250. Admitted September 20th, 1916; wounded September 17th. Infected wound of right knee; fractured patella. Wounds excised on day of admission. No drainage. Gradual subsidence. Transferred January 24th, 1917. Healed; ankylosis.

Case 13.—2253. Admitted September 20th, 1916. Gunshot wound of right knee; fractured femur. Wound excision; arthrotomy. Further incision October 23rd. Amputation November 13th. Transferred February 12th, 1917.

Case 14.—2566. Admitted September 30th, 1916; wounded September 29th. Gunshot wound of left knee; infected. Internal condyle comminuted; fractured patella. Bomb fragment passed through joint. Arthrotomy; wounds excised. January 27th, 1917. About twenty degrees of movement in joint; marked genu varum. Wounds healed. February 15th, supracondylar osteotomy to correct deformity.

Case 15.—2654. Admitted October 2nd, 1916. Gunshot wound of right knee; infected. Operated on October 6th. Removal of foreign body; arthrotomy. Subsequent operations, October 13th, 18th, and 20th. Death October 23rd from septicaemia.

Case 16.—3077. Admitted October 14th, 1916; wounded October 4th. Gunshot wound of left knee, infected, with fracture of lower end of femur. Before admission had "atypical resection" of joint; condyles removed. Admitted four days after this operation. Profound infection. Secondary haemorrhage from popliteal artery December 20th; amputation through upper third of thigh same day. Transferred March 2nd, 1917.

Case 17.—3532. Admitted October 26th, 1916. Gunshot wound of right knee; infected; subacute infection. Arthrotomy. Gradual subsidence. Recovery.

Case 18.—3566. Admitted October 30th, 1916. Gunshot wound of left knee. Removal of foreign body November 1st, and wound excision; arthrotomy. Recovery. Transferred November 20th.

Case 19.—3946. Admitted November 13th, 1916. Gunshot wound of right knee; infected. Knee-joint opened and drained. Continued infection. Amputation through mid-thigh December 19th. Transferred February 12th, 1917.

Case 20.—3950. Admitted November 13th, 1916. Gunshot wound of right knee, arm, and hand. Removal of foreign body and drainage November 18th. Incisions for drainage of secondary collections December 26th. Death from septicaemia pneumonia January 9th, 1917.

Case 21.—4341, Bulgar. Admitted November 25th, 1916. Gunshot wound of right knee; fractured patella; frostbite both feet. Operation November 26th. Removal of patella, lateral and posterior incisions into knee-joint. Amputation through mid-thigh December 4th. Death December 15th.

Case 22.—4324. Admitted November 23rd, 1916. Gunshot wound of right knee by shell fragment. Entrance outer side of popliteal space; exit over inner tuberosity of tibia; tibial tuberosity smashed. No foreign body present; subacute infection. No operation on admission. January 13th, 1917, slipped and injured knee; effusion, pain, pyrexia. January 17th, continued pyrexia, 102.4°. Knee opened above patella, washed out, and closed; sero-purulent fluid. January 25th, same operation repeated. Transferred convalescent March 5th.

Case 23.—4345. Admitted November 25th, 1916. Gunshot wound of right knee and left upper arm. Amputation at shoulder-joint. November 26th, arthrotomy, right knee. Death two days later from shock.

Case 24.—4347, Bulgar. Admitted November 25th, 1916. Admitted moribund; gas gangrene spreading from gunshot wound of left knee. Death the following day.

Case 25.—See text above.

Case 26.—4590. Admitted December 5th, 1916; wounded December 3rd. Gunshot wound of right knee; infected. December 6th, wounds excised; foreign body removed; joint washed out with saline; no drainage. March 5th, 1917, fair movement in knee-joint; wounds healed. Transferred.

Case 27.—4691. Admitted December 9th, 1916. Gunshot wound of right knee; infected. Entrance wound above patella; exit on outer lateral aspect. December 11th, joint opened by transverse incision above patella. December 16th, two lateral incisions added. December 29th, collection under

quadriceps opened. January 20th, 1917, amputation through mid-thigh. Transferred April 4th.

Case 23.—4778. Admitted December 13th, 1916. Gunshot wound of left knee; infected. Fractured patella. Wounds excised on admission. December 20th, lateral incision into joint; washed out with saline; no drainage. January 26th, 1917, wounds healthy, granulating. February 7th, collection in calf tracked down from popliteal space under outer head of gastrocnemius; opened by three transverse incisions. April 7th, healed; slight voluntary movement. Transferred.

Case 29.—168 (O). Admitted November 20th, 1916. Gunshot wound of right knee; infected. Amputation through mid-thigh the following day. Recovery.

Case 30.—6919. Admitted May 10th, 1917; wounded the same day. Gunshot wound of left knee. Joint distended; wounds lacerated, through-and-through; entrance outer side ligamentum patellae; exit behind semimembranosus tendon. May 11th, wounds excised; arthrotomy; turbid fluid. Transverse incision above patella. May 24th, apyrexia; local condition satisfactory. June 8th, healed; still on splint. July 1st, discharged; fair and increasing movement in joint.

Case 31.—7072. Admitted May 14th, 1917; wounded May 11th. Through-and-through wound from outside; infected. Operation on day of admission. Wounds excised; loose fragments of head of tibia removed; transverse incision above patella; no drainage tubes, no sutures. May 18th, local and general condition satisfactory. May 24th, apyrexia; wounds clean. June 9th, wounds healing; joint quite healthy. August 6th, good range of voluntary movement in joint.

Case 32.—7080. Admitted May 14th, 1917; wounded the previous day. Single wound to outer side of patella; joint distended. Operation May 15th. Wound excised; foreign body removed; arthrotomy. Joint full of turbid blood; bacteriological report, staphylococcal infection. May 24th, general and local condition good; wounds healing. June 8th, normal progress. July 22nd, fair voluntary movement in joint.

Case 33.—6953. Admitted May 12th, 1917; wounded May 10th. Bullet wound from distance of 10 metres. Fractured tibia and fibula; septic. Arthrotomy; removal of bone fragments; three Carrel's tubes. May 16th, septic condition persists. May 24th, some improvement, local and general. June 4th, Amputation through mid-thigh. Recovery.

Case 34.—See text above.

Case 35.—See text above.

Case 36.—7403. Admitted May 26th, 1917; wounded May 23rd. Grenade wounds both thighs. Three wounds on outer side of right thigh, one involving knee-joint. Operation May 27th. Wounds excised; knee wound excised to joint; fragments of fractured patella removed; no foreign body found. Transverse incision above patella; no drainage, no sutures. June 8th, knee-joint satisfactory; some discharge from wound on outer side of ligamentum patellae. No oedema of joint structures. August 10th, wounds healed; slight voluntary movement in knee-joint.

Case 37.—7617. Admitted June 7th, 1917; wounded June 5th. Grenade wound of left knee. Entrance on inner side, fracturing anterior aspect of femoral articular surface. There is also simple fracture of middle of shaft of femur, without direct relation to gunshot wound. Transfer notes say: "Arthritis purulenta, phlegmon incipiens; arthrotomia facta." Tube and gauze in the joint on admission. June 8th, tube and gauze removed; transverse incision above patella; joint "very septic." No drains of any sort inserted. The limb fixed on a Wallace-Maybury splint and elevated. June 25th, irregular pyrexia until 20th, since then apyrexia; wounds healthy. August 10th, patient goes about on crutches. Wounds healed; slight movement in knee-joint. About a quarter of an inch shortening of limb.

Case 38.—9030. Admitted July 22nd, 1917; wounded July 20th. Single contused and septic gunshot wound on outer side of right knee; skiagram shows foreign body (portion of shell) above patella and in front of femur. Patella fractured. Temperature 101°. July 23rd, operation. Wound excised, including wound of capsule and synovial membrane. Loose fragments of patella removed. Transverse incision above the patella; foreign body removed; joint full of turbid blood. Suture of excised wound in synovial membrane with catgut. No other sutures. August 4th, temperature fell to normal two days after operation and has remained so. Wounds now healing; no oedema of joint structures.

THE (American) National Association for the Prevention of Tuberculosis, in co-operation with the surgeon-general of the army, the Y.M.C.A., and other agencies, has drawn up a plan for a military anti-tuberculosis campaign. The name of every man discharged from the army on account of tuberculosis will be sent to the various State organizations and health boards so that the case may be followed up. The association is also co-operating with the surgeon-general to help the Government in providing the necessary sanatoriums. The educational part of the programme includes the supply of a number of stock lectures with lantern slides, and a number of special tuberculosis exhibits with moving picture films will be sent to the camps.

THE PREVENTION OF THE SPREAD OF EPIDEMIC DISEASE AT SCHOOLS.

BY

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EPIDEMIC diseases at schools, especially measles, are a constant source of anxiety to all masters and doctors. In the early part of last year epidemic disease assumed grave proportions, and was of unusually severe type at many of the schools, even causing serious loss of life.

Much care and thought has been spent on combating these outbreaks, but, in my opinion, too little attention has been paid in recent years to the study of their prevention. In any epidemic it is those who have been exposed to the infection who should be dealt with, and any measure which can limit an outbreak in a school by checking the development of the disease in such "contacts" and probable "contacts" deserves the closest consideration.

In 1915 Lieut.-Colonel M. Gordon was appointed to organize a special department to deal with the investigation and treatment of cerebro-spinal meningitis. One of the most serious problems presented was the treatment of carriers, investigations having shown that a considerable number of soldiers, though not suffering from the disease at the time, had the meningococcus, often in large numbers, in the naso-pharynx. Many instances occurred in which such apparently healthy individuals conveyed the disease to others presumably possessed of less powers of resistance. To disinfect or to render harmless these carriers Colonel Gordon and his staff, after much experimental work, introduced a steam spraying apparatus designed by Major Hine, the disinfecting agent used being chloramine-T.¹ The method was fully described in his paper in the BRITISH MEDICAL JOURNAL, November 18th, 1916; since then the apparatus has been greatly improved and enlarged. Chloramine-T was superseded by a zinc sulphate solution, as this was found to be at least as efficacious and better tolerated by most individuals. In addition to the inhalation of the medicated steam spray, Colonel Gordon introduced a system of nasal douching and of gargling with potassium permanganate solution in normal saline, which was both simple and effective. The solution is poured into the palm of the hand and snuffed up one nostril, the other being closed with the finger, and the process repeated with the other nostril. The fluid which has passed down the naso-pharynx is spat out. The patient is then instructed to gargle thoroughly with a fresh quantity of the fluid.

Although originally devised for the treatment of carriers of the meningococcus, it was obvious that the spraying method might be useful in the prevention of other infectious fevers, and, so far as I know, its first application was on a transport ship in which measles had broken out and a severe epidemic appeared to be inevitable. The results of the treatment were most striking—no further cases occurred.

It occurred to me that it would be important to apply the same methods to the prevention of epidemics of various infectious fevers in schools and elsewhere. The first opportunity which I had of trying the efficacy of the nasal douching was at the 1st London General Hospital. In a large and overcrowded ward of forty-six beds a soldier was admitted on December 5th, 1917, with fever and bronchitis. Three days later he developed typical measles. All the patients on that floor (about 100) were put in quarantine, and orders were given that all patients and nurses on that floor were to nasal douche and gargle twice daily (a 1 in 4,000 solution of potassium permanganate in normal saline was used). On the fourteenth day one fresh case occurred in a V.A.D. nurse, who, as it turned out, had been the only person on the floor who had not carried out the orders. No subsequent cases arose. Dr. Mouncey Atkinson, the resident medical officer, who very ably superintended the carrying out of these measures, has reported to me that in every case which has occurred in the hospital since then these precautions have proved efficacious. No contacts have developed the disease with the exception mentioned above.

Apparatus for steam spraying is being installed at various naval and military centres and at Osborne and

Dartmouth Naval Colleges. One has been fitted up at St. Bartholomew's Hospital under Professor Andrewes's supervision, and has already proved useful in the prevention of the spread of epidemic disease amongst the resident staff and nurses.

With the approval of the Medical Research Committee and with the kind assistance of Major Hine, I have been able to fit up at one of the public schools an experimental boiler for steam spraying; with this a 1½ per cent. zinc sulphate solution is employed. At the same time a simple routine of nasal douching and gargling is being carried out with 1 in 4,000 potassium permanganate. A nasal glass tube or irrigator is used instead of the snuffing method mentioned above. With the co-operation of the head master and the assistance of the school doctor and of the matron we are making observations which are already highly gratifying. Although it is too early to draw definite conclusions as to the value of these measures, I may say that already cases of measles, chicken-pox, and rubella have occurred during this term, and in no instance has any secondary case developed. I hope to be able to publish the results of our work at an early date.

My object in drawing attention to these methods of preventive treatment is that a great amount of public and private money is wasted by the frequent outbreaks of epidemic disease in schools, in addition to the loss of time to the boys through the dislocation of their work. In institutions where it is found to be impracticable at present to install a steam spraying apparatus I would urge the trial of nasal douching and gargling, which there is reason to believe will prove of great utility.

I wish to acknowledge my indebtedness for help given by the Medical Research Committee, and Lieut.-Colonel Gordon and Major Hine.

REFERENCE.

¹ Medical Research Committee Report, 1916-17.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

QUININE IN THE TREATMENT OF ANAL FISSURE.

In the present circumstances it seems more than ever desirable to record, for the use of other practitioners, any slight advance in treatment which will save time and trouble to patient and doctor.

A typical case of anal fissure came under my care and refused operative treatment. There were tuberculous glands in the neck, a pile, and a fissure a quarter of an inch deep extending upwards from the base of the pile for more than an inch and a half. After trying the usual palliative remedies without result, and remembering the granulating power of quinine, I packed the fissure with quinine hydrochloride (about five grains) after swabbing with cocaine solution. This treatment was repeated on each of three days. In twenty-four hours the surface showed well-marked granulations, and the patient's symptoms were much relieved. She slept all night after having had pain, severe enough to prevent continuous sleep, for ten days.

After the third day that part of the fissure within reach was looking healthy, but the patient complained of pain higher up. I therefore prescribed enule cocaine gr. ½, to be followed in a quarter of an hour by enule quinine sulphate gr. 5. These were used on four days, and by that time the fissure was quite healed and all pain and symptoms had disappeared; there has been no recurrence.

The extension of this method of treatment to bullet wound and other sinuses suggests itself.

Oxford.

HELEN G. LEYTON, M.D.

A CASE OF MAGGOTS IN THE NOSE.

In October, 1916, while acting as nose, throat, and ear specialist to a general hospital in India, the following case came under my care:

A. B., aged 55, complained of a headache, ascribed to a debauch on the previous evening. The next day the headache continued; he complained of pain in the nose and left ear and had an attack of epistaxis, more copious from the left than the right nostril. During the day he had several other attacks and

the headache became much more severe. When admitted to hospital both sides of the nose were full of recent blood clot, which, it was apparent, did not originate from any bleeding vessel in Kiesselbach's area on either side. There was no history of previous nasal trouble. The left lobe of the liver was somewhat enlarged. The patient was kept quiet in bed and given calcium lactate, and the next morning found about thirty maggots on his pillow which had evidently fallen or been sneezed out of his nose during the night. The nostrils were thoroughly painted inside with liquid vaseline several times a day, which has the effect of occluding the respiratory organs of the insects. During that day and the next more larvae came away, and the bleeding entirely stopped. In all, some fifty to sixty larvae were counted, and the pathologist to the hospital was able to hatch flies from them in artificial media. The patient slowly recovered his strength, and three weeks later the headache had disappeared, and he was walking about.

The nose presented an extraordinary appearance. The greater part of the bony septum was destroyed, as also the turbinate bones on either side. It was extremely difficult, even with the most scrupulous care, to keep the nostrils free from foul-smelling crusts; well-marked atrophic rhinitis was present and persisted. There were, however, neither signs nor symptoms of sinus complications, and the patient was discharged from hospital for light duty at the end of six weeks.

The difficulty of diagnosis and the success of thorough early treatment appear to me to be the outstanding features of this case. It is probable that the insect obtained access to the nostrils and deposited its ova during a period when the man was lying outside in the open air intoxicated. Though most cases of this nature seem to occur in patients who suffer from some pre-existing pathological condition of the nose such as syphilis or some form of atrophic rhinitis, there was no previous history of either condition in this instance. Judging from a certain number of recorded fatal cases in which there appears to have been an invasion of the cranial cavity through the cribriform plate of the ethmoid, followed by intracranial sequelae, or from those which have ended fatally in septicaemia, this patient seems to have had rather a fortunate escape than otherwise, in spite of the havoc wrought in his nose by the maggots.

DAVID RANKEN, M.S.Lond., B.S.Durh.,
F.R.C.S.Eng., Captain R.A.M.C.

Reports of Societies.

SELECTION OF CANDIDATES FOR THE AIR SERVICE.

At a meeting of the Medical Society of London on March 11th, the President, Sir STCLAIR THOMSON, being in the chair, Surgeon H. GRAEME ANDERSON, R.N., attached R.N.A.S., read a paper on the selection of candidates for the air service. He suggested that for eliminating the unfit a special flying school should be instituted where border-line pupils could be instructed in flying under patient and sympathetic instructors, and with a medical officer specially interested in aviation carefully recording the results. In selecting candidates for the air service a sound constitution free from organic disease was looked for, and a fairly strong physique, in order to withstand altitude effects, such as cold, fatigue, and diminished oxygen. Normal hearing and good muscle and equilibrium sense were essential, and good eyesight was of the greatest importance. Next to vision the question of temperament was most important. The ideal aviator must have good judgement, be courageous, and not upset by fear, although conscious of the perils of his work. He must be cool in emergencies, able to make careful and quick decisions, and act accordingly. He must be ever alert, as mental sluggishness in flying spelt disaster. An aptitude for flying was found most commonly amongst those used to playing games and leading an outdoor life. Racing motorists had not made the best pilots. Candidates should be made to undergo a surgical examination, a medical examination, and a special sense examination, preferably carried out by experts in each line, and the final selection made on the total results by a medical selection committee.

Surgical Examination.

The age should be between 18 and 30 years, 24 years being about the best, though much depended upon the physiological age. Height did not matter much, but the candidate should not be under 5 ft. 2 in. As to weight, the lighter the candidate the better, but this did not

count so much as formerly. Colour, physique, attitude, and tone of muscles should be noted, especially the abdominal muscles. A previous history of wounds and injuries had to be considered carefully, especially of injury to the head followed by prolonged unconsciousness, and fairly recent in origin. Any evidence of epilepsy, vertigo, migraine, persistent headaches, lack of concentration, and easily induced fatigue, should disqualify. Loss of cranial vault need not disqualify. Limb injuries might disqualify, depending upon the amount of disablement and deformity. Men with gunshot wounds of the thorax need not be rejected unless they failed to pass the altitude tests as devised by Major Flack. The significance of disabilities of the extremities depended upon the extent to which these interfered with the power to work the controls or use the machine gun. Most movements in controlling an aeroplane were performed below the level of the shoulder. It was more important that the candidate should have both arms intact than both legs. If an amputation were below the knee an artificial leg and foot would act quite well on the rudder bar. If the amputation were above the knee the artificial leg was dispensed with, and the normal foot was strapped to the rudder bar, the latter being pressed forward or drawn back in the aeroplane's control by the sound leg. Old infantile paralysis cases should be rejected owing to the danger of trophic lesions being produced by the cold altitudes. Candidates suffering from venereal diseases should be rejected temporarily.

The Medical Examination.

This included inquiry into previous occupation, habits, and mode of life, previous health, and family history. Inquiry into the candidate's habits should especially refer to tobacco and alcohol. Excess in smoking led to palpitation, shortness of breath, and in some cases double vision, and these dangers should be explained to candidates. Amongst pupils at a flying school alcohol should be strictly forbidden, and they should be warned of its danger to flying. There seemed to be little doubt that the action of alcohol was accentuated in the air. Recent temporary illnesses such as influenza and tonsillitis might hinder a candidate from passing the tests, and there should be a further examination later on. A history of recent or imperfectly treated syphilis should be a cause for rejection, as also should be a history of malaria with recent attacks. The cold experienced in flying undoubtedly precipitated malarial attacks. If such candidates were allowed to fly at all it should be in warm climates. A history of epilepsy or *petit mal* should disqualify. Candidates with a history of neurasthenia, nervous breakdown, or mental depression rarely did well in aviation. Those with a history of shell-shock soon developed some form of aero-neurosis. Such histories should be estimated from the standpoint of date, duration, original severity, and the lapse of time with freedom from symptoms. A candidate need not be rejected on account of seasickness or train-sickness, except for balloon work. Cases of real air-sickness due to the rolling and pitching of the aeroplane in bumpy or gusty weather were comparatively rare.

The family history, especially with regard to diseases of the nervous system, might shed some light on the type of soil with which one had to deal, especially in relation to the strain of war flying. If albumin or sugar were present in the urine the candidate should be rejected. In the digestive system note should be taken of the tone of the abdominal muscles. If poor and there was some dilatation of the stomach—danger signals that splanchnic flooding and fainting in the air might occur—candidates should be sent back for physical training, and, if passed for flying, should be advised to wear an abdominal belt.

In the circulatory system any organic disease of the heart should cause rejection. Equally important was any evidence of instability of the vasomotor system. Raynaud's disease should disqualify. Candidates showing coldness of the extremities, with signs of defective peripheral circulation and a history of easily induced chilblains, should not be allowed to fly at great heights, but rather be graded for low flying duties. He would place such candidates in the special flying school; many of the cases might be due to recent temporary illness, and many could be improved by physical training. He did not attach much importance to the pulse-rate.

With regard to the respiratory system, any evidence of active tuberculosis, emphysema, bronchitis or pleurisy disqualified for air work. In war time an aviator might have to fly at any height up to about 21,000 feet; at this altitude the available oxygen was reduced by one half, and consequently the respiratory rate was increased. Many aviators felt quite undisturbed; some had respiratory distress, fatigue, headache, faintness and blurring of vision, and epistaxis, and had to descend; whilst some actually fainted in the air. The problem why some were affected and some were not at great altitudes had been investigated by Major Flack, R.A.M.C. In his breath-holding test the candidate, seated, was told to expire once as fully as possible, and then to inspire fully, and hold his breath as long as possible. Most good pilots were able to hold their breath for 60 seconds or more—45 seconds was the minimum for the test. During the breath-holding there was a depletion of the alveolar oxygen, and the candidate was submitted to a gradually rarefying atmosphere, as in ascending to a high altitude. This test had been confirmed by other tests, and it had been proved that pilots who suffered at altitudes could not hold the breath as long as those who were unaffected.

In the nervous system any organic disease of brain or spinal cord disqualified a candidate. Mentality and temperament should be studied carefully, and knee-jerks recorded. An exaggerated knee-jerk might indicate an unstable nervous system. Candidates were tested for tremor by being made to stand with eyes shut, tongue out, arms extended, and fingers slightly flexed and spread apart. Inquiry should be made into the usual amount of sleep obtained, and whether disturbed or not. Any signs of restlessness should be noted, as they might point to an unstable nervous system.

Special Sense Examination.

The aviator should have unaided normal vision in both eyes, and in each eye separately. Candidates should be examined for concealed hypermetropia, which had been found in some cases to be the cause of making bad landings. A candidate reading $\frac{5}{6}$ with each eye with a +2 D lens should be rejected. Candidates with heterophoria, or concealed squint, should be tested by the red and green light test, and watched by the aerodrome doctor. Pilots and observers should have perfect colour vision, which was of importance in picking out the colour or marking of hostile machines, in recognizing signal lights, and judging the nature of landing grounds. Testing for night blindness was only of importance in grading pilots for night bombing.

In the examination of throat, nose and ear the previous history should be noted with regard to pyorrhoea, recurring sore throat, earache, deafness, or discharge from the ears. Teeth and gums should be examined, since pupils must commence flying dentally clean. Most aviators kept the mouth slightly open, and any minor degree of oral sepsis flared up owing to the cold or rush of air experienced in flying. Septic tonsils should be enucleated. The nose should be examined to estimate the amount of clear airway. Many pilots with septal deviation and enlarged turbinates returned suffering from headaches induced in the air. Candidates with adenoids, nasal polypus, or infected sinuses should be rejected until treatment had been carried out. Hearing should be normal, and each ear should be tested by forced whisper at a distance of 20 feet. Candidates with chronic suppurative disease of the middle ear, perforation of the tympanic membrane, or cicatrices, should be rejected.

With regard to equilibration and muscle sense, aviators coming out of dark clouds or fog had often found themselves flying one wing down, and it had been recorded that some had flown upside down without knowing it. For this reason, and as the result of an experiment carried out on himself, Mr. Graeme Anderson believed that most of the impressions which control balance in flying came through the eyes; nevertheless he thought that every candidate's equilibration, muscle sense, and vestibular reactions should be tested.

It was important that the aviator should possess normal reaction times with regard to vision, hearing, and touch—all parts of the reflex arcs involved must be intact. These reaction times were tested by means of the d'Arsonval chronometer. The normal visual reaction

time was 19/100 of a second, but in unsuitable candidates might be slowed down from 28/100 to 48/100 of a second. The auditory reaction time usually was 14/100 of a second, but might be delayed from 17/100 to 33/100. The normal tactile reaction time was 14/100 of a second, but might be slowed from 20/100 to 39/100. All the reaction times were found delayed if the candidate was physically or temperamentally unfit, as in disease, worry, cold, fatigue, or after excesses.

In testing emotional reactions—the influence of the emotions on the respiratory rhythm—the vasomotor control and tremor was recorded graphically by the method elaborated by Dr. Lepper. The aviator had round his chest a pneumograph, in his left hand a trembler, and round two fingers of his right hand a pneumatic *doigtier*. All these were connected by rubber tubes to stylets writing on a blackened cylinder; thus were recorded the respiratory rhythm, any tremor present, and the vasomotor control. Behind the candidate a revolver shot was fired or a magnesium flare set off, and on the smoked paper a record was made of any variations. In the best type of pilot with good nerves the effects recorded were of short duration, whilst in unsuitable ones the respiratory rhythm remained increased for some time, there was marked tremor and peripheral vasomotor constriction.

DISCUSSION.

Fleet Surgeon R. C. MUNDAY, Medical Administrator of the Air Force, said that the ideal we had to aim at was on the one hand to exclude from aviation all those who, from medical causes, would swell the non-effective lists, the casualty returns, the number of fatal accidents, and the number of crashed machines; while, on the other hand, at this crisis in the national fortunes, we must ever strive to attain such perfection of method in examination that we prevent no man from serving the King and country in the air who was fit to do so. To attain this we must see that every member of the examining staff was keen and efficient, and supplied with all the apparatus required, the room in which he worked reasonably quiet, spacious, well lighted, sufficiently warm, and properly ventilated. There must be a sufficient number of examiners to prevent overwork and brain fatigue towards the end of the day from clouding their judgement and relaxing their keenness and alertness, and to afford ample time for the careful compilation of records of each case, so that our standards might be checked by statistics as to the after-history of each candidate. Time must also be available for intercommunication, consultation, and conference between examiners. They should gain practical experience of the medical aspects of aviation by periodic and sufficiently extended residence in medical charge of aerodromes. Most of the above conditions were now fulfilled at the Commissions Board at Hampstead, or were in course of attainment. There was no finality in the work of seeking the best method of testing candidates for aviation; we must keep abreast of the rapid progress made in the art of flying and the continual improvement in the design of machines, and do all we could to base our selection of pilots on a sound foundation established on practical experience of the after-history of the candidates selected, combined with results of research on the medical aspects of aviation conducted by British and foreign workers. It was absolutely necessary in order to avoid waste of good material that standards of fitness, and especially of vision, should be graded in accordance with the various flying duties. Reasonable latitude of standard might be allowed to all grades of flying men except those who pilot, or observe from, or act as gunners in, fighting machines. There must be no doubt about the accuracy of colour vision in all cases. The question of heterophoria was of vital importance. Trustworthy tests for the acuity of night vision were being worked out in collaboration with Professor Spearman of University College. With regard to venereal disease, he considered that no candidate should be passed within two years of the last manifestation of active syphilis, and much would then depend on the nature and extent of the treatment he had received and on his Wassermann reaction. He was strongly in favour of no alcohol being consumed at any aerodrome until the flying was over for the day, and then in limited quantities. Even moderate doses of alcohol might have fatal effects if flying was performed while the drug was still acting or reacting on the cardio-vascular and nervous

systems. We should not be too sweeping in our rejection of candidates who had suffered from malaria. The degree of severity of attacks, the condition of the viscera, the nature of the treatment received, and the habits of the candidate must be taken into account. He suggested that the speed of the machine was a factor to be considered in deciding whether an aviator was for the most part dependent on impressions conveyed through the eyes for his sense of balance, or on muscle sense and vestibular reaction. The attitude of the aviator in his machine was of great importance during a steep spiral. If he maintained the usual attitude, the centrifugal action must seriously affect the cerebral blood pressure, whereas if he leant back as far as possible, centrifugal action on the brain was almost nil.

Surgeon-General Sir W. H. NORMAN, Medical Director-General R.N., laid stress on the importance of vision and good colour vision.

Lieut.-General T. H. GOODWIN, Director-General A.M.S., said that in America, where careful tests were being carried out, examiners had told him that they had noticed that good pilots were usually bad sailors.

Mr. ERNEST CLARKE insisted on the importance of perfect vision. Every man should have his vision tested under a cycloplegic. Simply testing with a + glass was not sufficient. The condition of the eye had a large amount to do with accidents; stereoscopic vision was very important, especially in landing. Night flying was a very severe strain, and required absolutely perfect vision.

Captain H. D. BRIGGS, R.N., said that simple methods of examination were necessary. The candidate should be looked at from the human point of view. With regard to vision, glasses were a disability and a danger, and he suggested that a candidate who could see well without them should not be turned down for a visual defect. He always repressed alcohol among aviators. Those with doubtful vision should fly alone, as they had no right to involve others in a risk which they took themselves. Good hearing was important, so that defects could be detected.

Sir WATSON CHEYNE, Bt., M.P., emphasized the need for specially trained medical officers.

Major H. SMURTHWAITE said that men flying at an altitude of 20,000 feet had told him that they invariably took a deep breath every 1,000 feet, and he thought that the sensations experienced by them were connected with the question of blood pressure. He had examined men before going up and after coming down with regard to hearing, bone conduction, etc., and he thought that the loss in bone conduction was probably due to the effect of a change in blood pressure on the semicircular canals. We should try to obviate the change in atmospheric pressure in some way.

Sir JAMES GALLOWAY, Chief Commissioner of Medical Services, Ministry of National Service, asked for something in the nature of a code of instructions as to the medical examinations to be carried out in these cases as the best way of getting standardized and therefore useful work; especially would he ask for some standardized method for the examination of colour vision.

Mr. L. VERNON CARGILL agreed as to the importance of heterophoria as a cause of accidents. Colour vision should be tested by the Edridge-Green lamp. Stereoscopic vision and a perfect visual field in each eye were very necessary.

Major H. C. P. LANGDON, President of the Commission Board, R.F.C., said that no likely officer should be rejected. There was great difficulty in finding out during the medical examination whether a man had the flying temperament. About 10 per cent. broke down during instruction, and these were unsuitable temperamentally.

Major MARTIN FLACK said that there were three important points in the examination of candidates—sympathy, temperament, fatigue. Sympathy was necessary in every medical officer who had to deal with aviators. He had to realize that he was in charge of a human machine, and must see that each separate part was in order. He had been attempting to devise simple tests by which the reaction of the normal human machine could be discovered. Speaking of temperament, he said that about 40 per cent. of picked pilots gave a history of concussion of varying degrees. The flying temperament predisposed to concussion, but here we were dealing with the man who could recover from concussion, and was

therefore a suitable flying man. With regard to fatigue, pilots should be examined at the end of training to determine how they had stood the stress. The time to grade was after the period of training.

Dr. F. J. POYNTON, Surgeon-General H. D. ROLLESTON, R.N., and Captain T. S. RIPPON (School of Instruction, R.F.C., Hendon), also spoke, and Surgeon GRAEME ANDERSON briefly replied.

FEEDING AND DISEASE.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on March 8th, Captain M. GREENWOOD, of the Lister Institute, and Miss CECILY M. THOMPSON reported the results of an epidemiological study of the food problem. In an introductory account of the present state of physiological knowledge it was pointed out that, although certain matters—such, for instance, as the precise significance of the specific dynamic energy of foodstuffs—were still obscure, “the real difficulty of the subject is not so much uncertainty respecting the justice of the physiologists’ conclusions as the quantitative application of principles themselves clearly established.” In the second section of the paper the problem of muscular efficiency was discussed, and it was shown that existing knowledge is insufficient for the formulation of general rules, that each class of work must be specially considered with particular reference to the external conditions under which it is carried out. In the third section of the paper the statistics of consumption were reviewed, and it was shown that in them the relation between energy used and surface was not so close as might be expected on general grounds; the authors concluded that the necessary uncertainty attaching to such data explained the lack of close concordance. They then gave a minute analysis of some data due to Amar with reference to muscular work, which they showed were fully concordant with physiological expectation. Standard tables giving the probable energy need for workers of different weights and doing different amounts of work had been calculated. A table containing Lefèvre’s results on the heat loss of a clothed man exposed to different temperatures and air velocities was also exhibited; the importance of this aspect of the matter and the value of Hill’s investigations upon rates of cooling in connexion with rationing were emphasized. In the concluding section of the paper the effects of food shortage were discussed, and it was pointed out that a majority of the recorded famine sicknesses were not pure hunger effects, shortage of fuel and antecedent or coincident epidemic disease being chiefly responsible. The siege of Paris in 1870, that of Kut-el-Amara in 1915, and the historical outbreak of disease at the Millbank penitentiary, mentioned recently (p. 239), although not pure famine effects, approximated more nearly to such a condition than any others recorded. From a study of the sequence of events in these cases in relation with the energy value of the diets consumed, it appeared that in each case the onset of sickness was gradual, and that its form depended upon local epidemiological considerations. The authors held that there was no one disease which stood in a peculiarly close relation to inanition; that there was a general and gradual lowering of resistance to all forms of infection.

In the discussion which followed the reading of the paper Dr. LEONARD HILL, F.R.S., enlarged upon the importance of paying attention to the effects upon metabolism of external conditions, and detailed the results of experiments made by himself and Major Martin Flack upon the effect of exposure to wind upon the respiratory metabolism. Professor A. D. WALLER, F.R.S., said that his own observations were concordant with the views expressed by the authors of the paper. He had made a special study of prison dietaries, and the great differences in health and power to work which resulted from variations of even two or three hundred calories in the average energy value of the diet were most impressive. In the course of his reply, Captain GREENWOOD remarked that any student of the food problem must be struck by the need for co-operation between the physiologist and the administrator. Few events had more clearly demonstrated the truth of the contention, so long and so vainly urged, that national efficiency depended upon the utilization of scientific knowledge.

Reviews.

GLAUCOMA.

WHEN a new book is presented for study, and a book which is intended to survey the whole range of pathology and treatment of some disease, it is of interest to turn back to the writings of our professional forbears to see what they knew of and what views they held on the particular problem under consideration. Nearly ninety years ago Mackenzie wrote his *Practical Treatise on the Diseases of the Eye*, fixing for us the best thought of his time and recording the best of his own observations. Glaucoma was then a mystery to the minds of most; it had only just escaped confusion with cataract, and, as the lens was proved innocent of the cause of the blindness, it was sought to fix the strange appearance of suffusion or opacity upon the vitreous. Yet Mackenzie made note of the characteristic “preternatural firmness of the eye to touch, evidently arising from over-distension of the tissues”; and still more definitely, “the pressure of the accumulated fluid within the eye is probably the cause of the total blindness which results at last.” He went so far as to write: “Puncturing the sclerotica and choroid might prove serviceable by relieving the pressure of the accumulated fluid on the retina.”

Taken out of their original setting, such passages as these appear to indicate a very real knowledge of the condition of glaucoma, and they do indeed indicate no little comprehension of it; but when we read, on the same page as the advocacy of scleral puncture for the relief of tension, the recommendation of the day-by-day use of belladonna for the dilatation of the pupil of the glaucomatous eye, we realize that these observations of Mackenzie were only the promise of a new day, which was to be slow to come. For it was twenty years later that the discovery of the ophthalmoscope enabled Weber to see the pressure effect in the cupping of the optic disc.

Colonel ELLIOT’S new book on *Glaucoma*¹ is a worthy and illuminating statement of the knowledge we have attained to in this day. It is described on the title page as a “text-book for students of ophthalmology,” but it may very well reach a yet wider audience, for the lessons of the problem of glaucoma are of no limited application, because of the special phenomenon conditioned by the encapsuled organ of vision; these same problems are found throughout the body, wherever filtration, secretion, and blood pressure determine the vitality of an organ. Further, glaucoma is not a disease of the eye alone, for as Lagrange, the French ophthalmic surgeon, has said, glaucoma is a sick eye in a sick body.

Colonel Elliot’s book treats of the whole field of the disease systematically. After an introduction dealing with nomenclature, the anatomy of the parts concerned is described, and a brief historical survey given. There succeeds a chapter on the intraocular pressure and tension of the eye, in which the physiology of the secretion and filtration of the aqueous, and the causes of its flow, are considered. To the student this chapter will be the key to the appreciation of glaucoma, for in so far as he can grasp the physiological problem presented to him will he be able to understand the complexity of the disease and the difficulties attending its successful treatment. The author has done his work well—each theory enunciated is stated plainly, and the bearing of its truth or partial truth well shown. The subject matter of the chapter on the etiology of glaucoma is a fine illustration of the manner in which, step by step, the tortuous path of discovery has been traced by worker after worker, each following the clue furnished by the other, while at other times whole vistas of knowledge have been unfolded by a discovery, small in itself, but momentous in its bearing. In this field the labours of British workers have been particularly fruitful, and the names of Priestley Smith, Thomson Henderson, and Arthur Thomson stand out. The author has paid generous tribute to their work, and in particular to that of Priestley Smith, “whose careful, painstaking and accurate life-work has

¹ *Glaucoma. A Textbook for the Student of Ophthalmology.* By Robert Henry Elliot, M.D., F.R.C.S., Lieut.-Colonel I.M.S. (ret.). London: H. K. Lewis and Co., Ltd. 1913. (Demy 8vo, pp. xvi + 545; 153 figures. 21s. net.)

made to science a contribution of nearly everything worthy of credence that is to-day comprised in our knowledge of glaucoma. . . . There is no branch of the subject that has not been illumined by his researches. The work that he did in his early years has never yet been seriously challenged, and commands to-day, as it rightly should, the practically unqualified acceptance of all those who are best fitted to give an opinion on the subject."

The chapters on the clinical aspects of glaucoma form as instructive a clinical essay as could be desired, and not least helpful to the student will be the several illustrations and diagrams in the text. In the chapters on treatment ground is traversed which will be familiar to readers of current medical literature. The author is of opinion that the "expectant treatment" of glaucoma is a broken reed; and he "is convinced that, if taken in the mass, the best results will be found in the clinique of the surgeon who operates the moment that he is satisfied in his own mind that glaucoma is present." He wholeheartedly echoes the words of de Wecker: "If meiotics have never cured a case of glaucoma, they have prevented many glaucomatous patients from being cured."

The last hundred and fifty pages of the work are devoted to the discussion of surgical treatment—iridectomy and sclerotomy. The bases of these operations, and the advantage of this or that procedure according to the type of the disease are considered. The success of iridectomy in acute glaucoma made its failure in chronic glaucoma the greater perplexity to the disciples of von Graefe. It was not until de Wecker appreciated and insisted upon the important part played by the filtering cicatrix left after iridectomy that both success and failure were explained, and a long series of endeavours initiated to secure such a cicatrix in all cases of glaucoma without creating an additional danger to the eye. To Lagrange falls the honour of having first secured this end: by a modification of the original iridectomy technique, as simple as it was effective—the removal of one lip of the wound in the coat of the eyeball with the scissors. On this basis a dozen or two of variant operations have been devised and practised by ophthalmic surgeons. All of these methods are noticed by Elliot, their merits and demerits discussed, and, in particular, the removal of a piece of the sclero-corneal margin by the cut of a trephine, as advocated by himself and now widely practised.

This book on glaucoma has been well done. Colonel Elliot is to be congratulated on the product of his labours. The publishers also are to be congratulated on the manner of its presentation at a time when book production is no easy business.

GARRISON'S "HISTORY OF MEDICINE."

DR. FEILDING H. GARRISON'S *Introduction to the History of Medicine*² has met with well deserved success; the first edition in 1913, which was reviewed at length in these columns some time after (1914, i, 1241), was reprinted in the following year, and a new edition was called for last year. It has been most thoroughly and minutely revised and contains 142 more pages than before. Admiration for the enormous labour involved and the fascinating style in which both the broad outlines and the details of medical history are portrayed is the impression left on the reader's mind. In a modest preface Dr. Garrison refers with a light touch to the criticisms evoked by the appearance of his book, and gently meets Neuburger's complaint that he "sees things through English spectacles" with the assurance that he has written impartially, and that it would be difficult to find anything unfair to German medicine or to the modern German organization of science. Although it may be true, as Dr. Charles Singer in a letter to the author says, that the history of medicine is a history of ideas and that biography is only of value in so far as it bears on ideas, the ordinary reader will get the greatest pleasure from the human interest excited by the very large number of short biographies, which do much to show the gradual advance of medical science. These biographies are admirably illustrated by portraits, and the student anxious for further information will find a ready guide to the original sources in the numerous references. It is

indeed no exaggeration to compare Dr. Garrison's introduction to medical history with the *Index Catalogue* of the Surgeon-General's Library in which he works, as regards its value as a source of references. But it would be the greatest mistake to convey the impression that the matter of the narrative is less complete in its way than its bibliography, and it is difficult without what might appear to be exaggeration to do justice to the excellence of Dr. Garrison's book.

NOTES ON BOOKS.

OF the making of books on the sexual instruction of the young there seems to be no end, and it is possible that too much public attention is being directed to the subject. With this reservation we may, nevertheless, welcome two recent works by medical women who are especially competent to advise parents on this difficult and delicate matter. DR. MARY SCHARLIEB maintains throughout her book, *How to Enlighten Our Children*,³ an admirable compromise between idealism and common sense, and it is written in a style which is simple and direct without being namby-pamby. DR. BEATRICE WEBB'S pamphlet, *The Teaching of Children as to the Reproduction of Life*,⁴ deals much more briefly with the same subject, and from much the same point of view, but is, perhaps, more suitable for parents in a lower educational stratum. Medical men may be glad to know of these two works, which between them seem to cover quite adequately the needs of all social classes and should obviate the necessity for any further publications upon this topic for some time to come.

The second edition of Dr. BALLANTYNE'S well-known *Encyclopaedia Medica*⁵ has reached its fifth volume (Felix Mas—Heart). The editor has secured a distinguished body of collaborators in this as in the previous volumes of the *Encyclopaedia*, and the articles it contains reach the customary high level of excellence. It is needless to add that the work is one that should be found in every medical library, and also on the shelves of many a general practitioner of medicine.

In *A History of Departed Things*⁶ Mrs. HENRY HEAD tells the story of a woman's inner life by means of a series of letters to which the heroine's sister plays the part of the ancient Greek chorus. The scene opens with a sketch, all too short, of academic life in Oxford about the early eighties—at least so internal evidence, the reference to the recently opened high school for girls, would suggest. To whet the reader's appetite is a sign of the writer's success, and in this instance the desire for more can at once be gratified by turning to Mrs. Humphry Ward's "Recollections" in the March number of the *Cornhill Magazine*. The heroine, one of a family somewhat remarkable in all being born with brown eyes, never grew old, was devoted to books, and perhaps rightly regarded Mallock's *New Republic* as the wittiest book ever written. Through the early pages there runs a presentiment of tragedy fully borne out by subsequent events. The heroine's character is a human document cleverly worked out, and the male characters—three doctors, two of whom are successively the heroine's husbands—are attractively drawn.

The first number of *British Artists at the Front*,⁷ issued by *Country Life* as a sequel to *The Western Front*, contains a series of drawings by Mr. Nevinson, who, though he has paid homage occasionally to some modern eccentricities, is too sound an artist to be dominated by them. The drawings here reproduced of what the flying man sees are perhaps the most novel, but some of the figures and landscapes are very striking, especially, perhaps, those of a mule team and of reliefs at dawn, and a characteristic sketch of the road from Arras to Bapaume.

³ *How to Enlighten Our Children: A Book for Parents*. By Mary Scharlieb, M.D., M.S. London: Williams and Norgate. 1918. (Cr. 8vo pp. 202. 3s. 6d. net.)

⁴ *The Teaching of Children as to the Reproduction of Life*. By Beatrice Webb, M.D. London: The National Council for Combating Venereal Diseases. 1918. (Pp. 15; 2d.)

⁵ *Encyclopaedia Medica*. Volume V: Felix Mas to Heart. Under the general editorship of J. W. Ballantyne, M.D., C.M., F.R.C.P.E. Second edition. Edinburgh and London: W. Green and Son, Ltd. 1917. (Roy. 8vo, pp. viii + 766. 20s. net.)

⁶ *A History of Departed Things*. By Mrs. Henry Head. London: Kegan Paul, Trench, Trübner, and Co. 1918. (Demy 8vo, pp. 242. 3s. 6d. net.)

⁷ *British Artists at the Front*. Part I. Illustrated by C. R. W. Nevinson. London: *Country Life*. (5s. net.)

² *An Introduction to the History of Medicine, with Medical Chronology, Suggestions for Study, and Bibliographical Data*. By Feilding H. Garrison, A.B., M.D., Principal Assistant Librarian, Surgeon-General's Office, Washington, D.C. Philadelphia and London: W. B. Saunders Company. 1917. (Pp. 905. 28s.)

British Medical Journal.

SATURDAY, MARCH 16TH, 1918.

A MINISTRY OF SCIENCE.

THE task of preventing the pollution of the atmosphere by coal smoke is likely to be greatly helped in the future by the labours of the Fuel Research Board of the Department of Scientific and Industrial Research. One of the main questions to which it is devoting its attention is whether the 35 to 40 million tons of raw coal used every year for domestic heating could be wholly or partially replaced by smokeless fuel, solid and gaseous, prepared by the carbonization of the raw coal now used. To answer this and cognate questions will involve elaborate experimental inquiries, including an investigation into the carbonization of coal at low temperatures; for this and other purposes the Board is establishing a large fuel research station on a site adjoining the works of the South Metropolitan Gas Company. The Fuel Research Board, of which Sir George Beilby, F.R.S., is director, is one of the many sections of the Department of Scientific and Industrial Research established in July, 1915, which, though technically a committee of the Privy Council, is practically an independent body. It is directed by an advisory council of scientific experts, who administer the Imperial Trust for the Encouragement of Scientific and Industrial Research, which has been provided by the Government with a fund of one million sterling. The documents relating to its foundation expressly recognize that the independence and initiative of the British manufacturer have contributed largely to his success in the past, that he ought to be helped in undertaking and developing scientific research as a means of enlarging his output and improving its quality, but that the help must increase his independence and initiative, and must avoid chaining him to the routine of Government administration. It must also enlist his active support, and the department proposes to expend the fund at its disposal on a co-operative basis in the form of liberal contributions towards the income raised by voluntary associations of manufacturers established for the purpose of research.

Constitutional precedent for the establishment of a quasi-independent department under the wing of the Privy Council could be found, and the antenatal history of the Local Government Board may afford an example; but the only directly comparable body now in existence would seem to be the Medical Research Committee, which, however, is under the wing not of the Privy Council, but of the Insurance Commissioners. It consists of ten members, of whom eight, including the secretary, are men of science; two laymen act as chairman and treasurer respectively. The Advisory Council of the Department of Scientific and Industrial Research consists of seven distinguished men of science; its chairman and secretary are educational experts. The department has already approved and assisted a large number of scientific investigations of industrial importance beyond those undertaken by the Fuel Research Board, and in addition to the capital sum already mentioned it is able to command a substantial annual vote from Parliament. The Advisory Council has a number of assessors, among whom are Professor Wyndham R. Dunstan, Director of the Imperial

Institute and formerly lecturer on chemistry at St. Thomas's Hospital (representing the Colonial Office), Sir Arthur Whitelegge, K.C.B., M.D., of the Home Office, and Sir Walter Fletcher, M.D., F.R.S., secretary of the Medical Research Committee. During the second year of its existence, which ended on July 31st, 1917, it took over from the Royal Society the property of the National Physical Laboratory, together with the responsibility for its maintenance and development. When noticing its last annual report, we observed that the wider aspects of the work of the new department concern the medical profession, and that in so far as it stands for the organization and endowment of research as a whole its aims and methods deserve our close attention. Though primarily established to encourage the application of scientific research to industrial methods, it seems possible that the department may become the rallying point of other scientific branches subsidized by the Government and may eventually develop into an independent Ministry of Science.

THE COLLAPSE TREATMENT OF CONSUMPTION.

MANY years ago the late Dr. Cayley published a case in which he had been able to check a severe hæmorrhage from the lung by the induction of artificial pneumothorax. The diseased lung on the affected side became collapsed, and the immediate danger of death by bleeding was averted. The proceeding, although obviously successful, was at the time regarded as heroic, and no further cases appear to have been recorded. In 1882, however, Dr. Forlanini of Pavia brought forward the suggestion that in certain cases of advanced unilateral tuberculosis of the lung it might be possible to arrest the spread of the disease by the artificial production of collapse of the affected organ. Six years later he made known his first results, which led to favourable conclusions. In 1898 Dr. Murphy advocated a similar line of treatment, and in 1906 the method was being used extensively, especially in the German clinics.

Since 1906 a very large number of cases have been treated, and an interesting report on the whole subject has been made¹ by Dr. W. N. Beggs, of Denver, Colorado, and Dr. C. L. Miner, of Asheville, North Carolina, who have both had extensive practical experience. On all main points it agrees with that of former workers in the same field, and it may be noted that, as regards immediate relief to present symptoms, the induction of collapse of the diseased lung is undoubtedly successful, and especially so in cases of persistent hæmorrhage. Cough and sputum, pyrexia, sweating, and other evidences of systemic poisoning rapidly disappear, and for a time, at any rate, the disease appears to be checked. These happy results, however, do not occur in all cases; hence the greatest care is needed in the selection of cases in order to avoid the many risks that attend the method. The most favourable case is that of unilateral disease, limited to the upper lobe, in which there is reason to believe that no pleuritic adhesions are present to prevent collapse of the lung when the pleural cavity is filled with nitrogen. So successful have some of these cases proved, that the suggestion has been made to induce pneumothorax in the early stages. The procedure, however, is not free from danger, even in skilled hands, and the published results of natural arrest of incipient disease are so good that this idea has not been pressed, except by a few enthusiasts.

¹ *American Review of Tuberculosis*, November, 1917.

In the great majority of cases it is extremely difficult, even with the aid of the skiascope, to ascertain with any approach to certainty the presence or absence of adhesions. In very many instances the treatment has failed because the adnient lung has not been in a condition to collapse, and it may well be inferred that such failure has entailed a good deal of suffering to the patient and disappointment to his medical adviser. Hence there should always be a clear understanding as to the actual risks that have to be faced. If the disease is advancing rapidly and is as yet limited to one side, there would seem to be very reasonable hope of benefit, both immediate and future, and records prove that the disease may be arrested and full working capacity restored after a prolonged period of treatment. In such instances the collapsed lung ultimately expands again, but such expansion is of necessity slow. In the less definite cases the degree of success or failure must depend upon the capability of the lung to shrink and upon the integrity of its fellow. The cessation of active disease on one side has sometimes been followed by increased activity on the other, and this possibility must always be borne in mind. The paper to which we have referred contains numerous instances of untoward happenings, not due to neglect, but arising from causes due to imperfect diagnosis of the actual conditions present.

The conclusions to be drawn are that in a limited class of case a genuine arrest of the disease may be brought about by putting the whole lung out of action for a period, and that in less favourable instances a great deal of present relief may be afforded, even though life be not greatly prolonged. But there are many considerations to be weighed before so serious a procedure can be adopted in doubtful cases. Manipulative skill and scrupulous care in applying it are essential, and hence the treatment can only be satisfactorily carried out by experts. Even in the most experienced hands, and with all possible care to prevent mishaps, the course of recovery is often checked by such occurrences as hydropneumothorax or pyopneumothorax, or by the development in the compressed lung of abscesses which burst into the pleural cavity, and by other unavoidable accidents. The collapse treatment is likely to be more widely adopted as years go on, as brilliant successes are from time to time recorded, but present experience would seem to limit its use to cases with unilateral and strictly localized lesions.

MEDICAL STUDENTS AND MILITARY SERVICE.

THE Minister of National Service has issued detailed directions with regard to the "protection from military service of medical students" now in civil life (National Service Instruction No. 35 of 1918). These may be looked upon as the obverse of Army Council Instruction No. 153 of 1918, which governs the release of medical students from the ranks.¹ (1) A medical student who on March 5th, 1918, was a full-time student at a recognized medical school, and had at that date passed his professional examination in chemistry, physics and biology (or botany and zoology) for a medical degree or licence is not (subject to paragraphs 5, 6, 7, and 8, below) to be called up, whatever his medical category or grade, so long as he remains a full-time medical student. (2) A medical student who on March 5th, 1918, was a full-time student at a recognized medical school, and furnishes to the A.D.R. of his area a certificate from the dean, or corresponding official, of his medical school that he should be able to

pass his first professional examination as above on or before July 31st next, is not to be called up before July 31st next, whatever his medical category or grade. If he passes that examination by July 31st next his case will thenceforward be treated as if covered by paragraph 1. If he does not pass by that date he will forthwith be called to the colours if otherwise available and required for service, unless he comes within the terms of paragraph 3. (3) A medical student (other than one whose case is covered, or is to be treated as if covered, by paragraph 1) who is or becomes a full-time student at a recognized medical school, and who is in Category B 2, B 3, C 2, or C 3, or is placed in Grade 3, is not (subject to paragraphs 4, 5, 6, 7, and 8) to be called up, so long as he remains a full-time student, without reference to the Director of National Service for the region. (4) A student protected under paragraph 3 who does not within twelve months of commencing his professional studies at a recognized medical school pass his first professional examination as above, will forthwith be called up if otherwise available and required for service. (5) A student protected under this Instruction who fails to pass his professional examination in anatomy and physiology within thirty-six months of commencing his professional studies at a recognized medical school will similarly be called to the colours. (6) For protection under this Instruction a student must be enrolled in an O.T.C. and fulfil after enrolment the conditions of efficiency laid down for medical cadets. (7) Protected students delaying qualification unnecessarily, or otherwise not satisfactorily pursuing their studies, are to be referred to the Director of National Service. (8) Protection will be withdrawn from a student who has been requested in writing by the Ministry of National Service to offer himself as a surgeon probationer, R.N., and has not within twenty-one days applied for enrolment as such. The remaining paragraphs of the Instruction—which supersedes all previous instructions relating to the protection of medical students now in civil life—deal with formalities to be observed in the matter of certificates and of applications to tribunals in respect of medical students not hitherto called up but now no longer protected.

PARALYSIS OF VASCULAR ORIGIN.

INTERMITTENT claudication or intermitting limping, seen in association with some forms of arterial disease, especially the thrombo-angeitis obliterans of Buerger and Parkes Weber, is characterized by pain, paraesthesia, and difficulty in walking after attempting to do so for some time. Here a definite causal relation between the vascular changes and the symptoms is recognized, but when paralytic, trophic, vasomotor, thermic, and secretory disorders follow wounds of the extremities, the responsible factor has generally been regarded as nervous in origin. Recently, however, the frequency of arterial wounds has directed attention to the part played by vascular disturbances in the production of the nervous manifestations, and in a recent paper in these pages (1918, i, 199-203) Captain Harold Burrows described ten cases of "angiotoxic paralysis" with sensory changes, which fell into two groups, the first of ischaemic paralysis with obliteration of the pulse in the limb distal to the injury, and the second of reflex paralysis with arterial injury not completely blocking the vessel. Dealing with the same classes of cases in an article on arterial obliteration and circulatory disturbances in the limbs in the wounded, Desplats and Buquet¹ put forward the ingenious interpretation that some paralytic and anaesthetic, accompanied by trophic lesions and the reaction of degeneration, are entirely due to permanent or temporary ischaemia of the terminations of the nerve trunks resulting from the vascular lesions. Formerly these nervous disturbances associated with arterial injuries were ascribed to concomitant division, contusion, or other gross

¹ BRITISH MEDICAL JOURNAL, February 23rd, 1913, p. 237.

¹ R. Desplats et A. Buquet, *Rev. de méd.*, Paris, 1915, **xxv**, 573-613, parus en Février, 1913.

damage to the neighbouring nerve trunks, and no doubt in the majority of such cases primary lesions of the nerves and artery coexist, but in a certain number of instances the primary cause is exclusively arterial obstruction. These paralyses of vascular origin are much more obvious in the upper than in the lower extremities, and the explanation is that the collateral circulation in the lower limbs is relatively so imperfect that gangrene is prone to occur and mask the paralytic and sensory changes. The clinical features pointing to a vascular origin of the nervous manifestations are paralysis of a terminal form, involving the muscles of the hand and spreading upwards, with the reaction of degeneration and atrophy, anaesthesia most intense at the ends of the fingers, and spindle-like and bulbous deformity of the digits. Both experimental and clinical ligation of the axillary artery, especially in its dangerous zone between the origins of the subscapular and profunda branches, may produce these paralytic, sensory, trophic, and vasomotor disturbances, which it is concluded are due to degeneration of the nerves at their terminations. Transient or incomplete ischaemia may cause somewhat similar results, and reason is shown for regarding the nervous disturbances following somewhat prolonged application of a tourniquet or Esmarch's bandage, crutch paralysis, and Volkmann's ischaemic paralysis as manifestations in a minor degree of the ischaemia caused by complete obliteration of the axillary artery.

CHRONIC INDUSTRIAL EXPOSURE TO HIGH TEMPERATURES.

A common and serious problem of industrial hygiene is the combination of a high atmospheric temperature and unusual humidity which has arisen since steam was substituted for water power. Watkins,¹ writing from experience in the United States, mentions among the industries in which the employees are exposed to exceedingly high temperatures, and in some instances to extraordinary conditions of humidity, sugar refineries, paper and flax mills, laundries, tanneries, large kitchens, stove-holes and fire rooms of ships, glass factories, steel blasts, and chemical works. Acute symptoms may occur in the form of heat exhaustion or heat-stroke. The commonest effect of chronic exposure to heat is lowered physical efficiency and diminished resistance to fatigue and disease; arthritic and muscular rheumatism, arterio-sclerosis, and chronic skin diseases occur; and from radiant heat reddening of the skin with changes up to the second degree of burns, and temporary loss of vision, may result. These dangers to health can be greatly mitigated or practically eliminated if due consideration is given to the subject and the necessary steps taken for the protection of the workers. A certain amount of adaptation occurs in some instances, but this may be due to instinctive alterations of clothing, exertion, and diet. As far as possible the source of the heat should be placed away from the workers, and should be covered by a water jacket, asbestos, or other substance having similar properties. Free natural ventilation, exhaust fans and screens, goggles, asbestos aprons and leggings to protect the workers from radiant heat, are advocated. Loss of heat from the workers' bodies is promoted by the wearing of thin, light, absorbing clothing such as cotton, from which evaporation of the perspiration can readily occur. Watkins considers that in general the air of workrooms should not exceed 70° F. by the wet bulb; at 72° F. much body surface must be exposed and a perceptible air current passed over the body if work is to be done without unduly raising the worker's temperature; if the wet bulb registers 85° F., the body temperature rises and work is impossible. The relative humidity is thus the essential index of the conditions in the workrooms. The air should be kept in motion by fans, and it is important that an

ample supply of water should be drunk in small quantities at frequent intervals to make up for the loss by evaporation. As physical exertion raises the temperature, short spells of labour should be instituted. The heat-producing values of protein, carbohydrates, and fat are as 20:10:7, and, in order to reduce the heat production, meats and fats should be restricted, and starches, fruits, and green vegetables increased.

DIET AND MALIGNANT DISEASE.

For ages man has cherished the illusive hope that malignant new growths are—or, if they are not, will presently prove to be—curable by diet. A growing cancer must feed on something; what, then, could be more reasonable than to argue that a suitable limitation of the patient's dietary would arrest the tumour's growth, or even lead to its disappearance? The question is one that lends itself to experimental investigation, and it has recently been attacked once more by Mr. J. C. Drummond,¹ using as his material rats (*Mus norvegicus*) infected experimentally with rat sarcoma. The method of investigation employed was to determine the influence of dietary inadequacy in checking the growth of these tumours in young rats. The dietary inadequacies tried were five—namely, a low protein content, the use of a protein possessing a relatively low nutritive value, a diet lacking certain indispensable amino-acids, and diets lacking certain accessory growth-promoting factors characterized respectively as "fat-soluble A" and "water-soluble B." of the vitamine class. The author's conclusions are interesting, though they cannot be called hopeful. He finds that if the host is thus partially starved the tumour will continue to grow so long as it possesses a satisfactory blood supply, although the rat, its host, may not grow. There is evidence that this proliferation will proceed at the expense of the host's tissues until these are no longer able to make good the dietary defect. When this stage is reached the tumour will grow more slowly, and this occurs comparatively early when the diet is deficient in either tryptophan or water-soluble accessory factor B. There is no evidence that the cells of tumours possess powers of synthetical action which the normal cell of similar type does not possess. Finally, it does not appear possible to inhibit the growth of the rat sarcoma by such dietary restrictions as these without seriously impairing the nutrition of the rat. There is little hope, therefore, of bringing about an alleviation of the analogous disease in man by the imposition of dietary restrictions such as those described above.

ELECTRIFIED BABIES.

SIR JAMES CRICHTON-BROWNE has told a story in the *Times* which, as it has a moral, may usefully be noted here. Four years ago a statement was circulated to the effect that of two groups of school children of the same age and in similar circumstances, that which worked in an electrified atmosphere was found at the end of six months to have grown faster, to be in better and more vigorous health, and to be more successful in examination tests than a control group. Inquiries addressed to Professor Arrhenius, director of the Physico-Chemical Department in the Nobel Institute, brought a reply which put a very different complexion on the story. It proved to be true that he had experimented with about one hundred children, of whom fifty were subjected to electrification in a room where the potential in the upper part was about 1500 volts higher than at the floor. The result was strongly in favour of the electrified children, as indicated by their increase in weight and health. It turned out, however, that the children were infants under one year, in an orphan asylum, so that the story about their being better at examinations was a pure invention, and, moreover, it was discovered that the

¹ J. R. Watkins. Public Health Reports, issued weekly by the United States Public Health Service. 1917. xxxii, 2111-2121.

¹ Biochemical Journal, Cambridge, 1917, xi, 325.

zealous nurse to whom the arrangements for the experiment had been entrusted had, under a mistaken notion, put into the group for electrification all the strong vigorous babies and into the other group all the weak and ailing. The electrified infants had, therefore, a good start and did no more than maintain their advantage. Later experiments on a larger scale and with a more equitable division of material showed no influence of the electrification one way or the other. What hypothesis the distinguished Swedish professor had in mind when he made the experiment we do not know, but possibly he may have been influenced by the effect of the application of high tension electricity by very thin overhead wires to growing crops. According to Sir Oliver Lodge, this has now passed beyond the laboratory stage and has been giving practical results for some years. Professor Arrhenius may also have been thinking of the advantage said to be obtained by the electrification of seed before sowing. According to Dr. Charles Mercier, farmers in Dorsetshire who gave it a trial on small plots one season, tried it on a few acres the next, and on more acres the third, and are now sowing the whole of their arable with electrified seeds.

BIO-BIBLIOGRAPHY.

THE *Veterinary Review* for February, besides a large number of abstracts which from their bearing on comparative pathology are of general interest, contains two articles written around reviews of great books. One, unsigned, on the birth of modern surgery, deals with Sir Rickman Godlee's *Life of Lord Lister*, and points out that it disproves Stopford Brooke's dictum that a good biography cannot be written by a relative. The other, by Sir William Osler, a former teacher in a veterinary college, based on General Mennessier de la Lance's *Essai de Bibliographie hippique*, shows the difference between a bibliography, which, though not naturally dry, is too often made so by faulty treatment, and a bio-bibliography or the story of the book as part of the life of the author. The word itself appears to be new, although Murray gives "bio-bibliographical," defining it as "dealing with the life and writings of an author." Whether the word be new or not we are, if we mistake not, indebted for the important distinction indicated to Sir William Osler, who speaks with the authority of the President of the Bibliographical Society. As fascinating examples of bio-bibliographies he instances the late W. Prideaux Courtnay's recent bibliography of Samuel Johnson as a better exposition of the working ways of the great lexicographer than Boswell's biography. This hippic bibliography tells the complete story of the French veterinary profession and shows the high position attained through Government support of some of its members, such as Bouley and Chauveau. Among the authors mentioned is Eugene Sue, so famous as a novelist that his medical life is generally forgotten.

TUBERCULOSIS IN THE PACIFIC ISLANDS.

A REMARKABLE illustration of the well-known tendency for tuberculosis to flourish on virgin soils reaches us from a group of islands in the Pacific, of which Tonga is the capital and the seat of government. The disease has become widespread among the people, and is rapidly destroying the young men and women. The mode of life has hitherto been particularly conducive to the development and distribution of the bacillus. The chief medical officer of the Tongan Government, Dr. H. M. Cowen, has taken active steps to combat the evils to which local manners and customs are giving rise, and with the support of the King, George Tabou II, and the Premier, Tu'ivikano, has issued a pamphlet in English with a translation into the Tongan language, in which he has set forth in the simplest possible terms the main facts with regard to tuberculosis, and the means whereby it may be communicated from one person to another. Overcrowded

dwellings with little or no attempt at ventilation, the use in common of cooking and eating utensils, the strange custom of passing half-chewed food from mouth to mouth, especially to children, and numerous other hygienic errors, are in turn pointed out and the risks attendant upon them explained.

THE PAPER SHORTAGE.

THE statement in our issue of March 2nd, on the diminution of pages in the *BRITISH MEDICAL JOURNAL*, was made in consequence of an intimation that the Paper Commission¹ intended to issue an order reducing the licences for the importation of paper and paper-making material in the year beginning March 1st, 1918, to two-thirds of the tonnage imported in the year ending February 28th, 1918. The order as issued in fact reduced the licences to one-half of the tonnage imported in the previous year. This drastic reduction takes effect on a supply which had already been reduced by one-third owing to previous orders by the same authority. The effect will be to render it difficult, if not impossible, to maintain the reduced number of pages in recent weekly issues of the *JOURNAL*. It is clear that under such conditions the preservation of a due balance between the different departments of the *JOURNAL* can only be accomplished by rigid selection and compression of all material published. We appeal to every one preparing any communication intended for publication to apply his critical faculty to his own writing in order to attain the utmost conciseness. As it will not be possible in all cases to continue the practice of sending out proofs of letters or other communications of a like nature, the Editor must reserve the right to shorten current communications which, though they cannot be printed in full, contain matter the publication of which would be of advantage to the profession.

A MOVEMENT has been started by the local women's and men's clubs in Guelph, Ontario, where he was born, to establish a Canadian memorial to Lieut.-Colonel John McCrae, C.A.M.C., who, shortly before his death from pneumonia on January 28th, had been appointed a consulting physician to the British Expeditionary Force in France. Not only was he a man of many interests in medicine but a poet of no mean order. Such a man deserves a memorial to remind future generations of his achievements, which, for want of time, fell far short of promise, and of the nobility of his character.

Medical Notes in Parliament.

Royal Army Medical Corps: The Report on Services in France.—Major David Davies asked Mr. Macpherson, on March 6th, the number of temporary medical officers holding administrative medical appointments in the Army; what percentage of administrative appointments in the Royal Army Medical Corps were held by the regular officers; and whether any steps were to be taken to provide tuition in staff duties to temporary medical officers of proved capacity and experience with a view to their holding such posts. Mr. Macpherson replied he was not clear as to what was meant by "administrative medical appointments." There were large numbers of medical officers holding posts of an administrative nature in the United Kingdom and in various theatres of war, such as heads of hospitals, registrars, sanitarians, deputy directors of medical services, inspectors, controllers of expenditure, etc. To ascertain the particulars sought would involve prolonged inquiry, and it could not be undertaken. There was no occasion for taking the steps suggested in the last part of the question. Major Davies asked whether, in

¹ The Paper Commission has ceased to exist. It has been replaced by a Controller of Paper, who, according to the President of the Board of Trade, by whom he was appointed, has no experience of the subject.

view of the fact that the report of the Committee of Inquiry on the army medical service in France had been conveyed to the Ministry of National Service, Mr. Macpherson could state the reasons for withholding the report from members of the House of Commons; and whether he would reconsider the decision in the matter. Mr. Macpherson: The Council have not yet considered the report, and I cannot undertake to publish it until this stage has been reached. The recommendations are now being investigated by the British military authorities in France.

Disabled Soldiers' Treatment in Wales.—Mr. Hodge informed Major Davies, on March 6th, that after consultation with the Joint (Disablement) Committees for North and South Wales a joint consultative committee had been formed of representatives of both Joint Committees. The first meeting was held on February 23rd, and it was hoped that the combined action thus initiated would have useful results.

Air Medical Service.—In reply to a question on March 6th, Major Baird (Parliamentary Secretary to the Air Ministry) declined to publish the report of the committee appointed last autumn to advise as to the formation of a flying services medical department, on the ground that it consisted largely of administrative recommendations contingent on the adoption of its main proposals. These, as was reported a fortnight ago, were rejected, and a compromise, which Sir Watson Cheyne, M.P., the chairman of the autumn committee, accepted with reluctance, has now been put into force. The medical administrative committees for the medical service of the air force is, as already announced, a mixed body. It consists of the medical Director-General of the navy, the Director-General A.M.S., a physician (Dr. H. D. Rolleston), a neurologist (Dr. Henry Head), a surgeon (Mr. Raymond Johnson), a physiologist (Dr. Leonard Hill), and the secretary of the Medical Research Committee (Sir Walter Fletcher). The Medical Administrator of the air force (Fleet Surgeon R. C. Munday, R.N.), and the Assistant Medical Administrator (Major C. B. Heald, R.A.M.C.) are also members of the committee.

Operations on Poor Persons in Ireland.—Mr. Arthur Samuels (Solicitor-General for Ireland), in a written answer to Mr. Kennedy, said he had read the judgement in *Kenelly* and others v. *Cyril E. Brown*, whereby boards of guardians are debarred from sending poor persons for operations, etc., to extern institutions or city hospitals. He was not aware that any steps were being taken to appeal from the judgement, but representations as to the need for amending the law had been made and would be duly considered.

Motor Dental Outfits.—Mr. Macpherson informed Mr. Pennefather, on March 11th, that the motor dental surgery presented by the Silver Thimble Fund was taken over by the War Office on March 8th, and it would be dispatched without delay to France.

TREATMENT OF VENEREAL DISEASES.

At a meeting of the National Council for Combating Venereal Diseases, on March 12th, at the house of the Royal Society of Medicine, Sir THOMAS BARLOW, who presided, said that the Local Government Board scheme had now been on trial for a year, and he felt sure that after another year treatment centres would have been established in nearly all towns. The minds of many people had been rightly exercised by the statements with regard to tolerated houses in France, but the Council in its policy was not concerned primarily with the moral aspect. It had, however, passed a resolution that it saw no reason to depart from the position of the Royal Commission that any return to tolerated prostitution would be a deplorably retrograde movement, and would not lead to a diminution of disease.

Lady BARRETT, C.B.E., M.D., said that experience at venereal clinics during the last year had shown the need for further beds for infected pregnant women and for women after repeated miscarriages and stillbirths. Gonorrhoea was more difficult to cure than syphilis, especially during pregnancy, and beds were required not only for the child's sake but even more for the mother's. Few, if any, lying-in hospitals had special wards for such cases, and it was not desirable to introduce them into the general wards. Nor was it fair to the women to send them to the work-house or the Lock Hospital with its unpleasant associations. They were either respectable married women, whose infection often dated from the leave of their husbands from the front, or were young girls. The London County Council might provide special beds in association with

existing clinics. In syphilis, should the treatment not be in time to prevent miscarriage or stillbirth, the material would be valuable for examination and research, and therefore it would be useful to have the beds in close association with the clinics; further, as the clinics were mostly at the large teaching hospitals, it was desirable that the beds should be part of the maternity department of those hospitals.

Mrs. BURGE, wife of the Bishop of Southwark, speaking of the case of infected children, said that in-patient treatment at the Lock Hospital was unsatisfactory, owing to the type of case treated there. Out-patient attendances were unsatisfactory because the parents were usually unable to carry out the treatment and take all the necessary precautions. She suggested the establishment of small hospital homes or hostels in the country or the suburbs, but recognized that the difficulties of such an undertaking would be too great for a voluntary association.

Dr. A. F. TREGOLD said that in all the grades of mental deficiency there was one underlying defect, which might be called defective wisdom, and superadded to this were weakness of will, amenability to suggestion, and often erotic tendencies. The defective girl was not able to realize the dangers of illicit sexual intercourse, or to resist temptation, or to profit from a first experience. Many mentally defective persons, owing to war conditions, were now in employment, often away from home, and, in his own experience of the mentally defective girls admitted into rescue homes during the last two years, the majority had venereal disease which had lasted for weeks, and in some cases for months, and during that time the girls had engaged in promiscuous sexual intercourse. No treatment could avail unless such cases were compulsorily detained. The presence of venereal disease in a feeble-minded person should be regarded as making detention imperative. The difficulty arose from the defective supervision of feeble-minded persons. The CHAIRMAN said that the Executive Committee of the Council had agreed to communicate with all magistrates, pointing out that in the case of mentally defective girls brought before them they might, in granting certificates of mental deficiency, consider the presence of venereal disease in the girl as coming under the term "neglect" in the Act.

Dr. W. G. SAVAGE (M.O.H. Somersetshire) complained that the Local Government Board scheme was framed only with a view to urban conditions. In rural districts, owing to the long distances between the villages and clinics, travelling expenses in a large proportion of cases must be regularly paid, but this would not meet the loss of time. He suggested that the clinical medical officer, who should be a whole-time man, should go to the villages, and make a temporary clinic of the consulting room of the local practitioner, with whom he could talk the cases over. With regard to beds there was not much to be hoped for from the local hospitals; but if the break up of the Poor Law was imminent some of the old Poor Law buildings, cleansed from pauper taint, might be made available.

Mr. E. B. TURNER said that he was glad that Lady Barrett had placed in the forefront the ravages of gonorrhoea. He thought that every woman who was pregnant should be encouraged either to put herself under the care of her own doctor, or to go to a prenatal clinic so that she could be carefully treated, and such precautions might be taken that her confinement would not be the septic tragedy it otherwise might become.

Sir FRANCIS CHAMPNEYS pointed out that the majority of poor mothers were attended in confinement by midwives, who could not be left out of such a scheme.

Dr. C. J. MACALISTER described the system at Liverpool by which the midwives sought out such cases before confinement and referred them to the hospitals.

As to the question of infected children, Sir THOMAS BARLOW said that if the general and children's hospitals did their duty the establishment of a number of small separate hospitals would be unnecessary.

THE fourth Cuban Medical Congress in Havana was attended by more than 1,400 members. It was opened on December 16th last by the Secretary of Public Health, and was formally closed on December 22nd by the President of the Republic. Among the subjects for discussion in the general sessions were blood pressure in Cuba, Cuban vital statistics, and the composition of the blood.

THE WAR.

CASUALTIES AND REWARDS: 1915-17.

ATTENTION has very naturally been aroused by the terms in which Mr. Macpherson replied, during the discussion on the Army Estimates on February 25th, to a point made by Mr. Roch as to the recognition accorded to officers of the R.A.M.C. other than those on the Regular list. The statement he was meeting was that, while one of every two of the Regular medical officers had been decorated, only one in fifty of the 14,000 civilian doctors had been decorated. Mr. Macpherson's reply was to the effect that it was natural that more decorations had been given to officers R.A.M.C. than to civilian doctors because the first went out at the very beginning of the war and were established servants at the time. But he also said that most of the civilian doctors were kept at home doing part-time work, carrying on their own practice and also doing civil work in hospitals, so that they had not the same opportunity for decoration given to the R.A.M.C., who were established officers and had been bearing the brunt of work at the front and in the trenches.

We are quite sure that Mr. Macpherson did not mean to do injustice to any one, but owing, perhaps, to some confusion—possibly as to the significance of the phrase "civilian practitioners"—his words did a great deal less than justice to medical officers of the Special Reserve, Territorial Force, and those holding Temporary Commissions. An article on the Military Medical Services has been published in our columns each year since the beginning of the war, and the following condensed tables, founded on the figures there given, will serve to show how things stand. The figures have been collected from year to year with great care, and though there may be some errors, they must be so few as not materially to affect the conclusions to be drawn. In the columns referring to Territorials no attempt has been made to distinguish between those holding ordinary commissions in the R.A.M.C. (Territorial) from those holding commissions *à la suite* General Hospitals, who are, we believe, the only Territorial medical officers whose services are part-time. Lists of the officers so employed are not available, but it is known that many of those who hold commissions *à la suite* have been seconded from time to time for service with the forces abroad. The number of regular officers, including retired officers, employed in June, 1915, was 1,256, and of Territorial officers 2,621. Probably these numbers have not been materially altered since. The number of Special Reserve officers at the same date was 709, but the number is now no doubt much larger owing to the inclusion of men who have become qualified since that date. The number of temporary officers at that time was 2,697. It is in this category that the increase has been specially large, but we are unable to state actual figures as the *Army List* is not now available. In the circumstances, it is not possible to compare the relative losses each branch of the Royal Army Medical Corps (and Army Medical Service) has suffered or the honours it has received. It is, however, quite clear that the officers of the Special Reserve, Territorial Force, and those holding Temporary Commissions have paid a heavy toll in deaths in action or from wounds, and these figures may be taken as an index of the number of wounded. The tables do not include medical officers of the Overseas contingents or India, nor medical men who were serving as combatant officers.

Killed or Died of Wounds.

R.A.M.C. (and A.M.S.).

	Regu'ars.	Specia' Reserve.	Territoria.	Temporary.	Totals.
1914...	21	8	—	—	27
1915...	8	6	12	36	62
1916...	9	11	27	114	161
1917...	21	15	29	123	193
	59	33	68	278	443

Honours.

R.A.M.C. (and A.M.S.).

	Regulars.		Specia' Reserve.		Territorial		Temporary.		Totals.	
	B.	F.	B.	F.	B.	F.	B.	F.	B.	F.
1915	87	1	11	—	5	2	39	1	142	4
1916	146	17	54	2	64	4	226	22	490	45
1917	199	37	85	6	125	11	390	29	799	83
	432	55	150	8	194	17	655	52	1,431	132

B. = British. F. = Foreign.

With regard to civilian practitioners who are giving part-time services to auxiliary hospitals or other institutions we are not in a position to give any statistics; no list of them is available. They do not, we believe, receive commissions, but, so far as we are aware, very few have received any recognition of their services.

TETANUS IN HOME MILITARY HOSPITALS.

THE sixth analysis of cases of tetanus treated in home military hospitals, covering the period March to June, 1917, does not call for extended notice, since the figures under review were included in the analysis of a thousand cases of tetanus submitted by Surgeon-General Sir David Bruce in his presidential address to the Society of Tropical Medicine and Hygiene last autumn, which was summarized in the *JOURNAL* of February 23rd, 1918. The most noteworthy fact in the present analysis of 100 cases is that the death-rate was 29 per cent., as against 19 in the previous analysis, which was by far the lowest of the whole series. Sir David Bruce assumes from this rise in mortality that little more can be expected from the use of prophylactic and therapeutic antitetanic serum, and that it now remains with the surgeons to do the rest. "Surely," he says, "it is not beyond the ingenuity of man to devise some form of surgical treatment which will prevent the development of gas gangrene or tetanus in wounds." Eighty of the cases belonged to the generalized type of tetanus; of these 29 died, while the 20 localized cases all recovered. Thirteen cases of tetanus occurred after operative interference with the wound, and nine of them died—a death-rate of 72.7. It is noteworthy that in none of these was a prophylactic inoculation of antitetanic serum given before the operation, although the Tetanus Committee have advised that when operations are performed at the site of wounds, even if they are healed, a prophylactic injection of serum should invariably be given. Upon this Sir David Bruce makes the significant remark that at the present time and with our present knowledge it is a question as to whether a surgeon who neglected this prophylactic injection would not render himself liable to an action for malpractice. Lastly, he notes that, notwithstanding the Tetanus Committee's advice in favour of the intrathecal route and of the evidence from animal experiment, the intramuscular route is steadily becoming more popular. This, he thinks, is scarcely to be wondered at, since in the latest edition of a well-known and widely read textbook on medicine the intramuscular route is strongly recommended; its ease and freedom from danger are doubtless in its favour.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Lost at Sea.

THE hospital ship *Glenart Castle* was torpedoed and sunk in the Bristol Channel, with great loss of life, at 4 a.m. on February 26th. She was outward bound, and had no patients on board, but carried a ship's complement of 120, 5 R.A.M.C. officers, 8 nurses, 2 chaplains, and 47 R.A.M.C. rank and file, out of whom only 25 of the crew and 4 of the R.A.M.C. rank and file were saved, 153 lives being lost. No officers were among the survivors. The following officers of the R.A.M.C. were lost: Lieut.-Colonel J. C. Furness, Captains A. E. Kelsey, L. Moysey, and G. W. Young, and Lieutenant J. A. Stainsby.

LIEUT.-COLONEL J. C. FURNESS, R.A.M.C.(S.R.).

Lieut.-Colonel James Collins Furness, R.A.M.C., was educated at Glasgow and at Charing Cross Hospital, and took the diploma of L.S.A. in 1901 and that of L.M.S.S.A. in 1907. Going into practice at Kids Grove, North Staffordshire, he was medical officer and public vaccinator to the Kids Grove and Goldenhill district of the Wolstanton and Burslem Union, surgeon to the police and to the St. John Ambulance Brigade, and county director of the Staffordshire Branch of the British Red Cross Society. He served with the 25th Field Hospital in the South African war, receiving the medal, and held the honorary rank of lieutenant in the army from March 1st, 1903. He attained the rank of major in the R.A.M.C. Special Reserve on June 18th, 1914, and had since been promoted to lieutenant-colonel.

CAPTAIN A. E. KELSEY, R.A.M.C.

Captain Arthur Edward Kelsey, R.A.M.C., was educated at Guy's Hospital and at Cambridge, where he graduated M.B. and B.C. in 1889. Entering the navy soon after, he attained the rank of fleet surgeon on November 11th, 1907, but had retired before the war, and settled at Reigate. He took a temporary commission as captain in the R.A.M.C. in July, 1917.

CAPTAIN L. MOYSEY, R.A.M.C.

Captain Lewis Moysey, R.A.M.C., was educated at St. George's Hospital and at Cambridge, where he graduated B.A., M.B., and B.C. in 1895, afterwards studying in Vienna. After acting as house-surgeon to the Paddington Green Children's Hospital, he went into practice at Radford, Nottingham. He joined the Notts and Derby Mounted Brigade Field Ambulance as lieutenant on October 22nd, 1914, and was promoted to captain after a year's service.

CAPTAIN G. W. YOUNG, R.A.M.C.

Captain Gerald William Young, R.A.M.C., was educated at Edinburgh, where he graduated M.B. and Ch.B. in 1903 and M.D. in 1907. He was serving as chief medical officer of the Antofagasta (Chile) and Bolivia Railway Company till he came home to join the R.A.M.C.

LIEUTENANT J. A. STAINSBY, R.A.M.C.

Lieutenant John Addison Stainsby, R.A.M.C., was educated at the London Hospital, and took the diplomas of M.R.C.S., L.R.C.P., and L.S.A. in 1894, after which he went into practice at Ecclesfield, Sheffield. He took a temporary commission in the R.A.M.C. in September, 1917.

HONOURS.

A SPECIAL Supplement to the *London Gazette*, issued on March 7th, contains the statements of the acts of "conspicuous gallantry and devotion to duty" for which the decorations announced in the *London Gazette* of October 18th, 1917, and published in the *BRITISH MEDICAL JOURNAL* of October 27th, 1917, p. 566, were conferred. The following medical officers are included in the list:

Bar to Military Cross.**Temporary Captain Oswald John Day, M.C., R.A.M.C.**

He organized stretcher-bearers, led them through enemy barrages, and effected the recovery of many wounded from close to the enemy's lines. (Military Cross gazetted June 18th, 1917.)

Temporary Captain Archibald Fullerton, M.C., R.A.M.C.

He dressed and evacuated thirty cases of another division and over fifty of his own battalion under most adverse conditions. His medical orderly was killed, leaving him single-handed, and one shell killed and wounded twelve of his stretcher-bearers. (Military Cross gazetted January 1st, 1917.)

Temporary Captain Noel John Hay Gavin, M.C., R.A.M.C.

He worked unceasingly for many hours at night dressing the wounded. When the medical officer sent to assist him was killed and the aid post was wrecked by shell fire, he continued his work of tending the wounded in the trenches and the open until relieved, although slightly wounded. He carried out his duties regardless of personal danger. (Military Cross gazetted June 4th, 1917.)

Temporary Captain Arthur John Rushton O'Brien, M.C., African Medical Service.

He repeatedly dressed the wounded under heavy artillery and machine-gun fire in the open, bringing out about 150 wounded with stretcher parties, until he himself was dangerously wounded whilst performing his duties close to the firing line. (M.C. gazetted February 13th, 1917.)

Temporary Captain David James Shirres Stephen, M.C., R.A.M.C.

He made a most daring reconnaissance in search of an aid post. Under very heavy fire he made arrangements for the removal of the

wounded and bringing up medical supplies. On another occasion he took over the evacuation of the wounded and reorganized the system of evacuation, displaying cool judgement and contempt of danger in searching for the wounded. He set a fine example to his men. (M.C. gazetted July 24th, 1915.)

Military Cross.**Captain John Alston, R.A.M.C.(S.R.).**

When in charge of stretcher-bearers he worked unceasingly for fifty-four hours, during the whole of which time he was under heavy shell fire, evacuating the wounded and clearing the field with great rapidity and skill. He declined to be relieved until he had seen the work through, setting a splendid example of cheerfulness and courage to all who were working with him.

Captain Robert Ringrove Gelston Atkins, M.B., R.A.M.C.(S.R.).

For seventy-two hours he worked continuously with his stretcher squads under very heavy artillery fire. He worked throughout a whole night between the various regimental aid posts and the advanced dressing station, organizing the evacuation of a large number of stretcher cases. He set a splendid example to all under him.

Temporary Captain Phillippe Bernard Belanger, R.A.M.C.

He moved about in the open, often having to jump from shell hole to shell hole, tending the wounded, regardless of the continuous machine-gun and shell fire. He was entirely responsible for the bringing in of many wounded men, and thereby saving their lives. He did not desist until he had the whole battalion sector cleared of wounded, and throughout he set a magnificent example to the stretcher-bearers who followed him.

Captain Thomas Herbert Bell, C.A.M.C.

During an attack he directed the work of the stretcher-bearers for forty-eight hours without rest. His energetic work and splendid courage under heavy shell fire were an example to all ranks, and were undoubtedly the means of saving many lives.

Captain William Somerset Birch, R.A.M.C.(S.R.).

For seventy-two hours he worked with the stretcher-bearers of his field ambulance, and collected the wounded under continuous fire. By his cheerfulness and disregard of danger he set a splendid example to all his bearers.

Temporary Captain Archibald Grainger Bisset, R.A.M.C.

During heavy shelling of his battalion, when it was impossible to establish a dressing station, he went up and down the line himself attending to the men as they fell. Whenever a shell burst in the vicinity he at once hastened to the spot and did not leave the shelled area after his battalion had moved off until every case had been evacuated. He has shown the greatest gallantry and coolness at all times, notably on one occasion when, although badly gassed and unable to stand, he continued to attend to the wounded until he collapsed.

Captain Arthur Bloom, R.A.M.C.

Several casualties were caused by shell fire at a battery position. He at once went 300 yards through a heavy barrage to the position, being blown up by an exploding shell on the way. He immediately attended to two wounded men, and then, while the battery was still being shelled, went round the position and attended to other wounded men. He displayed great courage, and his prompt action was of very great value.

Temporary Captain Oswald Vincent Burrows, R.A.M.C.

For forty hours he worked unceasingly succouring the wounded, about 300 of whom passed through his hands during that period.

Temporary Captain Charles Kingsley Carroll, R.A.M.C.

He carried on his work during an attack in one of the most exposed situations regardless of his own safety. His energy and devotion to duty saved many lives.

Captain John Philip Selby Cathcart, C.A.M.C.

During an attack he displayed masterly ability and the greatest devotion in attending to the wounded, and on one occasion, when stretchers were urgently required in the front line, personally carried out four from his dressing station—a distance of 1,000 yards—under the heaviest shell fire. This very gallant act enabled several wounded men to be rescued. His work has at all times been characterized by fearless zeal and untiring energy.

Temporary Captain John Percival Charles, R.A.M.C.

He worked untiringly evacuating the wounded during the attack, continually dressing the wounded in shell holes under very heavy fire until he was wounded. He set a magnificent example of fearlessness and devotion to duty.

Temporary Captain Andrew Tocher Cunningham, R.A.M.C.

During a raid on the enemy's lines he worked continually throughout an intense bombardment, attending to the wounded at the aid post until they had all been attended to and evacuated. He showed great courage and devotion to duty.

Temporary Captain Lionel Montrose Dawson, R.A.M.C.

While acting as officer in charge of bearers, he searched and cleared the line during the advance and during a counter attack. He kept the regimental aid posts clear under trying circumstances, frequently going through a hostile barrage. He remained at his post for twenty-four hours without rest under very heavy fire.

Temporary Captain Harold John de Brent, R.A.M.C.

He went about in a most fearless manner under heavy shell and machine-gun fire, collecting the wounded, dressing them in the open and cheering them up. He remained in the most advanced position, almost surrounded by the enemy, until he had succeeded in attending to and clearing all the wounded. He took on the work of two other medical officers who were wounded and remained at his post for a further five days. His conduct was magnificent throughout.

Temporary Captain Carl Keating Graeme Dick, R.A.M.C.

He rescued three men from a dug-out which had been blown in and brought them to his aid post. His aid post was under shell fire, but he went on working, and when his aid post was full he continued work outside utterly regardless of his own safety. It was largely owing to his gallant conduct that so many wounded were safely evacuated.

Temporary Captain James Dickson, R.A.M.C.

When at his aid post a shell exploded in the doorway, killing and wounding fourteen persons in the room where he was. Although very badly shaken he continued his work until relieved twenty-four hours later.

Captain Franklin Fletcher Dunham, C.A.M.C.

He remained at his dressing station for four days, steadily performing his duties although exposed all the time to shell fire and gas attacks. Although severely gassed on the second day, he continued to carry on until he collapsed, having set a splendid example of self-sacrifice and devotion to duty.

Lieutenant Louis du Vergé, R.A.M.C.

During an action he constantly dressed the wounded in the open under heavy shell fire, and showed complete disregard for his own safety.

Temporary Captain Henry Hawes Elliot, R.A.M.C.

During several days' operations he was out under very heavy fire finding wounded men, attending to them, and helping them back to the aid post, and, though wounded, continued at duty. When his aid post received several direct hits, he succeeded in evacuating all the wounded to a safer position. He set a fine example to his stretcher-bearers.

Temporary Captain Henry Vincent Forster, R.A.M.C.

When a counter-attack seemed imminent, he rallied every available bearer under heavy fire, and evacuated all the wounded through a heavy barrage. He set a magnificent example to all during several days' operations.

Temporary Captain Cosmo William Fowler, R.A.M.C.

He worked throughout the day during an attack, showing complete disregard of danger. On two occasions he went out in front of the line and brought in wounded who would otherwise have fallen into the hands of the enemy.

Temporary Captain James Harcourt Cecil Gatchell, R.A.M.C.

He worked with great zeal for many hours in the open under heavy shell fire. He frequently dressed wounded men on the spot who they were hit, and when he was wounded he refused to leave his post until ordered to do so by his commanding officer. His contempt of danger and devotion to duty were an example to all ranks.

Temporary Lieutenant John Alan Campbell Greene, R.A.M.C.

When an advanced dressing station was shelled with 8-inch shells, he at once went to the spot and began to dig out men who were buried. Though the shelling continued he did not desist until satisfied that the men were dead. He then assisted in clearing the entrance to the dressing station and attended to the wounded within. He showed an entire disregard of personal safety in his efforts to save life.

Captain David Alexander Ross Haddon, R.A.M.C. (T.F.).

The dressing station was very heavily shelled, and he immediately ran to the centre of it, where he attended to all the wounded, and assisted in the evacuation of stretcher cases. He carried out operations in a hut which was continually under shell fire. He set a magnificent example to all.

Captain John Livingston Hamilton, R.A.M.C.

For conspicuous gallantry and devotion to duty when in command of a stretcher-bearer subdivision during a raid on the enemy's lines. During an intense bombardment and when he himself was twice wounded, he continued to dress the wounded throughout the night until they had all been evacuated. He set a magnificent example throughout the action.

Temporary Captain David Cochrane Hanson, R.A.M.C.

Regardless of all danger he attended to the wounded in the open under the heaviest shell fire, and, though knocked over several times by the explosion of shells, he continued to direct the work, and succeeded in getting the wounded out of the barrage zone. His gallant conduct was undoubtedly the means of saving many lives.

Temporary Captain Arthur Raudell Jackson, R.A.M.C.

He was ceaseless in his efforts to get in casualties, repeatedly going forward through enemy barrages to the advanced posts. He worked in the open throughout the day, and set a splendid example to his stretcher-bearers.

Captain Charles Llewellyn Lander, R.A.M.C.

He worked at an advanced dressing station on the line of the enemy barrage, and afterwards passed through the barrage to another dressing station, where he worked for a day and a half under continuous shell fire. He showed great courage and disregard of danger.

Captain Harold Dnnmore Lane, R.A.M.C.

During a daylight raid on the enemy's trenches he established his aid post in the front-line trench, and worked there for many hours under heavy artillery fire. He attended to the seriously wounded cases in the open, and was instrumental in bringing in all the wounded from No Man's Land and getting them successfully away.

Captain Peter MacCallum, R.A.M.C. (S.R.).

He was in charge of the evacuation of the wounded from an advanced position, and worked in the open under very heavy fire for four successive days and nights, organizing stretcher squads and directing the removal of the wounded. He was the means of finding several severely wounded men lying in shell holes and bringing them to safety under heavy fire. His splendid example and utter disregard of danger were largely responsible for the success of the evacuation.

Captain Albert Edward Peel McConnell, R.A.M.C.

When in charge of the evacuation of the wounded, though heavily shelled, he kept his line perfectly clear. He superintended the evacuation personally, working for forty-five hours without ceasing under the most difficult and dangerous conditions, and by his example encouraged the men under him in every possible way. Later, he took two stretcher squads to the relief of batteries which were being heavily shelled.

Captain Emmet Andrew McCusker, C.A.M.C.

Under continuous and heavy shell fire, during which his dressing station was several times hit, he not only carried out his duties as medical officer with coolness and energy, but on several occasions carried in wounded from the front when stretcher-bearers were not available. He also rescued, under a heavy shelling, a number of wounded men who were buried in a cellar. He set a splendid example to all.

Temporary Captain Donald John MacDougall, R.A.M.C.

During the seventy hours the battalion was in the line he displayed great courage and fearlessness, dealing with a large number of wounded without assistance when all his orderlies had become casualties and his stores had been destroyed by shell fire.

Temporary Captain Douglas Charles Murray Page, R.A.M.C.

For conspicuous gallantry and devotion to duty in going through a heavy barrage in search of two wounded officers, about five hundred yards across the open. He dressed their wounds in the open by the light of the gun flashes. Hearing that the M.O. of the relieving unit had been wounded, he obtained permission to remain with the incoming unit.

Captain Arthur Allan Parker, C.A.M.C.

He directed the clearing of the wounded from his regimental aid posts, being without rest for thirty-six hours, during all of which time he was exposed to more or less heavy shelling. He set a splendid example to his men.

Captain William Barry Postlethwaite, R.A.M.C. (S.R.).

He set a splendid example of untiring energy and contempt of danger to his stretcher-bearers throughout the operations, repeatedly leaving his aid post under heavy fire to attend to the wounded. He organized bearer parties, and went forward with them into No Man's Land and brought in a large number of wounded.

Captain James Wilfrid George Hewat Riddell, R.A.M.C.

While the battalion was assembling for the attack he attended to a large number of wounded on the spot. He was shelled out of his aid post, but during the whole of the day of the attack he attended to the wounded under heavy fire, and at night, when all the cases at the aid post had been attended to, he went out and dressed cases in No Man's Land and guided stretcher parties to the wounded lying out in front.

Captain Stanley Graham Ross, C.A.M.C.

During an attack he directed the evacuation of the wounded for forty-eight hours continuously, and repeatedly aided the wounded under very heavy shell fire. The example which he set to all ranks, and his unbounded energy, was no doubt the means of saving many lives.

Temporary Captain William Russell, R.A.M.C.

When his regimental aid post was blown in and most of the personnel and wounded killed, he went up to it through a heavy barrage and succeeded in evacuating all the survivors. On six occasions during the day he guided parties of bearers and brought back wounded, always in the open under heavy fire.

Captain James Bethune Scott, R.A.M.C. (S.R.).

A camp was heavily shelled and many casualties were caused. He showed great gallantry in going to the assistance of the wounded on three separate occasions in spite of heavy fire. By his coolness he not only saved many lives, but gave great confidence and encouragement to the men around him.

Captain William Henry Scott, C.A.M.C.

During a heavy hostile gas-shell bombardment his dressing station, which was in a cellar, became full of "mustard gas." He and his whole staff were gassed, but with the greatest courage and devotion he remained in the cellar after all his assistants had been evacuated, and attended to three wounded men who could not be left. No praise is too great for the gallant manner in which he discharged his duties under these dangerous conditions.

Temporary Captain Edward Seguir Sowerby, R.A.M.C.

He guided parties of bearers, bringing back wounded in the open over most difficult ground and under heavy fire. On one occasion he led a party through a heavy barrage and succeeded in collecting many wounded from close to the enemy's line.

Temporary Captain William Turner, R.A.M.C.

He had on two occasions to change his regimental post, on account of its being destroyed by shell fire, but continued to dress the wounded of three battalions throughout the day in the open under heavy fire.

Lieutenant Samuel Vidot, R.A.M.C. (S.R.).

He carried on his work continually under heavy shell fire throughout the operations, and stayed behind after the battalion was relieved to attend to the wounded. He had previously entered a dug-out which was full of fumes and rescued a wounded officer.

Temporary Captain John Alexander Vlasto, R.A.M.C.

He attended to over one hundred cases of wounded under extremely heavy shell and rifle fire. During a gas and smoke cloud he worked ceaselessly in the firing line, attending to men gassed and wounded. His courage and total disregard for his personal safety were a splendid example to all around him, and were the means of saving many lives.

Captain James Walter Woodley, C.A.M.C.

On being informed that there were some wounded lying unattended in an advanced and exposed position he at once went to the spot through a heavy barrage and attended to them. After dressing all the wounded he returned to his post and arranged for stretcher-bearers to take them to the dressing station. He went about continuously during the operations, attending to the wounded under most intense fire with complete disregard of danger.

MENTIONED IN DISPATCHES.

The following medical officers are among those mentioned by Major-General A. R. Hoskins, late Commanding-in-Chief, East Africa Force, in a dispatch dated May 30th, 1917:

Royal Navy: Surgeon (acting Staff Surgeon) C. G. Sprague, R.N.

Staff: Major R. T. Brown, D.S.O., R.A.M.C.

Medical Services: Lieut.-Colonel S. E. Frall, I.M.S. Majors (temporary Lieut.-Colonel) A. MacMunn, R.A.M.C.; C. G. Seymour, I.M.S. Majors: A. Cameron, C. E. Southon, G. G. Hirst, and W. S. McGillivray, I.M.S.; H. B. Owen and J. H. Reford, Uganda Medical Service; D. M. Tomory and P. St. J. Wilkinson, S.A.M.C. Temporary Majors: R. T. Meadows, D.S.O., R.A.M.C.; W. Owen-Fritchard, E.A.M.S.; A. D. J. D. Williams, E.A.M.S. Captains (acting Majors): J. Evans,

S.A.M.C.; W. A. MacLennan, R.A.M.C.(S.R.). Captains: R. S. Armour, G. B. Fleming, J. D. Kidd, W. Mitchell, and B. Varvill, R.A.M.C.; J. J. D. La Zonche, R.A.M.C.(S.R.); G. T. Burke, M. L. C. Irving, W. M. Lupton, and M. J. Roche, I.M.S.; E. G. Smith, S.A.M.C. Temporary Captains: I. B. V. L. Dale and C. J. Wilson, E.A.M.S.; A. J. R. O'Brien and T. R. Sandeman, W.A.M.S.; A. M. Webber, R.A.M.C. Lieutenant G. Covell, I.M.S.

In a dispatch dated May 15th, 1917, from Brigadier General E. Northey, commanding Nyasaland Rhodesian Force, the names of Temporary Lieut.-Colonel H. H. Y. Pearsey, Director of Medical Services, and Temporary Captain A. G. Eldred are mentioned.

Lieut.-General Sir J. Van Deventer, Commanding-in-Chief, East Africa Force, in a dispatch dated October 11th, 1917, mentions the following for meritorious service in the field:

Staff: Colonel (temp. Surgeon-General) G. D. Hunter, C.B., C.M.G., D.S.O., A.M.S.; Lieut.-Colonel (temp. Colonel) G. W. Tate, D.S.O., R.A.M.C.; Lieut.-Colonel C. J. O'Gorman, D.S.O., R.A.M.C.; Captain R. S. Kennedy, M.C., I.M.S.

Royal Army Medical Corps: Major H. Hemsted; Captains R. P. Cornmack, P. E. Lander, E. S. Wallis (S.R.); Temporary Captains D. McIntyre, A. McP. Warner; Temporary Quartermaster and honorary Lieutenant E. J. Harris.

East African Medical Service: Captains A. R. Cook (Uganda Medical Service), J. O. Shircore.

South African Medical Corps: Lieut.-Colonel T. Smythe; Major (acting Lieut.-Colonel) W. Gilbert; Captains (temporary Majors) F. S. Jones, W. D. Miller; Captains A. P. M. Anderson, A. McW. Green; Temporary Captain A. F. H. Rabagliati.

Temporary Major (acting Lieut.-Colonel) T. M. R. Leonard, W.A.M.S., Nigerian Contingent; Surgeon-Captain J. A. Chisholm, Northern Rhodesia Medical Service.

Indian Medical Service: Captain R. M. Easton and E. H. V. Hodge; Temporary Lieutenant S. A. Paymaster. Eight assistant and subassistant surgeons of the I.S.M.D. are also mentioned.

FOREIGN DECORATIONS.

The King of the Belgians has conferred the Croix de Guerre upon the following officers of the A.M.S. and R.A.M.C. in recognition of services rendered during the course of the campaign: Lieut.-General Sir Arthur T. Sloggett, K.C.B., K.C.M.G., K.C.V.O., Surgeon-General R. Porter, C.B., Brevet-Colonel S. L. Cummins, C.M.G., Lieut.-Colonel (temporary Colonel) J. D. Alexander, D.S.O., Lieut.-Colonel A. Chopping, C.M.G., Major H. Stedman, Captain T. F. Corkill, temporary Captains Myer Coplaus, D.S.O., and J. H. H. Pearson.

Lieutenant-Colonel (temporary Colonel) Henry N. Dunn, D.S.O., R.A.M.C., has been appointed C.M.G. for services rendered in connexion with military operations in the field.

The D.S.O. has been conferred upon Major (acting Lieut.-Colonel) Henry Fulton, R.A.M.C., for distinguished service in the field.

Major E. S. Forde, R.A.M.C., has been promoted to brevet lieutenant-colonel for valuable services rendered in connexion with the war.

Surgeon Probationers W. P. Warner and I. M. Thompson, R.N.V.R., have been mentioned in dispatches for services in destroyer and torpedo-boat flotillas, and the former is awarded the D.S.C.

England and Wales.

A SCHEME FOR A STATE MEDICAL SERVICE.

A MEETING was held on February 28th of medical practitioners resident in the area of the Brighton Division, with Dr. Hobhouse in the chair. After a proposition to the effect that any extension of State medical service is undesirable had been lost by a small majority, approval was given to a scheme submitted by a special committee appointed in June, 1917, to consider and report on the future of the medical profession under a proposed Ministry of Health. It was resolved to submit this committee's report to the Council of the British Medical Association, together with a copy of the resolution approving the scheme contained therein. The proposal, in the broadest outline, is for the establishment of a National Health Office, combining the health functions of the Local Government Board and of the Insurance Commission, a chain of administration being established downwards from the central office, consisting of a staff of medical men on the preventive and clinical sides responsible to the Minister of National Health, with an executive medical staff in each area. The object of the scheme is to establish a whole-time salaried State medical service acceptable to the medical profession, with provision for hospital treatment, for a service of consultants and specialists, and for central laboratories. The

financial basis of the service would be an extension of the existing insurance for medical benefit to all classes of the community. The scheme aims at the protection of existing personal interests, the preservation of freedom of choice for doctor and patient, the right to private practice of executive medical officers, and such conditions of service and pay as will attract to the medical profession the best type of person.

DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES.

Dr. E. W. Hope has recently published a memorandum on the scheme now in operation in the city of Liverpool. It will be revised and readjusted at the end of an experimental period of twelve months. A similar scheme has been established for Lancashire, and the County Medical Officer, Dr. J. J. Butterworth, has recently issued information with regard to it. In both documents the addresses of the various centres or clinics and the hours of attendance are set out. The Venereal Disease Act, 1917, came into operation in Liverpool on March 1st. The perennial difficulty in persuading patients to continue treatment until they are cured has not yet been surmounted. During the quarter ending September 30th at one of the large hospitals in the city it is recorded that fully 50 per cent. of the patients suffering from syphilis and over 30 per cent. of those suffering from gonorrhoea failed to complete the course of treatment. The same trouble arises among the prisoners infected with venereal diseases and under short sentences of detention. It would seem, therefore, eminently desirable that some form of compulsion should be adopted, and the medical officer of health sets out the Venereal Diseases Act, 1916, passed by the Legislature of Victoria, Australia, that would overcome irregularity of attendance. The Local Government Board is urged to adopt some restrictive measures with respect to prisoners whose treatment is not completed at the expiration of sentence. It is suggested that such persons should, on the orders of the visiting justices, be taken into a suitable hospital and detained there for treatment until cure is completed.

CENTRAL CONTROL BOARD (LIQUOR TRAFFIC).

Dr. Henry Barnes, O.B.E. (Carlisle), writes: In continuation of my previous communications regarding the work of the Central Control Board (Liquor Traffic) in Carlisle I send some notes on the annual report of the general manager of the Board in the Carlisle and district directly controlled area during the year 1917.

The total area comprises about 320 square miles, with a population of about 115,000, and contained 339 licensed premises at the beginning of July, 1916. The work of suppressing redundant licences has been continued. When the Board commenced its operations in 1916 there were in the city of Carlisle 119 licences. These were at once reduced to 94, and last year 24 more licences were suppressed. As far as possible all houses have been closed which from their position or structure were undesirable. In the country district surrounding the city there was a corresponding reduction of redundant licences.

Early in the year a Spiritless Saturday Order was instituted and has had a most beneficial effect. On the seven Saturdays preceding the issue of the Order there were 45 apprehensions for drunkenness. On the same number of Saturdays succeeding the same date there were 7 apprehensions, all on St. Patrick's Day (reflecting the nationality of a large number of navvies then living in the city.) Previous to the issue of the Order Saturday had the greatest number of "drunks" of any day in the week, but now it has the fewest, and this is the more remarkable as it is our market day, on which large numbers of residents from the surrounding districts come to the city for their weekly shopping. Some inconvenience has resulted, but on the whole a balance of advantage is claimed. Another restriction authorized by the Board relates to the "off" sales of spirits. Previously all fully licensed houses could sell spirits for consumption "off" the premises. The Board selected eighteen houses in different parts of the city to have the exclusive right of "off" sales. This number has since been reduced to fifteen.

A very pernicious practice has been stamped out. Among certain classes it was customary to order spirits and beer at the same time. The spirits were consumed neat and washed down with beer. This was a widespread custom and led to much drunkenness. A definite instruction was given to the Board's managers that no

order was to be received from any customer for beer and spirits to be served together.

Much criticism on the Board's work has been made, alleging that the decrease in the convictions for drunkenness has not been due to any of the Board's regulations, but has been caused by the departure of the constructional workers. This theory is in contradiction to the facts. Sir Edward Pearson, the constructional manager of H.M. factory at Gretna, says that the number of workmen employed in construction work was practically the same at the end of 1916 as at the end of June in that year, when the Board first began its work. The following table, showing the number of convictions in each quarter for the past three years, shows what an enormous reduction has taken place:

	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Total.
1915	38	34	35	170	277
1916'	213	351	199	190	953
1917	164	65	48	43	320
Decrease 1917 on 1916	49	285	151	127	633

There are four chief factors for this reduction, of which the three last are entirely due to the action of the Board in taking control of the liquor traffic in Carlisle.

1. The gradual disappearance during the first half of 1917 of the navvies and their replacement in part by artisans and operatives at the Gretna factory.

2. The closing of redundant houses.

3. The institution of spiritless Saturdays.

4. The strict supervision exercised by the Board's managers.

Notwithstanding the withdrawal from Carlisle of constructional workers, the Chief Constable estimates that there is still an additional population of 13,000 residing in and around Carlisle. The improvement in the condition of the streets, especially at night, deserves notice, and impresses itself upon residents and visitors alike. Although the streets are unduly crowded, a drunken person is exceptional.

The policy of the Board in their constructive work has been to cater for the refreshment of all sections of the community. Seven "food taverns" have been completed. The Gretna Tavern proved a success from the first, and has continued to be most popular. The takings for food alone average about 60 per cent. All the other taverns are doing well, and at one of them, in an industrial part of the city, some sixty or seventy persons take their daily dinner. At several of them arrangements have been made for the "off" sales of food, and the average number of purchases each day exceeds 800. A sustained effort has been made to push the sale of food in the ordinary public-house. About a score of houses were selected for the attempt and were kept open on weekdays from 10 a.m. to 3 p.m., with an interval of half an hour at 2.30 p.m. for ventilation and cleaning, and on Sundays from 12 to 2 and 4 to 6 (lately changed to 7 to 9). Owing to food shortage, the attempt under war conditions to resuscitate the functions of a victualling house of the past has been rather a failure. The average worker prefers to take his meals at home and his intoxicants in the public-house, where he can meet his friends.

In June last Lord D'Abernon stated that so far as results are available, the profit and loss account shows a balance of about 15 per cent. on the capital charges, after meeting all the trade charges, but as the total capital expenditure has not been ascertained, a definite statement cannot yet be made. Provided, however, that the total does not exceed the amount anticipated, there is reason to believe that, after making all proper deductions, the rate of profit earned will prove to be on the scale foreshadowed by Lord D'Abernon.

To those interested in this question I would recommend two books, in one of which the question of State purchase is fully considered—namely, *The Control of the Drink Trade*, by Henry Carter, a member of the Control Board (Longmans, 7s. 6d.), and the other, the small volume on *Alcohol: its Action on the Human Organism*, issued by a committee appointed by the Board. As was pointed out in the JOURNAL on February 23rd (p. 238), it gives a concise statement of the present state of knowledge on the action of alcohol on the human body.

VITAL STATISTICS OF 1916.

The report of the Registrar-General for England and Wales for 1916 contains the final corrected figures. The marriage-rate was 14.9 per 1,000, being 4.5 below the phenomenally high rate in the preceding year, and 0.5 below the average for the ten years 1905-14, which were unaffected by war conditions. The provisional figures for the first two quarters of 1917 indicate a further fall. The birth-rate was 20.9 per 1,000, being the lowest on record, although the provisional figure for 1917 shows a still further decline to 17.7. The rate for 1916 was 4.6 below the average for the ten years 1905-14, and 1.0 below the rate in 1915. Speaking of the statistics down to the end of 1916, it is said that on the whole the reduction of natality in this country which had accompanied the war, amounting to about 12 per cent. in 1916 as compared with 1914, was less than might have been expected, and compared very favourably with the experience of other belligerent countries. The civilian death-rate in 1916 was 14.4, which is the same as the provisional figure for 1917. It is 1.3 below the rate in 1915, and 0.1 below the average rate for the ten years 1905-14; although the rate in 1916 was higher than in some of the years immediately preceding the war, reasons are given for regarding it as representing a mortality approximately equal to the lowest hitherto recorded, if due allowance be made for the effect of enlistment upon the population. The mortality of young children was lower in 1916 than in any previous year; it was 91 per 1,000, or 19 below the rate of the preceding year, and 22 below the average for the ten years 1906-15. The provisional figure for 1917 is higher—97.

Correspondence.

LONGEVITY.

SIR,—Cicero in the Cato Major sets forth as the ideal of advanced life the gradual decline of the physical energies compensated by a steady increase in intellectual vigour. But this latter condition, he shows, can alone be brought about by the ceaseless cultivation of the powers of the mind. Milo weeping in senile decay over his withered arms with no intellectual attainment to compensate him for his loss of muscular strength, Cicero places in striking contrast to Cato who, with his cultivated brain, takes up the study of Greek literature in old age with an eagerness which, we are told, was like the desire of quenching a long thirst—*quasi diuternam sitim explere cupiens*—a receptivity of mind indeed enviable at any time of life.

Sir Herman Weber has written an able and lucid article (p. 228), truly a wonderful feat at 95 years, but one could have wished that mental culture, which Sir Herman merely mentions, had been equally insisted on with muscular exercise. Which of these two activities is of the greater benefit in old age it would be difficult to prove. A fact, however, which points clearly to the life-prolonging tendencies of mental activity is that many business and professional men continue their work well into advanced life with little abated energy and sometimes at high mental pressure, but on retirement rapidly decline in brain power and physical vigour, although there has been little, if any, cessation of muscular exercise. Mental activity in old age appears to stimulate and sustain all the vital processes, but rarely exists to any great extent at this period apart from enthusiasm—a mainspring which probably accounts for the extraordinary longevity, energy, and skill in old age of many of the Royal Academicians, the perfection of whose works executed late in life frequently rivals that of their earlier years.—I am, etc.,

Liverpool, Feb. 23rd

WILLIAM BRANWELL.

SUPPLY OF ARSENOBENZOL DRUGS TO GENERAL PRACTITIONERS.

SIR,—The objection to the suggestion of Dr. A. Knyvett Gordon appears to me to be that the intramuscular injection of these drugs is usually attended by so much after-pain that it is difficult to persuade private patients to have

a second dose. The paper of Harrison, White, and Mills¹ was based upon their experience in military hospitals, where the patients are under discipline, and I think if they had been dealing with private patients they would have come to a different conclusion.

I have given intramuscular injections to five private patients of my own, and all but one complained severely of the after-pain, which they stated prevented them from working for a week or more. The one who did not complain was suffering from incipient locomotor ataxia, and the nervous lesion probably accounted for the absence of pain. It may be objected, perhaps, that I am incompetent to form an opinion, having had such a small experience, and that my technique was faulty; but a general practitioner is obliged to form his opinion on a comparatively small number of cases, and in giving the injections I was careful to follow closely the instructions given by the authors of the paper I have referred to.

I have given many intravenous injections of these drugs, and have yet to experience any trouble with them. The technique is easily acquired, and the patient experiences no pain or unpleasantness.

It is very frequently difficult to persuade patients suffering from syphilis to undergo a sufficiently long course of treatment to obtain good results, and if a method is adopted that gives them pain and keeps them from work, I am sure that very few cases will be efficiently treated.—I am, etc.,

London, W., March 10th.

J. A. BUTLER, M.D.

THE TREATMENT OF WOUNDS BY FLAVINE.

SIR,—In the BRITISH MEDICAL JOURNAL of March 9th Dr. C. H. Browning comments on my observations which appeared in your issue of March 2nd, and suggests that my results were due to the fact that I employed gauze "wrung out in 1 in 1,000 solution" instead of "gauze soaked in flavine solution."

If I understand Dr. Browning's suggestion it is that I did not employ a sufficient amount of flavine solution in the packs to obtain good results. The distinction in terms made by him is open clinically to fallacies into which I need not enter here, and I am not prepared to admit that there is any essential difference between them in practice, but I will state now that in my investigations the gauze packs were "soaked in," saturated with, and "wrung out in" flavine solution in varying degrees in different cases without modifying my results in any way in regard to the control of sepsis.—I am, etc.,

WILLIAM PEARSON,
Major R.A.M.C.

Chichester, March 11th.

THE DISAPPEARANCE OF ABNORMAL HEART SOUNDS.

SIR,—Dr. Gordon's communication with regard to changing heart sounds calls to mind the very frequent similar experience amongst children in a tuberculosis dispensary. Well-marked sounds may be heard at one visit, and at the next, after an interval of a month or two, careful listening fails to find them. Mitral, pulmonary, or aortic areas may be the best spots for hearing them in particular instances, but all are influenced by respiration.

Since these abnormal sounds are accompanied by glandular enlargement—visible or definitely to be inferred from other signs and symptoms—as, for example, in hilus tuberculosis, it is reasonable to conclude that shrinkage or disappearance of these nodes must be the cause of their vanishing. They disappear more surely when the von Pirquet test is negative. Should thyroid enlargement be present these abnormal sounds are usually more pronounced, especially in the neighbourhood of the right sterno-clavicular articulation.

Sputum examination mostly shows diplococcal infection, and the patients generally and quickly do well with rest in a well-ventilated hospital ward.—I am, etc.,

Newport, Mon., March 4th.

J. LEWIS THOMAS.

GONORRHOEA COMPLICATED BY SYPHILIS.

SIR,—With reference to Captain Lumb's article on gonorrhoeal complication in patients undergoing anti-syphilitic treatment (p. 285), I should suggest that the

arsenobenzol compound is more likely to be the cause than the mercury. It is an almost universal rule that patients complain of increased urethral discharge on the day after receiving an injection of arsenobenzol. I am inclined to think that the arsenic either irritates the urethral mucous membrane, causing an increased discharge, or stirs the gonococcus into activity, possibly by lowering the resistance of the mucous membrane. Surely mercury is now combined with arsenobenzol because it was found that cases were apt to relapse in the early days of salvarsan alone.—I am, etc.,

Shefford Military Hospital,
St. Albans, March 12th.

H. E. GIBSON,
Captain R.A.M.C. (T.F.)

THE PAY OF TERRITORIAL R.A.M.C. OFFICERS.

SIR,—The letter of J. W. L. Spence in your issue of February 16th deserves the widest publicity and immediate action by the authorities. The practice of treating a territorial unit as a parochial or "family" formation with promotion entirely within the unit should have ceased at least as soon as a unit embarked for expeditionary service. Its perpetuation has been utterly unjust. Officers who joined the Territorial Force in its early days and came forward most patriotically from important appointments for expeditionary service found themselves serving under very junior officers with many years' less commissioned service. Many men taken to complete establishments have been holding senior appointments and drawing the corresponding pay for years. These men also participate unduly in the decorations which almost go with certain appointments as a matter of course. There is also a grievance against officers who declined to accept foreign service at the beginning, and as a "reward" were given senior appointments at home. This matter is really becoming a serious problem for officers who have been suffering financially through being on service for years, and the duration lingers beyond anticipation.—I am, etc.,

March 7th.

JUSTICE.

The Services.

PAY AND PROMOTION OF SPECIAL RESERVE MEDICAL OFFICERS.

IN the JOURNAL of February 2nd, p. 164, and again in the SUPPLEMENT of February 9th, p. 17, attention was drawn to the action of the Army Council in negating one of the recommendations of the Departmental Committee on the promotion and pay of officers of the R.A.M.C., Special Reserve and Territorial Force. The Committee, of which Lord Burnham was chairman at the time this report was made, recommended that

Officers of the R.A.M.C., Territorial Force, and Special Reserve who joined before the war should be put on a level with temporarily commissioned contract officers as regards pay, allowances and gratuities, where they would gain thereby. The refusal of the Army Council to accept this recommendation of the Committee was under the consideration of the Naval and Military Committee of the Association at its meeting last month, and further representations will no doubt be made. We have received a letter from a correspondent who considers that the Army Council's refusal to accept the recommendation of the Burnham Committee is particularly unjust to officers of the Special Reserve, and peculiarly ungracious, inasmuch as they were all subject to the general service obligation from the first, so that many of them were in the retreat from Mons. The Departmental Committee pointed out that

Officers of the Special Reserve are promoted up to the rank of major by length of service under the same conditions as apply to regular officers of the corps [that is to say, on the completion of twelve years' total service]. . . . There is, however, no establishment of lieutenant-colonels, and, consequently, no prospect of officers receiving substantive promotion to that rank. The Special Reserve of officers of this corps was in fact designed primarily to provide officers of junior rank to supplement the regular officers of the corps. But the expanding medical needs of the present war have led to the creation of a large number of lieutenant-colonels' appointments. Some of these are held by Special Reserve majors (with acting rank), and the Committee are of opinion that there is no longer any ground for the restriction of substantive promotion to the rank of major.

Consequently it recommended that majors of the Special Reserve should be linked with majors of the regular

¹ BRITISH MEDICAL JOURNAL, May 5th, 1917.

R.A.M.C., and be eligible for promotion to substantive rank. It is to be noted that the pay of a captain R.A.M.C. (Regular) is 15s. 6d. a day, but after seven years' full pay service in that rank it rises to 17s. Our correspondent's suggestions are as follows:

1. Those of the Special Reserve who were already captains on the outbreak of war (about thirty in all) should be promoted to temporary major forthwith (with pay and allowances).
2. Captains should, after five years' service, draw the 1s. 6d. extra per day allowed to Regular R.A.M.C. captains.
3. The increase of pay recently granted to combatant officers and the same scale of allowances for children should be made applicable to S.R. and Territorial officers.
4. All promotions suggested above should date back to April, 1917, as was promised at the time.

R.A.M.C. PROMOTION.

A CORRESPONDENT with the British Expeditionary Force informs us that a recent general routine order lays down that an officer of the R.A.M.C. (Regular, Special Reserve, Territorial Force, or temporary) below the rank of major who holds an appointment expressly assigned to a major in war establishments may be granted the acting rank of major when there is an actual vacancy or when a vacancy occurs owing to the absence of a major by reason of wounds or sickness. Temporarily commissioned officers also granted such acting rank will receive the pay and allowances of a major, and special provision is made for the adjustment of their gratuity.

With reference to the second report of the Departmental Committee on the promotion of R.A.M.C. officers (BRITISH MEDICAL JOURNAL, February 2nd, p. 164), another correspondent inquires whether the second part of the recommendation that a general list for promotion should be introduced "for the Territorial Force field ambulance and regimental medical officers" may be taken as applying to all regimental officers. The report makes it clear that Territorial officers only are referred to. Our correspondent maintains that a general list should be introduced for all regimental medical officers irrespective of the branch of the corps to which they belong.

Obituary.

PROFESSOR JOSEPH PRICE REMINGTON, Chairman of the Committee of Revision of the United States *Pharmacopoeia*, died at Philadelphia on January 1st, aged 70. He had been professor of pharmacy in the Philadelphia College of Pharmacy since 1874, a member of the Committee of Revision since 1880, and its chairman since 1901. He was the president of the first International Pharmaceutical Congress held at Brussels in 1893, and represented the United States at all the congresses held since. He was the author of *Remington's Practice of Pharmacy*, the first edition of which appeared in 1886, and he was editor of the *United States Dispensatory* since 1883.

LIEUT.-COLONEL ALEXANDER LEONARD DUKE, Bengal Medical Service, died of pneumonia at Quetta on February 27th, aged 51. He was born on October 12th, 1866, and educated at Aberdeen University, where he graduated M.B. and C.M. in 1888. Twenty years later, in 1908, he took the degree of B.Sc. in Public Health at Edinburgh. He entered the I.M.S. on September 30th, 1899, became major on September 30th, 1901, and lieutenant-colonel on September 30th, 1909. After six years spent in military employ he joined the Indian Political Department as surgeon to the British Agency at Meshed, in Persia, where he served for eight years. In April, 1904, he was appointed civil surgeon of Quetta, was transferred to the same post at Bikanir in March, 1906, and at Peshawar in May, 1909; and in December, 1910, was appointed Agency surgeon and administrative medical officer in Baluchistan. He received the Afghan Order of the Izzat-Afghanistan in 1907. He was a younger brother of Sir William Duke, K.C.S.I., late acting Governor of Bengal, and now a member of the Secretary of State's Council for India.

COLONEL JAMES CAMPBELL MORGAN, Army Medical Service, died suddenly of heart disease in London during the air raid on the night of March 7th, aged 53. He was born on July 18th, 1864, educated at the London Hospital, and took the M.R.C.S. and L.R.C.P. Lond. in 1886, also the D.P.H. Lond. in 1901. After serving as house-surgeon of the London Hospital, he entered the R.A.M.C. as surgeon on February 8th, 1887, became major on February 8th, 1899, lieutenant-colonel on August 30th, 1911, and colonel on March 1st, 1915, and was placed on half-pay on account of ill health on September 20th, 1916. He served on the North-West Frontier of India in the Zhoob Valley expedition of 1890, also in the Tirah campaign of 1897-98, when he was mentioned in dispatches (*London Gazette*, April 5th, 1898), and received the Frontier medal with two clasps. For some years he held the post of medical officer of the Duke of York's Royal Military School at Chelsea.

Universities and Colleges

UNIVERSITY OF OXFORD.

At a convocation held on March 12th the degree of D.Sc. *honoris causâ* was conferred upon William Carmichael McIntosh, M.D. Edin., F.R.S., late professor of natural history in the University of St. Andrews.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on March 9th the following medical degrees were conferred, admission being by proxy:

M.D.—A. V. Poyser, V. F. Soothill.

THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS.

THE following list shows the present composition of the Council; the dates after the names are those of election:

President.—Sir George H. Makins, G.C.M.G., C.B., (1) 1903, (2) 1911, P. 1917.

Vice-Presidents.—Mr. Charters J. Symonds, C.B., (1) 1907, (2) 1915; Mr. W. F. Haslam, (1) 1908, (2) 1916.

Other Members of Council.—Sir W. Watson Cheyne, Bt., K.C.M.G., C.B., M.P., F.R.S., (1) 1897 (substitute), (2) 1901, (3) 1903; Sir Anthony A. Bowley, K.C.M.G., K.C.V.O., (1) 1904, (2) 1912; Mr. W. Harrison Cripps, (1) 1905 (substitute), (2) 1909, (3) 1917 (substitute until 1920); Mr. Bilton Pollard, (1) 1914; Sir C. A. Ballance, K.C.M.G., C.B., M.V.O., (1) 1910 (substitute), (2) 1914; Sir John Bland-Sutton, (1) 1910; Mr. D'Arcy Power, (1) 1912; Sir H. G. A. Moynihan, (1) 1912 (substitute till 1919); Mr. J. E. Lane, (1) 1913; Mr. L. A. Dunn, (1) 1913 (substitute till 1919); Mr. H. J. Waring, (1) 1913; Mr. W. Thorburn, C.B., (1) 1914; Mr. W. McAdam Eccles, (1) 1914; Mr. C. Ryall, (1) 1914 (substitute), (2) 1915; Mr. Walter G. Spencer, (1) 1915 (substitute till 1918); Mr. F. F. Burghard, C.B., (1) 1915 (substitute till 1921); Sir H. F. Waterhouse, (1) 1915; Mr. T. H. Openshaw, C.B., (1) 1916; Mr. Raymond Johnson, (1) 1916; Mr. Vincent W. Low, C.B., (1) 1916 (substitute), (2) 1917; Mr. James Sherren, (1) 1917.

* Sir Watson Cheyne, being President at the time of the Council elections in 1917, did not retire, although re-elected in 1909.

With the exception of three (one each from Birmingham, Leeds, and Manchester), all the members of the Council enumerated above are London surgeons.

There are four vacancies. It is understood that Mr. Pollard, Sir J. Bland-Sutton, and Mr. W. G. Spencer are seeking re-election.

Medical News.

THE Walsingham (Norfolk) Guardians, on March 6th, agreed to an increase of 10 per cent. in the salaries of the five district medical officers.

DR. GEORGE SIGERSON, professor of biology, University College, Dublin, has been elected an honorary Fellow of the Royal College of Physicians of Ireland.

UNIVERSITY COLLEGE HOSPITAL has received a donation of £2,000 from Mr. Middleton Jameson, in memory of his brother, Sir Starr Jameson, who received his medical education at the hospital.

At a meeting of the London Association of Medical Women on March 5th Lady Barrett opened a discussion on a scheme for improving the midwifery service throughout the country, with special reference to rural areas and illegitimate cases.

THE Henry Saxon Snell prize of the Royal Sanitary Institute is offered this year for an essay on improvements in apparatus and appliances for dealing with house refuse. Essays must be delivered on or before October 1st, 1918. Full particulars can be obtained from the Secretary, 90, Buckingham Palace Road, S.W.1.

THE King of Spain has founded a school in Madrid for the gratuitous maintenance and education of orphans of medical men, or orphans who are direct descendants of doctors. Provision is made for the reception of fifty boys and as many girls, and the number will be increased as further resources become available.

At a special general meeting of the Liverpool Medical Institution on March 7th the following addition to laws of the institution was passed by a large majority: No person who has at any time been a German or Austrian subject shall in future be eligible for election as an Honorary Member, Member, or Associate Member of the institution.

THE annual general meeting of the Royal Dental Hospital (Leicester Square) on Tuesday next at 3 p.m., at which the sixtieth year of its existence is to be celebrated, will be attended by the Bishop of London and Sir Francis Lloyd, the general officer commanding the London District. Many thousands of men from that district have been treated in the hospital in a special department, so that there has been no detriment to civilian patients.

A MEETING of the Tuberculosis Society will be held at the Royal Society of Medicine on Monday, March 25th, at 8 p.m., when a discussion on the need of hospitals for advanced cases of tuberculosis will be opened by Dr. Halliday Sutherland and Mr. Herbert Woolcoombe (London Charity Organization Society). The meeting is open to visitors.

THE war record of St. Thomas's Hospital shows that to March 6th 1,032 past and present students were serving, and that 48 had been killed in action or had died on service. The honours gained were one V.C., one G.C.M.G., one K.C.B., three K.C.M.G.'s, four C.B.'s, fifteen C.M.G.'s, two M.V.O.'s, twenty-three D.S.O.'s, thirty-nine M.C.'s and three bars to M.C., two C.I.E.'s, one G.B.E., four O.B.E.'s, one M.B.E., one C.B.E. For valuable service 132 men were mentioned in dispatches (188 times). The foreign honours include eight French, three Belgian, six Egyptian, seven Serbian.

THE Metropolitan Asylums Board has drawn the attention of the Ministry of National Service to the difficulty it has experienced in obtaining sufficient women for the nursing and domestic service of the many hospitals under the control of the Board. The shortage has been felt most severely in the infectious hospitals and sanatoriums, and the children's institutions have also suffered. The dearth is attributed to the greater attractions of other services at the present time, but we are under the impression that the terms offered by the Metropolitan Asylums Board have not at any time been very attractive.

A SPECIAL Canadian exhibition, arranged in a separate room, has been added to the war collection of pathological specimens at the Royal College of Surgeons, and will be opened shortly. The Canadian Government some time ago placed a special fund at the disposal of the D.M.S., and a staff of experts, with Major F. Lessore, a distinguished sculptor, at their head, have been engaged at No. 16 Canadian General Hospital, Orpington, better known as the Ontario Military Hospital, making wax and plaster models, coloured drawings, and coloured photographs of wounds and war deformities.

THE Minister of Munitions has issued an order that the war material to which Regulation 30A of the Defence of the Realm Regulations applies shall include all bismuth-bearing ores, bismuth metal, and alloys and salts of bismuth. No return, however, is required from any person whose total stock in hand, and not intended to be used for the manufacture or alloy of steel or other metal, does not exceed in the case of bismuth salts 56 lb., and in the case of bismuth metal or alloy thereof 14 lb. Any person is permitted to purchase bismuth metal and bismuth salts not exceeding in one calendar month a total of 10 lb. of metal or 56 lb. of salts, provided these are purchased and in fact used for pharmaceutical or medical purposes only.

THE annual report for 1917 of the Nurses' Co-operation shows that there were 463 fully trained nurses on the general staff, and 32 asylum trained nurses. The total number of cases nursed in 1917 was 5,720. Since the outbreak of war many of the members have been engaged in nursing soldiers, and during last year one of the military hospitals in England was entirely staffed by them. The Royal Red Cross decoration has been conferred on eleven nurses. The Co-operation (22, Langham Street, Portland Place, W.1) was established twenty-seven years ago to secure to nurses full remuneration from their work, subject to a deduction of 7½ per cent. for office expenses and for the maintenance of a policy by which they are insured under the Workmen's Compensation Act.

THE annual meeting of the Mental After-Care Association, which assists in the rehabilitation into ordinary life and employment of poor persons discharged from institutions for the insane, convalescent or recovered, was held on March 6th at the Mansion House, under the presidency of the Lord Mayor. There was a large and influential assembly. The adoption of the report was moved by Sir Francis Lloyd in an eloquent speech, in which he specially referred to the services rendered by the association to shell-shocked soldiers as well as to mental convalescents generally. Sir Frederick Taylor, Bt., M.D., Sir Charles Wakefield, Bt., Sir G. Wyatt Truscott, Sir George Savage, M.D., Lieut.-Colonel Ernest White, M.D., and Mrs. Henry Rayner and G. E. Shuttleworth also spoke. The report states that no fewer than 614 applications had been dealt with during the year 1917, and it is satisfactory to note that the balance sheet shows receipts £70 in excess of those for 1916 and all liabilities met. Still, with a dozen homes to maintain and new opportunities of usefulness springing up, especially in connexion with soldiers' and sailors' wives and relations, more funds are still needed and will be gratefully received by the secretary, Miss E. D. Vickers, Church House, Westminster.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are:

1. EDITOR of the *BRITISH MEDICAL JOURNAL*, *Atiology*, *Westrand*, London; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, *Westrand*, London; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Medisecra*, *Westrand*, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

Queries, answers, and communications relating to subjects to which special departments of the *BRITISH MEDICAL JOURNAL* are devoted will be found under their respective headings.

QUERIES AND ANSWERS.

A QUESTION AS TO MARGARINE.

DR. G. N. MEACHEN (Braintree) asks whether paraffin oil is employed in any way in the manufacture of margarine. On two occasions recently he has observed the odour of acetylene in the breath of two members of his family, once after partaking of some margarine purchased at a local store, which left a strong after-taste of paraffin in the mouth, and again after eating some ginger cakes bought at a town some twenty miles distant, which had a very disagreeable greasy taste.

A CASE FOR DIAGNOSIS.

SALOP asks for advice with respect to the following case: Lady, married, 35, two children (youngest 2 years). Last eight months constant pain in left chest, arm, left side of head and neck, with pain on swallowing. Frequently pain is paroxysmal over precordia. Pulse 80, regular, but of low tension. Respirations shallow and hurried when in pain. Physical examination reveals slight softening of apical second sound, but no dilatation. Hyperaesthesia over whole of affected area. Radiograph of chest does not show any abnormality. Iontophoresis, radiant heat, massage, liniments, and blistering have no effect. Only morphine hypodermically does any good, and this often fails, except in large doses, which are undesirable.

VIRILITY OF LOUIS XVI.

INQUIRER.—The "mechanical impediment" referred to by Mr. Hilaire Belloc as having "gravely distorted the first years of his (Louis XVI's) marriage" was phimosis. For this he was operated on in June, 1777, by Lassone, first physician to Marie Antoinette, with complete success. For some unknown reason the operator's report on the case has never been allowed to see the light. Sainte-Beuve said: "Louis XVI was not impotent any more than a man is dumb because he stutters; husband or King, he was the same, ashamed and embarrassed." The King was of cold temperament, unlike his father and some other Bourbons. The Queen and her mother, the Empress Maria Theresa, were for dynastic reasons anxious for offspring, and the royal couple had been married for seven years without this result. The matter is dealt with in detail by Dr. Cabanès in *The Secret Cabinet of History*, translated by W. C. Costello (Paris: Charles Carrington, MDCCCXCVII, p. 65, et seq.).

INCOME TAX.

M. S. F. asks whether he is bound to furnish the assessor of taxes with his book containing the particulars of his treatment, etc., but no specification of fees.

* * The assessor as such has no authority to require production of any books, but the Commissioners when hearing appeals have the right of calling for such evidence as they may think fit, the penalty for non-production being apparently confirmation of the assessment. The book in question might have some evidential value as a record of work done for which charges could be made; but, as no record of charges appears therein, we should doubt whether the Commissioners would call for it.

LETTERS, NOTES, ETC.

A REQUEST TO RURAL PANEL PRACTITIONERS.

DR. J. P. WILLIAMS-FREEMAN (Weyhill, Andover, Hants) asks any country practitioners who have kept records of the distance travelled and of the number of visits of all description paid during one or more years to furnish him with the average number of miles travelled per visit, and also the name of the sanitary area in which they reside, so that the density of the population from the *Medical Directory* may be ascertained. Dr. Baigent and others have suggested that

travelling allowances should vary with the latter factor. Dr. Williams-Freeman thinks that a rough correspondence must exist between the two, and suggests that it is for rural practitioners to work out a scheme that will redress their grievances. He would welcome any other statistics concerning country practice.

COMPULSORY RATIANS: REGULATIONS FOR INVALIDS.

(Correction.)

THE Ministry of Food desires us to say with reference to the notice published last week (p. 290) concerning compulsory rations and regulations for invalids, that while most of these regulations were suggested in a memorandum presented to the Ministry of Food by the Committee of Reference of the Royal Colleges of Physicians and of Surgeons and the Central Medical War Committee, the complaints "coeliac disease," and "pancreatic insufficiency" were not included in that memorandum. They were added at the instance of the Scientific Adviser after consultation with one of the medical referees to the Ministry of Food.

DIETARIES IN TUBERCULOSIS SANATORIUMS.

THE medical superintendent of a sanatorium sends us a note suggesting that the dietary temporarily approved by the Local Government Board for tuberculous persons in sanatoriums (p. 290) would be liberal in normal times, and is, in view of the conditions now prevailing, unnecessarily generous. He believes that it is in excess of what many sanatoriums have been allowing, without any hardship, during the past twelve months. He asks whether, as a matter of public policy, it would be desirable to give to advanced cases of consumption, in whom there is no question of restoration to useful work, a more liberal ration than to munition workers doing hard physical work. He asks what scale of rations it is proposed to allow to patients when they leave an institution and return home. In the institution with which he is connected the patients' rations are being reduced by the local Food Committee, but the effect of the proposed new scale would be considerably to increase them.

DIET IN THE TROPICS.

WE learn from *Nature* that an interesting report on the diet, nutrition, and excretion of Asiatic races in Singapore has been prepared by Dr. J. Argyll Campbell, at one time assistant to Sir E. A. Schäfer in Edinburgh and now Professor of Physiology in the Singapore Medical School. He found that the energy value of the diet of a Chinese, a Tamil, or a Malay medical student was only about 1,600 calories. That of a Brahmin was higher, but, the diet being vegetable, was to a large extent unutilized. For comparison he quotes the diet of an Anglo-Indian, which, according to McCay, was 2,800 calories, and a Filipino, which was 2,630 calories. He suggested that the low energy value of the Singapore diet might be due to the moist atmosphere, which retards loss of heat by evaporation, so that less food is required. Another contributory cause suggested is the small amount of muscular exercise taken by the Singapore student. Although Europeans in the tropics are not inclined to take much exercise, they cannot keep healthy on a European diet unless they do so. Professor Campbell found the Singapore students to do as much brain work as his previous European students did. His essay was published in the *Journal of the Straits Branch of the Royal Asiatic Society* (1917).

POTATO BREAD IN THE EIGHTEENTH CENTURY.

IN these days when so much ingenuity is being displayed in the application of unusual materials to the making of bread it is interesting to find that Voltaire used potato for the purpose. Antoine Augustin Parmentier, who did so much to promote the cultivation of that vegetable in France, sent him a paper on the subject. In a letter, dated "Ferney, April 1st, 1775," the philosopher, in apologizing for delay in acknowledging receipt of the "excellent memoir," says he has had a very tasty bread made of potato mixed with one-half of wheat flour. Voltaire himself no longer ate potatoes, but he had given the bread to his labourers in times of scarcity with the greatest success. The letter, which is addressed to "Monsieur Parmentier, Apothicaire major, of the Hôtel-Royal des Invalides, Paris," has recently been unearthed and is published in the *Chronique Médicale* of February 1st, 1918.

COMMON COLDS AND THE CONTAGION FOR LOBAR PNEUMONIA.

THE frequent association of common colds with pneumococci and the occasional occurrence of a bad cold before the onset of pneumonia are well known; but the determination of the strains of the pneumococci associated with nasal catarrh as tabulated by American bacteriologists (vide *BRITISH MEDICAL JOURNAL*, 1918, i, 57) has apparently not hitherto been investigated. By injecting the nasal secretion or sputum into mice Engenia Valentine (*Journ. Exper. Med.*, Baltimore, 1918, xxvii, 27-29) recovered pneumococci in 37 out of 65 cases of common colds, and by direct plating on blood agar pneumococci were found in 6 additional cases. By agglutination reactions in these 43 cases the type of the pneumococci was determined as follows: Group I, 2 cases; Group II, 2 cases; Group III, 4 cases; Group IV, 35 cases. The cases with Group I pneumococcus had not been in contact with any pneumonic case, were seriously ill, and the pneumococcus constituted at least 75 per cent. of the organisms in the sputum. These data strongly suggest that it was the etiological agent in these

colds. If this deduction is correct, such cases of common cold must be added to the known sources of contagion for lobar pneumonia—namely, a case of pneumonia, a convalescent patient, and a contact carrier.

MEDICAL PRACTICE IN MALAYA.

A CORRESPONDENT who has been both a Government medical officer and a private medical practitioner in the Straits Settlements and Federated Malay States writes to warn any practitioner who may be thinking of selecting that field for his future career, of the inadequate remuneration which the Government service offers. Under the new scheme which came into force some three years ago, the Government service pays an initial salary of £350 + £100 duty allowance. The increment is £50 in the first year, and afterwards only £20 a year, so that it takes a man fourteen years to reach the £600 limit. Free quarters are not now allowed. Our correspondent considers that when the cost of living and the unhealthy character of the climate are taken into consideration, a man is better off at home, even in war times, with £300 a year than in Malaya with £600 a year, even making allowance for the pension, meagre as it is, should he live to receive it.

THE CASE OF DR. J. HENDERSON BELL.

THE Rev. Dr. Pentreath (Adderley Rectory, Market Drayton) regrets the delay in sending copies of the *précis* of the above case. They will be dispatched as soon as they are received from the printer. Much interest is being taken in this case judging from the many applications he has received for copies of the *précis*. Dr. Pentreath will be happy to send a copy to any one who will send him a stamped addressed envelope to the above address.

TREATMENT OF TUBERCULOUS MESENTERIC GLANDS.

IN connexion with the report of a discussion on this subject published in the *JOURNAL* of February 23rd, p. 232, Dr. Lawrie (Ramsbottom, Lancashire) writes to recall the formula he gave in the *JOURNAL* of November 29th, 1913, p. 1433. It was a mixture containing precipitated calcium carbonate, gr. 4, creosole, minim 1, mucilage of tragacanth, as much as is necessary, with potassium iodide $\frac{1}{2}$ gr., and saccharine $\frac{1}{2}$ gr. in peppermint water to 2 drachms every four hours for a child of 5 years. Last November he saw a girl of 8 years who had been ill since the previous April, with loss of flesh and appetite, anaemia, copious night sweats, colic, and tumid abdomen. She began to take the mixture on November 12th, showed some improvement at the end of the month, and at the end of February was apparently quite well, and had put on flesh. The mixture was discontinued after January 12th. Dr. Lawrie expresses the hope that some one with greater opportunities may give this treatment, which he considers almost a specific, a trial.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending March 11th:

	£	s.	d.		£	s.	d.
Dr. Sidney P. Phillips	5	5	0	Dr. J. B. Naden	3	0	0
Mr. George W. Thompson	10	10	0	Mr. A. Wertheimer (per			
Mr. Leonard Stearn	1	1	0	Dr. Sidney Phillips)	10	0	0
Mrs. Mary Striager,				*Dr. Alfred Cox	1	1	0
M.P.S.	1	1	0	Dr. A. Hugh Thompson	2	2	0
Dr. Reginald J. Haubury	2	2	0				

* Monthly subscription during the war.

Subscriptions to the Fund should be sent to the Treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE DEFINITION OF PROSTITUTION.

A NEW definition in criminal law having some medico legal interest was given by the Court of Criminal Appeal on March 11th. The point was the definition of the term "prostitute." In the case in point it was shown that the girl (aged less than 15) was *virgo intacta*. The Court of Appeal decided that the term common prostitute used in the statutes was not limited so as to mean one who offered her body for hire for the purpose of natural sexual connexion only; prostitution was proved when it was shown that the woman offered her body for purposes of general lewdness.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 6 0
Each additional line	0 0 9
Whole single column	4 0 0
Whole page	12 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *post restante* letters addressed either in initials or numbers.

An Address

ON

PRIMARY SUTURE OF WOUNDS AT THE FRONT IN FRANCE.*

BY

SURGEON-GENERAL SIR ANTHONY BOWLBY, K.C.M.G.,
K.C.V.O., A.M.S.,
CONSULTING SURGEON, BRITISH ARMIES IN FRANCE.

1914.

Soon after the commencement of this war surgeons were brought in contact with a terribly septic condition of the wounds, and extensive prevalence of spreading gangrene. It was perhaps natural that those who were not at the seat of war should attribute these occurrences to the imperfections of those who were, and it was also natural that everybody should try and improve matters by advocating various methods of treatment which had either in their experience proved of value in civilian surgery or were theoretically likely to be of use.

The remedies advocated fell into two classes: First, strong antiseptics, which it was believed were capable of arresting sepsis if applied early enough and strong enough. Second, the acceptance of the fact that antiseptics were of no use, and that no treatment could possibly so antagonize the innumerable bacteria as to permit of the early closure of the contaminated wounds, which therefore must be left as widely open as possible, and encouraged to discharge.

The first disappointed us, and may be described as a counsel of false hopes; the second remained as a counsel of despair as far as primary union was concerned, and it was left to the surgeons with the troops to try and ascertain by the long but sure tests of the experience of many wounds whether either class of counsellors were right. It was only too evident before long that both of the methods advocated left much to be desired, and it was soon appreciated that the surgeons of all the combatant armies, of whatever nationality, were face to face with wound conditions which were quite new to them and which presented problems only to be solved by careful and laborious investigation. No one at that time was in a position to dictate to others what was the answer to the questions, What is the best method of combating the all-prevailing sepsis? and How can wounds be got to heal quickly and safely?

1915.

But as time went on the darkness of ignorance was slowly illuminated, and things became clear which had long been obscure. We realized that we had attributed too much power for evil to the microbe invasion; that the infection was too gross to be combated by antiseptics; and that the source of the danger was to be sought for in the damaged or dead tissues contaminated by the mud of the manured fields and in the portions of the muddy clothing and the missiles which were buried in the wounds. We learnt that a tissue deprived of its blood supply was the focus of danger, and, lastly, that our most dreaded foes, the bacteria of "gas gangrene," lived and flourished chiefly on the muscular fibres which had been crushed by the missiles. We knew now why it was that our early attempts to combat sepsis had failed, and on this foundation composed of facts we began to build an edifice which, though still incomplete, is infinitely more secure than those we had tried to erect upon the shifting sands of ignorance and theory.

At first we thought it enough to open up wounds and to remove missiles, but as soon as a little more knowledge was acquired we began to excise the damaged tissues, at first very sparingly, but, as we learnt to recognize the signs that indicated the extent of muscle crushed or infected, more and more attention was paid to the complete removal of as much as seemed likely to prove a dangerous centre of infection. And to-day we know that the one and most necessary method of treatment is the careful and thorough mechanical cleansing of the wound and the complete removal of all dead or partially devitalized tissue. Without this, antiseptics are useless, and, in proportion as technique is good, and excision can be done early and can be really complete, antiseptics applied inside the

wound are merely accessory. The one condition for success is that this complete surgical cleansing must be performed before the bacteria have had time to penetrate too deeply or to spread too far, but of this there is more to be said later.

In the early days of the war no cases did worse than those in which the surgeon had completely sutured the wound, and the experience of many surgical disasters prevented any return to such treatment for a very long time. The consequence was that, after an operation of excision, the wound was habitually left open, and only after a disinfecting process, such as that provided by the ingenuity of Carrel, was any attempt made to close the wound by secondary suture.

THE BEGINNINGS OF PRIMARY SUTURE.

It is interesting to note how the systematic treatment by primary suture began with the knee-joint, and how it has grown. Early in the war, wounds of the knee-joint were very commonly followed by suppuration of the most severe and dangerous kind, and this although many of the surgeons in France knew the danger of drainage tubes in the articulation and avoided it. But it was soon realized that many perforating wounds of joints did well, even although the synovial fluid was infected, if only they were not opened up and drained, and the natural conclusion was that if the wounded joint could be closed, after the removal of missiles, and after thorough surgical cleansing, it might also do well. As soon as this practice became common, not only did many of the joints not suppurate, but the skin wounds also healed by first intention in a very large proportion of all the cases, and we found that the surgical ideal of a healed aseptic wound had been attained.

Very cautiously, the practice of primary suture was applied to other wounds, and nowhere was it of greater value than in wounds of the brain and fractures of the skull. Injuries which had been treated in the early days by drainage with bad results were now treated by surgical excision and primary suture of the scalp with infinitely better results. Wounds of the abdomen were treated on the same lines, and the abdominal wall was closed after operations on the intestines or other viscera.

1916.

In 1916, and still more in 1917, operations began to be done on many wounds of the lung, and as it was soon found that success depended on an immediate closure of the pleural cavity after the operation, this closure was fortified by a corresponding suture of the skin after all damaged muscle and splinters of ribs had been removed. Here again success followed in many cases, and primary union was thus obtained in wounds which involved injured muscles and fractured bones. The position at this stage was that the knee joint, the scalp, the abdominal wall, the thoracic wall, could all be closed by primary suture. Then why not other wounds also? And the answer was forthcoming from every side, "Other wounds of the limbs can be similarly closed, and many of them are being successfully closed by many surgeons." It was the difficulty of dealing with large masses of devitalized muscle infected by microbes that made limb wounds so much more difficult to deal with than the aponeurosis of the scalp or the fibrous capsule of the knee. To this was added the impossibility of excising large vessels and nerves exposed in a wound, and the consequent imperfection of the excision operation. In cases of extensive fracture and comminution of dirty bone the task was still more difficult when the surgeon endeavoured to make sure of reaching every portion of the damaged area. No doubt the great majority of the failures were the result of the very natural unwillingness to excise enough of the damaged muscle, but experience, surely though slowly, taught the necessary lessons, and, by the exercise of a scrupulous asepsis combined with a meticulously careful surgical technique, more and more successes were attained and wounds were closed which a few months earlier would have been considered quite beyond the possibility of suture.

PROGRESS IN 1917.

The year 1917 saw a general acceptance of the proposition that union after primary suture was, under favourable conditions, a reliable surgical fact, and the outlook of

* Delivered at a meeting of the Royal Society of Medicine on February 15th, 1918.

surgeons on the treatment of wounds was altogether different in December from what it had been in January.

At the meeting of the Surgical Conference of the Allies in Paris in May, 1917, it was agreed that operation "may be followed in some instances by primary closure of the wound, notably in the case of wounded joints," but in the following November the conclusion arrived at was: "Since our last session the disinfection of wounds has passed from the domain of the chemist to that of the surgeon. Primary suture has taken the place of secondary suture and has become the method of choice."

It is of interest to see what had happened during these six months. There was a general consensus of opinion that the time had come to try the primary suture of wounds on a larger scale, and in both the British and French armies, as well as in the Belgian, many surgeons whose hospitals were favourably situated took the matter up. A large hospital with five wards on the pavilion system was occupied in July by both British and French units, and, working in close touch with each other, the surgeons of both nations proceeded with similar investigations. The circumstances were favourable, for wounded could be brought in quickly, could be accommodated under excellent conditions, and could be retained for an indefinite time, so that it was easy to follow wounds to the end of their surgical course.

Of those patients admitted to the British unit no less than 98 per cent. were injured by shells or bombs, so that the wounds were of a very severe type and the test of the surgery was correspondingly severe. The results showed that, of 433 patients operated upon, in 67 per cent. the wounds healed by first intention, while in a great many of the remainder they healed with only a slight surface suppuration.

The results obtained by the French surgeons were equally good, and, as the wounds thus treated were of every variety, it was clear that the treatment was applicable to every class of injury. In the British unit no antiseptics were employed, in the French unit ether was used in almost all the wounds.

We had previously initiated, in June, another series of observations in a different army, and for this investigation we employed flavine. The results of this trial were recorded¹ by Captains Drummond and McNee, and they showed that of 32 wounds closed at the time of operation 30 healed *per primam*, and 10 others healed similarly which were left open for one or two days and then sutured, making a total of 40 successful closures out of 42 cases. Further experience has confirmed the conclusions originally arrived at, that while flavine is not a good application to granulating wounds, it is a very useful agent in the treatment of freshly excised wounds. In the army area where it has been chiefly employed successful primary suture has been performed in well over 70 per cent. of the cases.

In yet another area, Captain Haycraft closed 116 wounds

after treating them with a solution of soap, and his results were recorded in the BRITISH MEDICAL JOURNAL for January 19th last (page 80). Of these cases 75 healed *per primam* and 16 more after superficial suppuration. Thirty-eight of the cases were complicated by fractures of the long bones, and of these 28 healed *per primam* and 5 more after superficial suppuration.

Progressive Improvement in Results.

It will thus be seen that various surgeons, using various methods, obtained success in a very large percentage of all their operations, and similar results were being obtained in many other casualty clearing stations in different parts of the line. Meantime, the prolonged and severe fighting during the autumn months fully occupied the time of the surgeons in France. But as soon as a period of comparative quiet succeeded, we began again our observations and criticized our own methods with a view to deciding various doubtful points. To this end we arranged

that one of the casualty clearing stations should become a "hospital of observation," and in this unit we have at the present time treated 175 wounds of the extremities, including many fractures. The operative work has been done by four or five surgeons, and they have employed various antiseptics, or else in some cases, and chiefly the slighter wounds, no antiseptics at all. The work here has also been helped by very competent bacteriologists, and careful records of wound infections have been kept. A complete report will be published shortly.

It is too early to draw any final conclusions on the bacteriology of the wounds which we have been treating, but it is already evident that those which heal *per primam* may do so in the presence of various organisms. Thus, Captains Adrian Stokes and Tytler report that

fifty-eight cases were infected with anaerobes, streptococci, staphylococci, diphtheroids, or combinations of these. Forty-two of these were successes (as primary sutures), and 16 were failures. Of the 58, 32 grew streptococci—6 of these were of the haemolytic variety, and of these 5 were failures; 25 were non-haemolytic, of which 6 were failures. We are inclined to agree with Le Gros and Tissier that the streptococcus, especially the haemolytic variety, is by far the most important organism with which we have to contend.

And Captain McNee, in the report on flavine, to which I have already alluded, says:

Complete bacteriological sterility was rarely obtained, yet the patients were obviously doing well, and the wounds showed no signs of local or spreading inflammation. In several instances secondary suture (after a day or two) was adopted with complete

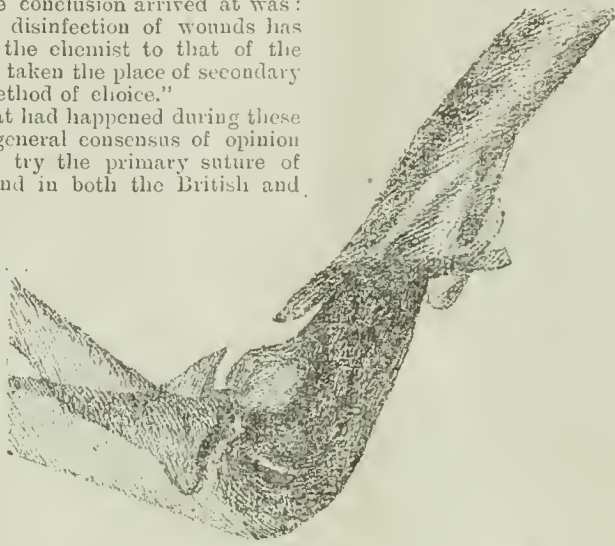


FIG. 1.—Drawing from skiagram: Case of fractured humerus treated by primary suture.



FIG. 2.—Drawing from skiagram: Severe comminuted fracture of femur into knee-joint. Closed on the fourth day.



FIG. 3.—Another view of the fracture shown in Fig. 2.

success, while numbers of organisms were still recognizable which cultures showed to be viable.

It is, indeed, evident that some bacteria may be shut up in a recent wound and do no harm, provided that all dead tissue and all foreign bodies have been removed.

Fortunately, the clinical evidence as to how a wound is doing is generally easy to obtain. A slight rise of temperature often follows suture, especially if it is done after an interval of a day or two, but, in the absence of other evidence of infection, it is not a reason for opening up the wound. On the other hand, the surgeons have found that all the cases infected by haemolytic streptococci showed such definite evidence of infection within twenty-four hours that, apart from the report of the bacteriologist, it was clear that the wounds required to be opened up, for the skin edges were red, swollen, and indurated, and a copious exudation oozed from between the stitches. It is fortunate that such reliable evidence can be reckoned on, for it might be impossible to wait for a bacteriological report.

The Factors of Success.

But if success is to be obtained it is necessary to take every precaution to ensure it, and one most important precaution is the use of x rays, for in many cases a foreign body will be left, unknown to the surgeon, unless a radiograph has been taken or a screen examination has been made before operation. It is not contended that this examination is invariably required in every slight case, or in through-and-through bullet wounds, but wounds are not always what they seem, and every precaution is worth considering.

The choice of suitable cases for suture demands a considerable experience of wounds at the front, and is not a matter to be lightly decided. We find that about one-half of the cases at present being admitted to our "observation casualty clearing station" are not suitable, and the experience of Surgeon-General Wallace gives the same proportion. Some are suffering too much from exposure, shock, or recent bleeding, to bear a prolonged operation. Some have too many wounds to allow operations to be done on all of them, while in others the destruction of skin by the missile is too extensive. Some wounds are already evidently inflamed, and others show either commencing cellulitis or gas gangrene. Not a few arrive after too long a time for closure to be safe, even if none of these conditions are present.

Danger of Delay.

This brings us to the question of "time." A little consideration will show that no time rule can be laid down to apply to all cases. Thus, an open gutter wound involving only skin and subcutaneous tissue might be safely excised and treated twenty or thirty hours after its infliction, if it showed no signs of infection, whilst a man with a large wound and a fracture of the thigh who had been soaked in mud for a similar time would not be a safe subject for closure. A good deal also depends on whether or no dangerous organisms have invaded even a superficial wound. But, allowing for these differences, it must still be said that the earlier the patients are operated upon the higher

is the average of success in every class of wound. Delay means danger.

At the Allies Surgical Conference in November, 1917, M. Duval reported that of the "lightly wounded" without fractures 80 per cent. had been successfully sutured within eight to twelve hours of injury, and M. Tuffier informs me that equally good results were obtained in the wounds not going as deep as the muscles even after twenty-four hours. Much must also depend on the weather, for a patient might lie out for the whole of a warm summer's night with less harm to his wound than if he lay immersed in winter mud and water for a couple of hours. Every effort should always be made to bring patients into the casualty clearing station as rapidly as possible.

Rest after Suture.

But although the possibilities of success are largely dependent on conditions antecedent to the arrival of the patient in hospital, it has been established that another important factor is keeping the patient at rest after suture has been performed. It seems certain that many sutured wounds are caused to ooze and to become distended if patients are sent journeys by road or rail soon after operation, and it is now a settled policy that a wound is not to be sutured

at the time of operation unless the patient can be retained for at least seven days, or more in bad cases, at the casualty clearing station where the operation is done. And, as there are many occasions on which it is not possible to retain all the wounded, it happens that cases must be sent down to the base hospitals after excision has been done, with the wound unsutured and lightly dressed with sterilized gauze. The French surgeons have soaked the gauze in ether, and we have generally used flavine, 1 in 1,000, or bipp. Personally, I prefer flavine, because it has no toxic or irritating qualities, and the gauze soaked in it (and kept moist by jaconet and non-absorbent wool) does not stick to the tissues, and leaves a good surface for suture.

"Delayed Primary Suture."

The French surgeons have called the suture which is done after the lapse of a day or two "*la suture primitive retardée*," and we have been in the habit of calling it "delayed primary suture," leaving the term "secondary suture" for the closure of granulating wounds. It thus happens that a wound is often excised by one surgeon, and when the patient arrives at a hospital where he can remain at rest, sutured by another. Our observation at the front on the patients we have retained there entirely confirms the opinion of the French surgeons that there is no disadvantage in delaying suture for forty-eight hours or more. On the contrary, most surgeons with recent experience of excision and primary suture consider that there are many wounds which do much

better if they are not closed at once. For, where there is extensive laceration or a bad fracture the oozing cannot always be stopped while the patient is on the operating table, and therefore it is not wise to close such a wound then and there. If twenty-four or forty-eight hours are allowed to elapse all oozing has ceased,



FIG. 4.—Drawing from skiagraph: Fracture of femur. Closed on third day.



FIG. 5.—Drawing from skiagraph: Fracture of humerus. Primary suture.



FIG. 6.—Drawing from skiagraph: Fracture of tarsus and metatarsus. Suture on fifth day.

and suture is much more often successful than it otherwise would have been. Here also experience is required to know which wounds should be treated in one way and which in another, and much of the success obtained will depend on the decision.

It is also wise not to suture any wound at the time of excision if there is any material doubt as to whether suture should be done. It is much better to leave such a wound open till enough time has elapsed to settle the question. We generally give gas and oxygen for the "delayed suture," but various methods of local or general anaesthesia are employed. If drainage is required it should be ensured by the insertion of a doubled piece of sterilized silver wire, and not by either drainage tubes or gauze; but the sooner the wound can be completely closed the less will be the chance of infection and suppuration. If a drainage tube is used and is left in long enough suppuration is ensured.

PRINCIPLES TO BE OBSERVED IN PRIMARY SUTURE.

But, while success depends on many conditions which are beyond the control of the surgeon, it depends very largely on the surgeon himself. Let it be clearly realized that primary suture of wounds is more likely to end in disaster than in benefit unless the operation is most carefully performed, and this implies, in the first place, the most minute aseptic precautions, such as are commonly practised by British surgeons in their most serious operations in civil work. No more skin should be excised than is absolutely necessary; even if badly damaged it can often be saved. In the next place, the operation must be done most deliberately and thoroughly, so that no part of the wounded area escapes treatment. This all means a good deal more time than is required for the opening up and cleansing of the average infected wound which is not suitable for suture, but it is time well spent, especially if the case is one of fracture.

On the other hand, operation for the excision and cleansing of small superficial wounds can be done quite quickly, and no class benefits more than these by this method of treatment.

It is in the class of "slightly wounded," with injuries of the "soft parts," or "flesh wounds," that early and careful operation yields the highest proportion of success. Hitherto, when wounded are numerous, these patients have habitually been carefully dressed but not submitted to operation. Often many weeks or months have elapsed before their wounds have finally closed, and for all this time they have been inmates of hospitals and frequently confined to bed. Some of them have had serious complications as well. Successful suture makes a complete cure of such patients in a time measured by days or weeks instead of by months.

The benefit to the more seriously wounded is still more obvious. Not only are compound fractures converted into simple ones, but the period of confinement to bed and to hospital is greatly shortened. The absence of sepsis is well seen in the features of the patients, whose good colour tells its own tale. There is none of the general loss of flesh, none of the shrunken and stiff, wooden-like limbs which we see after prolonged suppuration, none of the stiffness of all the joints of the affected limb which is so long in recovering.

I am indebted to Surgeon-General Cuthbert Wallace for the following figures of all primary sutures performed between May and December in the army to which he acts as consultant. They include the figures I have quoted by Drummond and Haycraft.

Primary Sutures, May-December, 1917.

	Total.	Healed by First Intention.	Healed after Slight Suppuration.	Suppurated.	Not known.
Superficial wounds ...	119	74	9	—	36
Deep wounds ...	260	184	38	30	8
Fractures ...	131	93	17	21	—
Amputations ...	37	24	5	8	—
Joints ...	79	69	—	10	—
Total ...	626	444 (75%)	69	69	44

One Hundred Consecutive Cases of Compound Fracture Treated by Primary Suture.

	Total.	Healed by First Intention.	Healed after Slight Suppuration.	Suppurated.
Femur ...	18	11	2	5
Tibia and fibula ...	5	4	—	1
Tibia ...	10	9	—	1
Fibula ...	2	2	—	—
Humerus ...	34	26	6	2
Radius and ulna ...	3	3	—	—
Radius ...	15	12	3	—
Ulna ...	15	8	4	1
Total ...	100	75 (75%)	15	10

It will be seen that out of a total of 626 cases, 68 per cent. were successfully sutured and healed *per primam*.

At the "observation hospital" 123 wounds have been sutured, with success in 83 per cent.

Thus, in these three separate areas there is a total of 1,202 cases under various surgeons, with success in about 70 per cent. Moreover, in many of the remaining 30 per cent. there was a very early closure of the wound in spite of superficial suppuration.

The success obtained in cases of fracture is also very striking, for the table sent by Surgeon-General Wallace shows 75 per cent. of successes. The results of the observation hospital support this.

Statistics of "Observation Hospital."

	Success.	Failure.
Humerus ...	5	—
Forearm ...	1	—
Metacarpus ...	1	—
Femur ...	3	5
Tibia and fibula ...	2	—
Tibia ...	4	1
Fibula ...	3	—
Tarsus ...	4	1
Metatarsus ...	2	—
Total ...	25	7

That is, 72 per cent. of successful suture.

Recoveries after Suture.

The amputation cases at the observation hospital have been few, but they also have been very satisfactory. Of 11 cases all the patients have recovered. Seven were amputations through the thigh, 2 through the leg, and 2 were Syme's. Ten out of the 11 healed soundly either after immediate suture or after closure of the flaps on the third or fourth day. One failed to unite, and suppurated.

Another very satisfactory result is that the whole of the patients have, so far, recovered whose wounds were sutured at the observation hospital. There has as yet been no death in the 175 patients operated upon for suture, whether the latter was successful or not. They are not all sufficiently recovered to be free from danger at the present moment; some have been too recently operated upon, therefore, for their cases to be included in the figures I have quoted. But, apart altogether from the question of primary union, it is a very important fact that no one has yet died. Yet many of these men were very badly injured. More than 40 of the 175 had fractured bones; 2 of them had torn femoral arteries (but have kept their limbs after ligation of the vessel); 2 had torn posterior tibial arteries; 8 had wounds opening the knee-joint, in one of which the patella had to be excised; several had fractures opening the elbow-joint; more than 20 had multiple injuries; 2 of them required transfusion of blood. I do not believe that all these men would have recovered if their wounds had not been closed.

Ample Man Power Essential.

I have pointed out the chief essentials for the success of primary suture, but the application of this treatment must remain largely a question of man power from first to last.

First, it is only by having enough stretcher-bearers that we can get in the wounded who cannot walk, and, one must add, enough strong stretcher-bearers. If men are not brought in "soon" their wounds cannot be sutured, so it is really a race against time and against the microbic infection, which has got the start of both stretcher-bearers and surgeons. Difficulties exist which, though they might not be thought of by the inexperienced, explain why men may arrive too late without anyone being to blame. Both many and strong stretcher-bearers are required, and it is difficult to provide too many. It is not clear that delay in reaching a casualty clearing station may be unavoidable.

Need for More Surgeons.

In the second place, primary suture of wounds evidently requires surgeons in proportion to the numbers of the wounded. We have already been able to operate on almost all the most serious cases at the casualty clearing stations in recent battles, and one wounded man out of about every three wounded was passed through the theatre and operated upon under an anaesthetic. The remaining two-thirds were sent to the base, and many of them were in the class of the "lightly wounded."

In future, the wounds which have been excised but not sutured at the front, as well as probably some not yet excised, will be dealt with by hospitals placed further back than the casualty clearing stations, and thus, if there are enough surgeons, and if wounded are not too numerous, we hope to be able to ensure that a majority of all suturable wounds shall heal *per primam*. If our expectations are realized it is evident that patients will not be so long in hospital, and that there will be less strain on staffs at the bases both in France and in England. Much depends on the incidence of the wounded and on the supply of surgeons. It is at least evident that we shall need more operators than we have had previously.

I should like here to put in a special plea for plenty of medical officers in France. I hear from various surgeons at other seats of war, and amongst them men who have served in France, that the prevalence of gas gangrene is infinitely greater in France than elsewhere. It is the danger of this which makes early operation so necessary, and it is the number of these essential operations which calls for so many surgeons.

The accompanying figures, drawn from radiograms, illustrate some cases of fracture which were treated by "primary suture."

CONCLUSIONS.

Sufficient care has now been exercised, and sufficient experience gained, to allow the primary suture of wounds to be placed on a definite footing, and to permit the following conclusions to be drawn:

1. The most important treatment is the careful cleansing of every part of the wound, and the subsequent complete excision of all dead, badly damaged, or grossly infected tissue. It is never necessary or right to remove more than a very thin edge of skin.

2. Complete asepsis is of the highest importance, and experience at the front is essential in order to select suitable cases.

3. The wound may be sutured at once, or may be left unclosed for one, two, three, or four days. It can then be sutured, with results which are identical with those obtained by immediate suture.

4. If after operation the wound is not sutured it should be dressed in such a way that it need not be disturbed till the time for closure has come.

5. If the wound is sutured at the time of operation, the patient should be retained in hospital for not less than a week. If he cannot be retained then the wound must not be sutured.

6. It is seldom that, even after the most careful operation, the wound is sterile, and bacteria can generally be found in the secretion on the following day. The presence of a few bacteria, whether anaerobes or the ordinary pyogenic forms, does not prevent healing of the wound. Streptococci which can haemolyze blood constitute the most dangerous form of infection, and if they are detected the sutures should be, at once removed.

7. No definite rule can be laid down as to the lapse of time after which suture should not be done, but the sooner the wound can be operated upon the greater is the probability of success. It can be sutured later.

8. If the wound edges are found on examination to be already indurated and inflamed, or if definite gas gangrene has already commenced, the wound must not be closed. Whenever there is any doubt at all it is best to leave the wound open, knowing that it can be equally well sutured in a day or two if this appears advisable.

REFERENCE.

¹ *Lancet*, October 27th, 1917.

GUNSHOT WOUNDS OF THE ABDOMEN AT A CASUALTY CLEARING STATION.

150 CONSECUTIVE OPERATIONS FOR PENETRATING
ABDOMINAL WOUNDS.

BY

CAPTAIN R. CHARLES, R.A.M.C.(T.C.).

SINCE November, 1914, I have had the opportunity of observing and treating a large number of gunshot wounds of the abdomen. I cannot lay claim to breaking fresh ground, yet in my series many of the cases present points of great interest, and illustrate the difficulties and the wide field of this type of surgery. It is not proposed to describe minutely or discuss either the various kinds of injuries produced by various missiles, or the signs and symptoms associated with the lesions of the different abdominal viscera.

DIAGNOSIS.

Difference of opinion sometimes arises as to whether a gunshot wound of the abdomen involves the peritoneal cavity or not; indeed it is sometimes impossible to tell without a laparotomy, for the signs and symptoms usually associated with these cases are not constant. Experience will usually settle the point in each particular case.

The following points taken collectively are important:

1. *Position of the Injury.*—It is first necessary to determine if possible the direction of the track. The entrance and exit wounds give an idea of the path of the missile and the structures likely to be involved. The absence of an exit wound does not necessarily mean that the foreign body is lodged in the abdomen. The possibility of its being buried in the parietes must be excluded.

2. *The facial expression* is usually one of anxiety.

3. *Pain* is not of great value, and may or may not be present. At first it is often diffuse, and afterwards becomes more localized, while the various reflected pains are occasionally complained of—a wound in the hepatic region accompanied with pain in the right shoulder; a wound in the lower costal region with pain and rigidity in the epigastrium, and that often without any involvement of the abdominal cavity.

4. *Tenderness* is a very constant and reliable sign. I do not refer to the zone of hyperaesthesia of the skin in a certain segmented area corresponding to the deep-seated injury, but to the tenderness elicited on moderate pressure over the injured viscous. It is necessary to exclude the muscular tenderness along the path of the wound and the contused area in its immediate vicinity. This tenderness will indicate the seat of the injured viscous, thus giving some idea as to what incision will best meet the requirements of the case.

5. *Rigidity*, or the absence of it, is often most misleading. I have seen a flaccid abdominal wall in a case of multiple perforations of the bowel. On the other hand, board-like rigidity is frequently met with in a purely parietal wound.

6. *The pulse* varies in rate; it increases directly with the gravity of the intraperitoneal lesion, and gives an important basis for prognosis.

7. *Vomiting* is usually present, but not necessarily. Thirst is a most distressing symptom.

X-ray localization affords the most useful guide to the diagnosis of penetrating wounds of the abdomen. Without it there must often be a large element of doubt. I always advise the radiologist to curtail his examination as far as possible, even to the neglect of foreign bodies situated

elsewhere in multiple wounding; and every effort should be made to keep the patient warm throughout the examination.

TREATMENT.

The cases on their arrival at a casualty clearing station may be classified for the purpose of treatment, according to their general condition and irrespective of the class of wound, as follows:

1. In a dying condition, when nothing can be done except to relieve pain and thirst.
2. Showing varied degrees of collapse, but capable of resuscitation.
3. In good condition and operable.

Pre-operative Treatment.

This principally consists in treatment for shock. It is usually necessary to begin by raising the body heat, and for this purpose the radiant electric bath is the best. Saline, two pints, with brandy, is given subcutaneously prior to and not during operation, as formerly practised. For extreme cases intravenous saline with 3 per cent. sodium bicarbonate has lately been recommended, and is apparently more effective. If pain is present to any extent morphine is given; rest and absolute quietness are essential.

When to Operate.

In my opinion operation should not be undertaken before the patient has recovered from shock. Two arguments may be put forward in favour of immediate operation: (a) Internal haemorrhage; (b) danger of delay allowing peritonitis to supervene. Against these, however, it may be stated that almost every case of severe intraperitoneal haemorrhage, on its arrival at a casualty clearing station, is either in a dying condition or suffering from an extreme degree of collapse and has for the time being ceased to bleed. Except when there is only one perforation no serious infection of the peritoneum from the small intestines takes place until the lapse of about six hours from the time of being wounded. It is therefore in the best interests of the patient to delay operation pending his recovery from the initial shock before subjecting him to the further shock of operation. Indeed, in cases suffering from shock and haemorrhage I have often waited six hours or more, taking the risk of further haemorrhage, with results that have justified my delay.

Provided the patient is warm, operation is done at once. Saline is given on the table during the operation. The anaesthetic now used is warm ether and oxygen given by Shipway's apparatus.

OPERATION.

I attach great importance to the element of shock, and in general manipulation endeavour in every way to avoid any aggravation of it. The first essential is speed: the prognosis of the case varies inversely as the length of the operation. If the operation is not completed inside one hour the prognosis is not good. To do this, very free access to the peritoneal cavity is necessary. Another difficult problem in war surgery is the maintenance of a constant warm temperature in the theatre. In winter the table should be kept warm, and draughts from doors opening direct to the open air must be avoided.

Incision.

The abdomen is opened by a paramedian or, in some cases, a transverse incision. The skin is covered with tetra towels wrung out of hot saline, and over these a sheet of oiled silk is placed. On opening the peritoneum, owing to the sudden relief of tension, in many cases bleeding commences again. It is therefore necessary to mop up any blood quickly, and to attend to the bleeding point first. A large abdominal swab is next placed into the pouch of Douglas, and a systematic search made for injuries; by this means alone maximum speed and efficiency are secured. The small intestine is examined first, and any perforation covered with gauze, clamped, and left outside the abdomen; uninjured gut is returned immediately, as far as possible. Wounds of the colon are then looked for and dealt with, or packed off and dealt with later through a separate incision if free access cannot be obtained by the original opening. In wounds of the stomach the anterior and posterior walls are examined, while those of the solid viscera can be felt.

TREATMENT OF HOLLOW VISCERA.

I have very little to add to what has already been written on this subject. When wounds of both the small and large gut are present I deal, if possible, with the large bowel first, and always discard soiled instruments and gloves before proceeding to repair the small gut. With regard to the respective advantages of the lateral and end-to-end anastomosis, I have experienced so few recoveries in these cases that I am not in a position to express a definite opinion. End-to-end union takes less time if done by a single invaginating suture, and this method obviates the need for a second layer, involving a further reduction of the lumen of the bowel.

Injuries of the colon do best if operated upon at the earliest possible moment, and as these cases are usually admitted in good condition, delay is seldom necessary for the treatment of shock. X-ray localization is invaluable as a guide both to diagnosis and to the subsequent transverse incision. This gives direct approach, and if the colon injury is uncomplicated the field of operation is localized; moreover, there is little handling of the small bowel or unnecessary soiling of the peritoneum, and a retroperitoneal wound can be dealt with at the same time. Colon wounds are always closed by suture if possible, and I usually risk the faecal fistula which occasionally follows suture and drainage, in preference to making an artificial anus.

WOUNDS OF THE SOLID VISCERA.

Owing to the inability of the solid organs in the abdomen to overcome sepsis, the question arises whether wounds of them ought to be treated by excision of the infected tissue and suture.

Liver.

In many of my cases the treatment has been conservative. Sometimes laparotomy has been done for progressive haemorrhage, and packing the wound with gauze. In a few cases where the missile was retained sepsis has supervened, causing death. If the missile is moderately large and when accessible, it is now removed by resecting a rib above the costal margin, usually including the wound of entrance, thereby obtaining direct approach. Certain superficial wounds allow of excision of the track, removal of the foreign body, and suture. Failing this, a thorough mechanical cleansing of the wound is carried out; a packing of gauze is inserted to stop fresh haemorrhage, and removed within twenty-four to forty-eight hours; the peritoneal cavity by this time is shut off, and Carrel-Dakin treatment is substituted.

Pancreas.

Wounds of this organ often occur with other abdominal injuries, so that the pancreatic wound is overlooked. In two cases I removed the missile from the body along with lacerated tissue, and sutured it up. Drainage was obtained through the transverse mesocolon, which had been previously anchored to the anterior abdominal wall. In another case good drainage was obtained through a wound of exit directly behind.

Kidney.

For exposure, the transverse kidney incision is used. If it is found necessary to deal with an intraperitoneal lesion as well, the line of incision is extended towards the middle line in front. Complete removal of the kidney is only done for gross destruction or torn vessels. Previously, in less severe cases, where an operation was warranted either for a retained foreign body or for haemorrhage, operative procedure was confined to removal of the missile and arrest of the bleeding by packing with gauze. Lately, with a view to minimizing sepsis, I have tried a more thorough operation, where only the body of the kidney was involved. Infected and damaged kidney was excised and the renal wound sutured, with drainage down to it. This has proved more satisfactory and can be carried out in the majority of the cases, the renal vessels being compressed by a rubber-guarded clamp throughout.

CLOSURE OF THE ABDOMEN.

Having dealt with the various intraperitoneal injuries the operation is completed by removing swabs and mopping up any fluid in the abdominal cavity with gauze wrung out of hot saline. Finally the incision is closed in layers.

The question of drainage is often raised. Should it be practised at all, and if so, what are the indications? I favour drainage in certain cases. The factors which influence my decision in any particular case are, primarily, the relative infectivity of the parts injured, and secondarily, the time which has elapsed since the wound was inflicted. In wounds of the small intestine operated on within twelve hours the abdomen may be closed with safety. As regards colon wounds, whenever possible I supply free drainage, usually by rubber dam, direct to the site of suture; in my series the majority were treated in this way. Retro-peritoneal wounds of the colon are always very freely drained.

The superficial wound is excised according to indications, no attempt having been made to enter the abdomen by enlarging it, a practice I avoid if possible. When the wound is in the back it is dealt with previous to performing laparotomy, as recommended by Marshall.

ABDOMINO-THORACIC INJURIES.

It is generally accepted that gunshot wounds including both the chest and abdomen have proved fatal in the large majority of cases. This state of affairs was not improved by the active surgical treatment undertaken earlier in the war; nor did treatment on conservative lines tend to give any better results. Recently, however, a different type of operation has yielded results which have encouraged me to persist in it.

Respiratory distress is the outstanding feature on admission. It is often so severe that immediate operation is out of the question. The patient is placed in a recumbent position, morphine is given for pain and restlessness, and, when the wound in the thorax is a blowing one, a few temporary skin sutures often bring a marked relief to the breathing. Time is allowed for shock to pass off and dyspnoea to diminish before operating.

Abdomino-thoracic wounds may be classified for the purpose of treatment into four types, as follows:

(1) *Where there are separate entrance wounds in the chest and abdomen.*

Provided the chest wound is not a blowing one, the abdomen is dealt with first, and only if the condition of the patient permits is the chest wound attended to.

(2) *On the left side with the entrance wound about the level of the sixth to the eighth rib, with a high up abdominal lesion.*

A few cases of this class do well on conservative treatment, especially where a rifle bullet has gone clean through antero-posteriorly or vice versa. What probably happens is that omentum protrudes through one or two small holes in the diaphragm and, becoming adherent, acts as a plug. Unfortunately the damage is often more extensive, and some idea of this may be gauged by considering the nature and position of the missile as shown by x rays and the appearance of the chest wound. If the metal has travelled down into the lower part of the abdomen it is treated as in (1). More often, however, the abdominal injury is limited to the upper abdomen, and it is for this type of case that I use a purely transdiaphragmatic route, because (a) it saves time; (b) access to the upper abdomen is much easier than by laparotomy; and (c) it avoids the combined laparotomy and thoracotomy, which is highly fatal.

Operation.—The chest wound, with all infected tissue, is completely excised and enlarged backwards and forwards until about five inches of the affected rib has been removed altogether. With fresh instruments the pleura is opened widely, the haemothorax swabbed dry, and the chest cavity protected by large abdominal swabs. Having placed a self-retaining retractor in the wound, the rent in the diaphragm is found and enlarged up to four or five inches. The abdominal injury is reached in this way, and, when it has been dealt with, gloves and soiled instruments are changed, and closure of the diaphragm is accomplished by a continuous suture of chromic gut. Next, the lung is examined, and, where necessary, treated according to present-day methods. Suture of the parietal pleura may present difficulty. When it cannot be sutured completely and a large gap is left, the lung is brought up and fixed by suture to the edges of the hole. This gives an airtight closure to the cavity, and also acts as a barrier to any superficial sepsis which may subsequently develop. Closure of the wound in layers completes the operation.

(3) *On the left side, with the wound of entrance below the eighth rib.*

In this type the abdominal condition is often much more serious. Frequently the chest escapes altogether, or is so slightly injured that it can be left out of consideration, in which case the abdomen is dealt with by laparotomy. When, however, both chest and abdomen require attention, the following operation can often be employed, bearing in mind the position of the missile: The chest is opened as described under (2), and the incision carried forward on to the abdominal wall. By prolonging the wound in the diaphragm the parietal peritoneum may be opened to any required extent. The chest condition is dealt with, and the pleural cavity shut off by suture of the diaphragm to the chest wall just above the wound. The intraperitoneal injury can then be treated and the incision closed.

(4) *When the Entrance Wound is on the Right Side.*

It is usually found that the metal having penetrated the diaphragm is lodged in the liver. If operation is indicated by the condition and size of the chest wound or the retention of a large foreign body, it is practically the same as for the left side. Having opened the pleural cavity the rent in the diaphragm is then sought for and the metal removed from the liver by passing a forceps down the track. When, as frequently happens, the diaphragm is pierced near its attachment, the operation is to suture the edges of the hole in the diaphragm to the parietal pleura, and so effect direct drainage of the liver track with a completely closed pleural cavity. If injury to the abdominal viscera is suspected it is treated as in (1).

Post-operative Complications and Treatment.

*Shock is the commonest and one of the most serious complications that may follow operation for penetrating abdominal wounds, and the means usually adopted to combat it are as described under pre-operative treatment, with the additional use of rectal saline, or brandy and coffee when the degree of collapse is not extreme; cases with severe shock derive very little benefit from this method as it is seldom absorbed. Much more useful is the intravenous injection of a solution of 4 per cent. sodium bicarbonate or a 2 per cent. solution of gum acacia in normal salt solution. But where the loss of blood has been severe blood transfusion is the best remedy.

The Fowler position is adopted as soon as the patient has got over the shock of operation, and for twenty-four to forty-eight hours rectal saline with glucose is given. Bland fluid is the only thing given by the mouth for the first few days. Early in the war I prescribed a purgative almost immediately after operation, but I discontinued that in favour of a glycerin enema with pituitrin hypodermically on the third day.

Dilatation of the Stomach.

This occurred in several cases; the chief symptoms were a feeling of tightness in the epigastrium, restlessness, and, in the beginning, the vomiting of a small quantity of dark brownish fluid. Relief is afforded if a stomach wash of sodium bicarbonate is done early.

Paralytic Ileus.

This condition may arise in two ways: (1) It may be nervous in origin—that is, there has been primary inhibition of the nervous mechanism in the bowel due to trauma (see Case 1 below); or (2) it may be secondary to peritonitis. The symptoms are almost identical, whatever the cause, and simulate those of progressive peritonitis.

In my earlier cases operations were done to prevent or alleviate this complication. In every instance quoted there was present some degree of peritonitis, and paralytic ileus seemed imminent. In two cases, having dealt with severe wounds of the lower part of the ileum by suture, a prophylactic anastomosis was made between the parts of the bowel above the injured area and the transverse colon. Both patients were suffering from shock at the end of the operation, and neither of them recovered. It is obvious that the operation was prolonged by the anastomosis, and in view of this delay I doubt whether I was well advised, but the prognosis in both cases was not good from the start.

In one case only, occurring in December, 1915, where the upper part of the ileum had to be sutured in nine places

over a length of three feet, a short circuit above and below the injured area was done. This case did remarkably well until the twelfth day, when peritonitis became marked in the short-circuited portion, and the patient subsequently died from general peritonitis. In deciding to perform this operation I was influenced by a desire to avoid the risk of resection.

In six others, comprising perforations sutured at various levels of the small intestine, ileostomy was performed—a large catheter or half-inch tubing was inserted several inches above the first perforation either at the original operation or secondary to it. This met with little success. I experienced great difficulty in getting the catheter to act, and when once started the intestinal drainage was very limited. Consequently the peritonitis was not stayed. Possibly the addition of a second catheter inserted below the last intestinal perforation would have given more encouraging results. Latterly, however, several bad cases of paralytic ileus have recovered, the treatment consisting of frequent gastric lavage, intramuscular injections of pituitrin, appropriate saline, and the administration of enemata as required. Morphine was not withheld.

Gas Gangrene.

In this series one case developed gas infection of the anterior abdominal wall in which the deep epigastric artery had been severed. As a precautionary measure, where the wound of the abdominal wall was extensive and had to be freely excised, the peritoneum alone was sutured and a few tension stitches of strong silk, protected by capillary tubing, were inserted. I am unable to state accurately the number of cases in which retroperitoneal sepsis—gaseous or non-gaseous—became a prominent feature, but in most of them it proved fatal. One bad case, however, recovered. In this case the gas had extended from one side to the other, lifting the peritoneum from the posterior abdominal wall. A very large incision was made, resembling that employed for exposing the ureter; infected and gangrenous muscle was removed; Carrel's tubes were placed in all directions and hourly injections of Dakin's solution given.

The following are notes on a few interesting cases.

CASE I.

Lce.-Cpl. S.; admitted February 12th, 1916. The missile had entered from behind at close range, explosive in action, carrying away a portion of the right rectus below the umbilicus; two feet of intestine lying on the abdominal wall. Bowel outside showed evidence of plastic peritonitis; four large holes in it and the mesentery torn; general condition fair. Laparotomy: Abdomen full of blood; no further bowel injury discovered; resection of two and a half feet with lateral anastomosis; abdomen closed without drainage; pulse 120. Twenty-four hours later: vomited a large amount of blackish fluid; under local anaesthesia a large catheter was inserted high up in the jejunum; stomach washed out. Second day, evening: About 5 oz. of yellowish odourless fluid came away. Third day: Catheter acting well after being syringed and siphoned with saline; patient felt and looked ever so much better. Fourth day, early morning: Catheter not draining, patient very ill indeed, looking moribund; catheter syringed out and siphoned; large quantity of foul-smelling fluid came away; improved beyond all expectation—pulse returned with good volume. This carried him through to the fourth night and he died in the morning. If the catheter was not siphoned every few hours he vomited, though very little. *Post mortem*: No evidence of peritonitis, serosa shiny, no adhesions even in pelvis or over anastomosis, bowel at and below the union collapsed—for two feet it contained a little fluid, while the last fourteen inches of the ileum was absolutely collapsed.

CASE II.

Pte. S.; admitted August 31st, 1916. Wound of entrance only, left groin; severe shock, pulse thready and of poor volume. Operation: Left paramedian incision; found twelve holes in the ileum and two in caecum, with considerable plastic peritonitis; resection of five feet with lateral anastomosis; holes in caecum sutured; foreign body removed and abdomen closed without drainage. Recovery. Base September 10th.

CASE III.

Pte. C.; admitted May 25th, 1916. Wound of entrance only, to the left and at the level of the umbilicus, omentum protruding. Operation: Right paramedian incision; enormous quantity of blood; eight holes in upper ileum, four of them necessitating a resection with end-to-end union; remainder sutured, abdomen swabbed dry and closed. Recovery. Base June 18th.

CASE IV.

Pte. F.; wounded March 7th, 1916, 11.30 p.m.; admitted March 8th, 8 a.m. A rifle bullet entered in the epigastric region and emerged at a corresponding point behind. Patient

cold, collapsed, and pulseless; abdomen distended, rigid, and motionless. At the end of seven hours' rest and treatment he began to rally. 5 p.m.: Pulse 150. Operation, 5.30 p.m.: Left median incision—abdomen full of blood; two holes in the liver and two in stomach, the missile having then passed through the tail of the pancreas and emerged as stated. Visceral wounds sutured, abdomen swabbed dry and closed. Exit wound enlarged and the pancreas drained from behind. March 9th, developed bronchitis. March 12th, death—acute bronchitis.

CASE V.

Private S.; wounded September 10th, 11 p.m. Cause, bayonet. Admitted 6.30 a.m. Wound of entrance only, in the left groin, deep to Poupart's ligament. Patient collapsed, pulse thready and irregular; abdomen distended, but very little rigidity or pain. After four hours' rest and warmth he improved wonderfully. Operation, 10.30 a.m.: Left paramedian incision—abdomen full of blood, external iliac vein severed, two holes in the ileum. Ligation of vein, perforations sutured, abdomen swabbed dry and closed. Recovery. Evacuated to base September 19th.

CASE VI.

Pte. A.; admitted April 10th, 1917. Entrance wound right buttock, exit below and to the left of the umbilicus. Operation: Right paramedian incision; fourteen holes in the ileum, two in caecum; eleven of them treated by suture, remainder necessitating a resection of fourteen inches with lateral anastomosis; peritonitis present; abdomen swabbed dry and closed. Recovery. Base April 22nd, 1917.

CASE VII.

Lce.-Cpl. B.; admitted March 31st, 1917. A large piece of shell fragment hit the abdominal wall, carrying away portion of the oblique muscles. Several feet of intestine lying on the abdominal wall with many perforations; a small amount of mucoid and faecal material stained the serosa of the bowel. General condition very bad, but responded well to treatment. After five hours' rest, operation. Original opening enlarged; plastic peritonitis and perforations confined to the prolapsed portion of bowel. Resection of three feet; end-to-end union by a single invaginating layer; peritoneum only closed, using a few tension stitches for the skin. Developed pneumonia. Recovery. Base April 24th, 1917.

CASE VIII.

Pte. S.; admitted April 28th, 1917. Wound of entrance only, left buttock; signs of much shock and loss of blood; pulse 130; rigidity and tenderness confined to the lower abdomen. After three and a half hours' rest, marked improvement. Operation: Left paramedian incision—abdomen full of blood; internal iliac vein perforated—clamped with forceps; one hole in ileum sutured; patient became very collapsed, so the abdomen was closed, with forceps left in position. Transfusion of blood by the sodium citrate method; left the table much improved. Four days later forceps removed. Recovery. Evacuated to base May 18th, 1917.

CASE IX.

This is one of interest, as it is the only case of recovery I have had with an abdominal patient admitted pulseless who remained so for many hours. Pte. H., wounded July 21st, 1917, 12 midnight. Shell fragment. Admitted July 22nd, 7 a.m. Entrance wound only, mid-abdomen. Complications: Penetrating wound of chest and multiple wounds of both legs. 10 a.m.: Intravenous saline with 4 per cent. sodium bicarbonate and glucose given. 1 p.m.: Pulse for the first time felt at wrist. 4 p.m.: Warmer, and much improved generally; pulse 150. 5 p.m.: Pulse of fair volume. Operation, 5.30 p.m.: Right paramedian incision—abdomen full of mucopurulent fluid; one perforation in ileum with missile lodged there; removed and hole closed; abdomen swabbed clean, and a pint of warm eusol left in it, with drainage down to pelvis; the incision closed in one layer. Subsequent treatment: Repeated stomach lavage, saline, pituitrin, etc. August 1st, second operation: Resection of rib for septic haemothorax. Evacuated to the base August 10th, in good general condition.

CASE X.

Spr. F.; admitted April 30th, 1917. Entrance wound epigastric region, no exit; in fair condition; pulse 120. Operation: Left paramedian incision—abdomen full of blood; two holes in the liver; two in stomach; coronary artery severed. Visceral wounds treated by suture, artery ligatured; foreign body removed from the body of the pancreas, lacerated tissue removed, wound sutured and drained through the transverse mesocolon; abdomen swabbed dry and closed. Developed a pancreatic fistula, which gradually got less daily. Evacuated to base May 16th, 1917.

CASE XI.

Pte. H.; admitted October 1st, 1917. Shell fragment entering left side over sixth rib in mid-axillary line, penetrating abdomen; large haemothorax; severe dyspnoea; general condition good. Operation: Trans-diaphragmatic route; five inches of rib resected after excision of wound; pleural opening enlarged and cavity swabbed dry; omentum seen protruding through rent in diaphragm—this opening freely enlarged and abdominal viscera examined. The only visceral wound was a hole in anterior stomach wall with foreign body embedded in it; treated. Diaphragm closed, wound of lung sutured, and incision closed. Recovery. Base October 12th, 1917.

CASE XII.

Pte. D.; admitted October 10th, 1917. Shell fragment; entrance wound only, over eighth rib, left side; abdomen penetrated; general condition good; severe dyspnoea. Operation: Trans-diaphragmatic route—rib resected and blood swabbed from thorax; omentum found protruding through a wound in the diaphragm, size of a half a crown—enlarged this opening and found injury to spleen and kidney; foreign body removed from kidney, the wound being excised and sutured—no treatment of spleen; diaphragm closed; sudden cardiac failure then necessitated massage of the heart, which responded immediately; operation completed. Recovery uneventful. Base October 20th.

CASE XIII.

Lieut.-Cpl. W.; admitted October 15th, 1917. Entrance wound close to spine, with exit wound at tenth rib in mid-axillary line, from which omentum protruded; patient badly shocked, but apparently had not lost much blood. After four hours' rest and treatment, operation: wound of exit (with omentum) excised and enlarged forwards and backwards; rib resected; wound laid widely open; rent in diaphragm sutured to chest wall above the wound; spleen found severely lacerated and therefore removed; no other visceral lesion present; wound closed. Died suddenly twenty-six hours later, when apparently doing well.

CASE XIV.

Gnr. G.; wounded October 26th, 1917. Shell fragment. On admission same day a large blowing wound in the chest wall at the level of the ninth rib, right side; x rays showed a very large foreign body in the liver. Operation: Trans-diaphragmatic route—rib resected, including excision of entrance wound; pleural opening further enlarged; blood removed from pleural cavity; foreign body removed from the liver through the rent in the diaphragm; edges of rent sutured to parietal pleura; wound of liver packed with gauze surrounded with rubber dam; rest of the wound carefully stitched. Following day, gauze removed and replaced by Carrel's tube. Dakin's solution used. Recovery. Base fourteen days later.

The table shows the results of 150 consecutive operations for penetrating wounds of the abdomen. As regards mortality, shock played the largest part, peritonitis was next in importance, and pulmonary complications accounted for several deaths.

Viscus Injured.	No. of Cases.	Recoveries.	Deaths.
Small intestine only: sutured ...	28	17	11
Small intestine only: resection ...	13	4	9
Small intestine and colon (2 resections of small intestine, 1 died)	28	16	12
Small intestine, colon, and stomach	1	0	1
Small intestine, colon, and liver (1 resection)	2	0	2
Small intestine, colon, and kidney...	1	0	1
Small intestine, colon, and bladder	1	0	1
Stomach	3	0	3
Stomach and liver	6	3	3
Stomach, liver, and pancreas ...	3	1	2
Stomach, colon, and kidney	1	0	1
Colon	10	5	5
Liver	14	6	8
Liver and colon	5	1	4
Spleen (2 splenectomies; both died)	6	3	3
Spleen and diaphragm	2	1	1
Spleen and kidney	1	1	0
<i>Abdomino-thoracic Wounds.</i>			
Thorax and diaphragm (missile in lesser sac, no visceral lesion)	1	0	1
Thorax, diaphragm, and stomach ...	2	2	0
Thorax, diaphragm, and spleen ...	1	0	1
Thorax, diaphragm, spleen, and kidney	1	1	0
Thorax, diaphragm, and liver (lung in two cases)	4	3	1
Kidney (3 nephrectomies, 1 death) ...	9	8	1
Intraperitoneal lesion, no viscus injured	5	4	1
Total	150	76	74

*I take this opportunity to express my gratitude to Surgeon-General Sir Anthony Bowly, K.C.M.G., for his encouragement and advice throughout this period. My best thanks are due to

Surgeon-General Cuthbert Wallace, C.M.G., and to Lieut.-Colonel H. Rogers, D.S.O., and Lieut.-Colonel W. D. Kelly, D.S.O., for permission to publish these cases.

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SHELL WOUND OF THE PANCREAS CAUSING PANCREATIC PSEUDO-CYST.

BY

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GUNSHOT wounds of the pancreas are less frequent, or less frequently recognized, than those of any other of the abdominal viscera, hollow or solid. The relations of the pancreas with the aorta and inferior vena cava, to say nothing of such vessels as the splenic artery and vein, are so intimate that perforation of the gland by a projectile involves the gravest risk of an immediate and fatal intraperitoneal hæmorrhage, and but few cases are likely to survive the first few hours. Should a case escape this primary danger, peritonitis resulting from coincident perforation of the stomach or intestines will usually supervene, and will naturally tend to monopolize the surgeon's attention, should a laparotomy be performed.

The extensive literature concerning penetrating gunshot wounds of the abdomen that has arisen during the present war is remarkable for the rarity of cases of authenticated wounds of the pancreas. Thus Surgeon-General Cuthbert Wallace, in a total of 955 penetrating abdominal wounds, collected only 5 cases of wounds of the pancreas.¹ He remarks that there are no distinctive symptoms of these wounds, and mentions that the formation of Jordan Lloyd's pseudo-cysts, so frequent after civil contusions of the pancreas, has not been seen. Surgeon-General Sir G. H. Makins² states that wounds of the pancreas found during the performance of operations for intestinal injuries have usually proved fatal, while in the few cases in which apparent wounds of the pancreas have been seen at base hospitals it is difficult to exclude the possibility of a wound of the second or third part of the duodenum. He mentions one case, fatal on the eleventh day, in which *post mortem* a wound of the pancreas was found with fat necrosis of the omentum and mesentery, and two other probable cases which recovered but were not established as pancreatic lesions beyond doubt. Fraser and Drummond,³ in a series of 300 cases of perforating wounds of the abdomen, met with one case only involving the pancreas—a rifle bullet wound through the body of the gland, where recovery followed exploration and drainage.

The case described below, in which a penetrating shell fragment gave rise to a large collection of pancreatic juice in the lesser sac of the peritoneum, is not unique, for I have been able to find one reference to a similar case, which is reported in a Hungarian journal that is not accessible.⁴

Pte. M. was admitted to High Street Military Hospital, Manchester, under my care on August 14th, 1916, with the following history: He was hit in the back by a shell fragment on July 24th, three weeks before he came under my observation. Some aching pain in the epigastrium resulted, but there were no symptoms of peritonitis, and he was evacuated rapidly to England. After six days in a central hospital in Manchester he was considered well enough to be sent to an auxiliary hospital in the country. While in that hospital the aching pain in the epigastrium persisted, and a week before he came under my care it was noticed that a swelling had appeared in the epigastrium, and that he was rapidly losing flesh.

Condition on Admission.

He was thin and pale and the tongue was foul. The temperature was 99.4° F. and the pulse 100. There was an unhealed wound of entry in the back 1 in. to the right of the eleventh dorsal spine, and no wound of exit. In the centre of the epigastrium was an obvious swelling. It was large, tense, and rounded, and extended back to the left loin. It was dull on percussion and only moderately tender.

Operation.

The case was regarded as one of subphrenic abscess involving the lesser sac of peritoneum. Accordingly, under ether, a small vertical exploratory incision was made through the left rectus below the costal margin. On opening the peritoneum

the empty stomach was found to be flattened out over the front of a greatly distended lesser sac. This exploratory wound was therefore closed, and an incision was made in the back of the left loin immediately below the twelfth rib. On opening the lesser sac by this route four or five pints of clear fluid gushed out, followed by a little pus. On digital exploration of the lesser sac a fragment of the copper band of a shell, 1 in. in length, was found lying free in the cavity, and was easily removed. The loin wound was drained.

Captain G. E. Loveday, R.A.M.C.(T.), examined a specimen of the fluid and reported that it contained both trypsin and amylase.

After-History.

The patient made a somewhat slow recovery, and vomited for some ten days after operation. He then improved more rapidly, and after a change to an auxiliary hospital was discharged as fit for general service.

I am indebted to Colonel F. H. Westmacott, A.M.S., Officer Commanding 2nd Western General Hospital, for permission to record this case.]

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THE TREATMENT OF INFECTED WAR WOUNDS BY MAGNESIUM SULPHATE.

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CAPTAIN W. J. TULLOCH and I have recently¹ described the treatment of infected war wounds by a concentrated solution of magnesium sulphate. In these articles we claimed as advantages for this dressing:

- (a) Its cheapness, ease of application, and infrequent and painless renewal.
- (b) That it is not easily absorbed and therefore gives rise to no constitutional disturbances.
- (c) That it induces the growth of firm, compact, bright red granulations, interferes with the proteolytic activities of the discharges, and stimulates the growth of epithelium.
- (d) That the magnesium ion has a decided inhibitory action on the growth of at least two of the organisms commonly present—namely, streptococci and *B. coli*—has also a less evident effect on the development of staphylococci, and a slightly inhibitory action on the propagation of the *B. pyocyaneus*.

General Principles of Wound Treatment.

The ideal method of wound treatment in military surgery has yet, I think, to be found, but, in order to discover it and to make it efficient, certain general principles must be considered.

1. The application must be easily carried out and readily applied.
2. Once dressed, it should be possible to leave the wound untouched for some time—that is, until the patient can receive more individual attention, or for such a period that he can be transferred from the field ambulance or casualty clearing station to a base hospital in France or England (about one to seven days).
3. Its action during this period should be continuous, and it should from the first exercise a beneficial effect upon the wound, so that on arrival at the base hospital sepsis should be either abolished or so inhibited that the health of the patient has not deteriorated, and so that further treatment may not be prolonged by dealing with conditions which were preventable.
4. As a necessary corollary to these principles it follows that all special apparatus used for flushing wounds should be abolished, thereby saving much time and labour to the members of the surgical and nursing staffs and much discomfort to the patients; special splints for the immobilization of each fracture would be unnecessary, and a return made to the simpler and more easily applied apparatus in general use for fractures, because the first dressing applied to the wound could remain untouched for several days.

Stages of Wounds.

In dealing with these wounds the two important stages through which they pass are to be borne in mind:

1. *Processes of disintegration* are set up immediately on receipt of the injury. As a result of trauma the wound

passes through various stages of molar or molecular gangrene, the tissues which have had their vitality too seriously sapped die and are cast off, and in so doing they become a medium for the development and growth of organisms. Treatment applied to the wound at this stage should have as its object cleansing the wound, getting rid of the sloughs, limiting sepsis, and preventing the proteolytic activities of the wound exudate as much as possible. This stage requires attention in the field ambulances and casualty clearing stations soon after the receipt of the injury and often under disadvantageous circumstances. When large numbers are passing through the surgeon's hands and accommodation is limited it is impossible to treat them on ordinary lines so thoroughly as is desirable. All that may be possible is to apply some dressing which will protect the wounds and diminish the chances of infection until greater individual time and attention can be given to them further behind the firing line.

The important point to remember is that if this part of the treatment is not carried out early, and with great efficiency, this first stage in the process of repair will be prolonged and rendered more serious.

2. *The phenomena of repair*, which begin when the processes of disintegration have been completed. Any substance applied to wounds at this stage which may interfere with the living leucocytes and prevent their phagocytic activities is to be avoided, and only those selected which will have a prohibitive effect on the proteolytic processes, and stimulate epithelialization of the wound. When this stage has been reached the patients should have arrived at the base hospitals, where more individual attention can be given. It is now, however, rarely that patients are transferred to the hospitals in England in this state. It more commonly happens that Stage 1 in the treatment of their wounds has to be continued on their arrival, and the condition of the wounds, if not worse because of increased infection, is quite as bad as when they were inflicted some days previously; they are discharging pus freely, and bacteriological examination immediately on arrival in the hospitals in England as a rule shows that all the pyogenic organisms usually found in infected wounds are present in abundance. The treatment of war wounds, therefore, resolves itself into two stages: (1) the cleaning of the wounds, (2) the encouragement of healing.

Antiseptics, and especially pure carbolic acid, have a limited scope. They may arrest sepsis so long as the organisms have not gained an entrance into the deeper tissues—that is, they must be applied very early after the infliction of the wound; they prevent the formation of toxins, but at the same time so affect the vitality of the tissues that a further field is provided for the development of organisms for whose destruction they had been employed.

The most satisfactory method of treatment during this stage is the employment of some form of more or less constant lymph lavage, or continuous irrigation with fluids that will prevent the absorption of toxic products while not interfering with phagocytosis. It is on these lines that most of the recent treatment is based—for example, Wright's hypertonic (salt) solution, eusol, Carrel-Dakin method, etc. These methods of irrigation not only get rid of the discharge by flushing, but, what is of equal or more importance, the wound is allowed to remain open, or is enlarged to allow of the free escape of the products of disintegration and sepsis.

Magnesium Sulphate Cream.

During the past year we have been using in our wards a preparation of magnesium sulphate, made of the consistency of cream, as soon as the patients arrive in hospital. To make the conditions as closely as possible resemble those that exist in a casualty clearing station, about a hundred cases were dealt with as follows:

The dressings with which the patients arrived in hospital, most of which were applied from two to five days previously, were removed. A culture was taken by Dr. Helen Clark of the organisms—aerobic and anaerobic—present in smears from the wound, and without any preliminary cleansing of the wound itself or of surrounding parts; magnesium sulphate cream was then applied to the wound under a suitable dressing. The dressing was left untouched for from three to ten days. Bacteriological and clinical examination was then made of the discharges and

the wound. The results have been such as to encourage me to report the technique and results of this treatment.

The following cases, treated in one or other of the war hospitals in Sunderland, are typical of those submitted to this treatment.

CASE I.

J. McL.; gunshot wound of left leg, October 23rd; admitted November 6th, 1916. A large wound at the back of the calf, at the bottom of which a fracture of the tibia and fibula could be seen. This wound communicated with a smaller wound on the inner side. The temperature was 101.4° and the pulse 98. The wounds, which were dirty and discharging pus freely, were dressed with magnesium sulphate cream. On November 9th the temperature was 98.4°, and the wounds, which were then dressed, were much cleaner. On November 11th they were covered with bright red granulations. By December 4th the wounds were much smaller, the through opening had closed, and on December 20th the granulations were level with the surrounding skin.

CASE II.

J. B., aged 21; gunshot wound of left wrist. When admitted the left wrist and hand were swollen and there were two wounds, one over the lower end of the radius and the other in the palm close to the styloid process of the ulna. The edges of the first-named wound were ragged and necrotic and there was a purulent discharge. The temperature was 100.2°. X-ray examination showed a longitudinal fracture of the radius into the wrist-joint. The wounds were dressed with magnesium sulphate cream and an anterior splint applied. When dressed on November 15th there was a little serous discharge and the surface of the wound was covered with lymph, underneath which were healthy granulations. On November 21st the wound was covered with bright red granulations, and on January 4th, 1917, it was healed save for a sinus leading down to the necrosed bone, which was removed, under an anaesthetic, with a sharp spoon. On April 30th the wound was superficial and almost closed.

CASE III.

H.; gunshot wound of foot, October 22nd, 1916; admitted November 1st, with a lacerated wound midway between the two malleoli over the dorsum of the foot, extending inwards and downwards towards the scaphoid bone. The wound was discharging pus freely and the surrounding skin was swollen and red. Bubbles escaped on pressing the edges slightly. Bacteriological examination of the pus by Dr. Helen Clark showed *B. perfringens*, staphylococci, streptococci, and Gram-negative bacilli. X-ray examination showed a large foreign body in the scaphoid bone which was easily removed under a general anaesthetic. The cavity was cleaned with methylated spirit and dry gauze, and filled and dressed with magnesium sulphate cream. When dressed on November 11th it looked healthy, and the magnesium sulphate cream was reapplied. On November 20th there were only two granulating spots, and the wound, which had almost healed, was dressed with boric ointment.

CASE IV.

P.; gunshot wound of right foot, October 21st, 1916; admitted November 1st. The skin over the lower third of the leg was red and brawny and discoloured as high as the knee. There were two incisions about five inches long on the dorsum of the foot, and another along its outer border, which seemed to be an enlargement of an original wound in front of the external malleolus, which was packed with gauze. Behind the external malleolus was a deep lacerated wound with a small drainage tube. There was a copious discharge of foul pus from the wound track below and in front of the malleolus. There were two longitudinal incisions, one on each side, in front of the ankle and in front of the lower part of the leg. Bacteriological examination of the pus showed streptococci, staphylococci, and *B. coli*. X-ray examination showed a fracture of the astragalus and a foreign body lying in or internal to the bone. Under a general anaesthetic the wounds were cleaned, the foreign body removed, and the foot and leg dressed with magnesium sulphate cream. When dressed for the first time, seven days later, the dressed wounds were all looking healthy, but there was sloughing of the edges of the original wound and a good deal of sero-purulent discharge. On November 15th the wounds were all looking clean and were dressed again with magnesium sulphate cream. A superficial abscess on the outer side of the leg in its lower third was opened on November 22nd, mopped with dry gauze, and filled with magnesium sulphate cream. On December 20th an abscess was opened on the inner side of the foot and about 3 oz. of pus evacuated. The cavity was found to communicate under the tendo Achillis with the wound just behind the external malleolus. It was mopped out with dry gauze and filled with magnesium sulphate cream and closed with silk-worm gut. When dressed on January 1st, 1917, the wound looked healthy, and on January 12th all wounds on the outer side of the foot and leg were healed. Those on the inner side were closing rapidly. On January 22nd all wounds were healed.

CASE V.

G. R., aged 44; gunshot wound of right knee, April 9th, 1917. When he came under my care, on May 12th, the evening temperature varied between 102° and 104°, and he was complaining of great pain in the knee and sleeplessness. There were two through-and-through wounds on each side of the patella and two incised wounds above into each side of the subcutaneous pouch. In each wound there was a drainage tube. On that

day, under a general anaesthetic, a horseshoe incision was made round the patella dividing the ligamentum patellae. On opening the joint pus gushed out. The knee was bent to its full extent, washed out with ether, and filled with magnesium sulphate cream. Plentiful dressings of cotton-wool and sphagnum moss were applied. The wound was dressed every third day with magnesium sulphate cream until the 25th, when, his temperature having been normal for three days and the discharge having ceased to be purulent, the patient was again placed under an anaesthetic; the joint was then washed out with methylated spirit and bipped. The entire wound was sutured, the ligaments, including the patella, with catgut, and the skin with silk-worm gut. The patient's progress was uninterrupted, and he was discharged from the infirmary on September 14th, 1917, with his knee-joint movable about 15 degrees, and he was able to bear his full weight on the leg.

CASE VI.

C. L.; gunshot wound of back, October 28th. When admitted, on November 6th, 1916, there was a large gaping wound about six inches long over the left scapula, dividing the latissimus dorsi and partially the infraspinatus muscles. It was dirty and discharging pus freely. Magnesium sulphate cream was applied without previous washing of the wound. On November 12th, under an anaesthetic, the wound and surrounding skin were cleansed with petrol, the edges of the wound excised, and the refreshed margins undermined and brought together with silk-worm gut passed through pieces of drainage tube after the cavity had been filled with magnesium sulphate cream. When dressed, five days later, the wound looked healthy and the discharge was serous. On November 24th, when the sutures were removed, there was very little gaping and healthy granulations covered the linear margins. On December 18th the wound was soundly healed and the movements of the arm were good.

Preparation of Magnesium Sulphate Cream.

The cream is prepared in the following manner:

15 lb. of magnes. sulph. exsiccatum are mixed with 11 oz. of glycerin acid. carbolic, 1 to 10. The dried magnesium sulphate is in the form of a fine white powder, which contains 12 per cent. less water than the ordinary. The glycerin acid carbolic is put in a hot mortar and the sulphate added, slowly stirring and mixing with a warm pestle all the time. The result is a thick white cream, so hygroscopic that if exposed to the air it rapidly absorbs moisture and becomes dull. It must be preserved in a covered jar. The carbolic acid was first added for its analgesic properties, as it was thought that this application without it would be painful. We have found this precaution to be unnecessary, as the only discomfort of which the patients complain when carbolic is not present is that the cream feels cold for a short time after its application.

The wound is packed and thickly covered with the cream, and the dressing of gauze and cotton-wool is left unchanged for from three to eight days. A profuse discharge of serum takes place, so that more wool may have to be applied over and around the original dressing. On removing the dressings, any discharge there may be is sero-purulent, escapes easily, and the wound surface is covered with bright red granulations, filmed over by a thin layer of greyish lymph containing a few pus cells. A similar dressing is again applied spread thickly on gauze. In the case of deeper wounds, such as fractures, the cream is syringed into the deepest part of the wound by passing a piece of drainage tube attached to the syringe into it, and filling the wound with cream. More cream spread on gauze is applied to the surface of the wound.

After a few dressings in this manner, in the case of superficial wounds, a bright red granulating surface presents, covered by a greyish film of lymph. The dressing is now changed to magnesium sulphate solution for a few days, when the edges of the wound are either brought together with sutures, or skin grafts are applied under local anaesthesia.

In deeper wounds where a fracture is also present, after three or four applications of the cream, at intervals of three to four days, the patient is anaesthetized, the wound is freely opened up, loose pieces of bone are removed, it is washed out with ether or petrol, then dried with gauze mops and smeared thoroughly with bipp or X.Y.Z. paste.* The deeper layers of the wound are brought together with catgut sutures, and the skin edges with retention sutures of double bipped silk passed about 1 in. from the margin and tied over a dossil of gauze on each side spread with one or other paste. In some cases before the sutures are tied, the cavity is filled with magnesium sulphate cream. The sutures prevent a too rapid escape of the magnesium sulphate cream by osmosis.

The guides to closure of the wound are bacteriological findings of the discharge and the amount and clinical

* Xeroform, i.e., 10 parts tribromophenol, hydrarg. ammon., of each equal parts; paraffin, 1 pt., to make a paste.

nature of it. As soon as the bacteriologist reports a marked diminution in the number and character of the organisms present, and we find an almost complete absence of purulent discharge, the wound is closed. Bacteriological examination of the discharges is made from each dressing when it is removed, and I am indebted to Dr. Helen Clark, bacteriologist to the North-berland War Hospital, for her valuable assistance and help in this matter.

In a previous paper on magnesium sulphate solution it was claimed that this dressing produced firm, compact granulations, and also that rapid epithelialization of the wound took place under it. There is no doubt that under the concentrated magnesium sulphate cream the granulations are not so vascular and firm as with the concentrated watery solution, and moreover are covered by a layer of lymph, and that the epithelium from the edges of the wound does not close in so rapidly. This is what would be expected in an application which has so powerful an influence in controlling sepsis. Abscesses, if opened by a small incision, their pus contents evacuated, and cavity mopped out with gauze, filled with magnesium sulphate cream, and closed by sutures, generally heal with one or two dressings. Wounds, however, especially those of long standing, that have become sluggish do heal up under it. As would be expected in the presence of a preparation whose main claim is the production of profuse lymph lavage, these wounds do best which have no dependent counter-opening and which can be filled with the cream.

Conclusions.

Magnesium sulphate cream presents the following advantages:

1. Simplicity of application and the rapidity with which large numbers of cases can be dealt with—as in field ambulances and casualty clearing stations.
2. The infrequency of dressings, which even in the most septic cases need no change from three to eight days.
3. The combined osmotic action and the inhibitory effect on the growth and development of such ordinary organisms as are usually found in wounds—aërobic and anaërobic—together with its non-toxic action on the patient, make this a valuable dressing in the first stage of wound treatment, where the aim is to get rid of sphacelated tissue and minimize sepsis.
4. Its sphere of action as a rule ceases after the first stage, because epithelialization is inhibited and granulation tissue formation delayed as soon as the wound has been cleansed.
5. In the second stage of wound healing, that is, the encouragement of repair, other remedies should be employed, though it is useful with chronic sinuses or wounds which require stimulating.

REFERENCES.

¹ *British Journal of Surgery*, 1915-16, p. 276; *Journal of the R.A.M.C.*, October, 1916.

POST-OPERATIVE THROMBOSIS AND EMBOLISM.

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In a discussion some years ago at the Royal Medical and Chirurgical Society, upon the complications following appendicectomy, I called attention to a possible cause of embolism, and suggested a remedy. In view of the interesting communication from Dr. McCann (March 9th, p. 277) it may be worth while to recall some of the observations.

All will agree with the sound conclusions as to technique enforced by Dr. McCann, and it is, I expect, to improvements in this regard rather than to any detail in ligature that the diminished incidence of the complication is to be attributed. Once sepsis has begun, its spread would be encouraged by bruised tissue, which is a soil favourable to the growth of bacteria. Herein lies, I take it, the truth of Dr. McCann's theory. Careless division of vessels, leaving parts poorly nourished, will determine extension of sepsis in an amputation, but in this, as in the special field alluded to by Dr. McCann, the primary step is a certain

degree of sepsis introduced at the operation. That this may be an auto-infection cannot be altogether denied, and the experiments on *bistournage** by Chevalier give support to Dr. McCann's views. It will be remembered that, while a mild illness occurred in rats inoculated but not injured, those in which the spermatic cord was twisted all had gangrene at the site of injury and all died.

It is only on such a basis that we can explain the many cases of local phlegmon, of all degrees of intensity; the acute periostitis in young people resulting from a slight injury; and the acute psoriasis following a strain. It is an injury that determines a joint infection in septicaemia. During this war acute suppuration of the knee has been seen to follow the manipulation required to deal with a septic compound fracture of the femur, and again of the ankle-joint under similar conditions. One of the most tragic cases coming under my notice was that of a surgeon who had scratched his finger while operating on a septic case. The injured part healed in two or three days, and he was apparently quite well and discharging his duties. He reached up to pluck a flower, and felt a "rick" in his "shoulder"—that is, vaguely; it might have been in one of the muscles. Four hours later he had a rigor, and an acute phlegmon developed in the pectoralis minor, from which he nearly died. This was a true replica of Chevalier's experiment.

If there be these acute auto-infections, so there are the milder varieties, and however perfect our technique may be, it must occasionally happen that we operate upon a patient in apparent health, yet in whom a septic infection of the blood is present. So long as the infective agent is within the endothelial-lined vessels the individual is protected, and the blood ultimately deals with and destroys the bacteria or neutralizes the products of bacterial life. Once this endothelial barrier is broken, as in the instance above related, by a rupture of muscle fibre, the infective agent escapes, and multiplies in the bruised tissue, the small blood clot, and the unprotected normal tissues. While we must be very careful in admitting such an explanation—one altogether too comfortable to the surgeon—we cannot exclude the possibility of such an occurrence. The practice adopted by many of having the patient in bed and under observation for a few days before operation is a wise precaution, and fully justified in the light of such events.

It remains to consider whether we can adopt any means of limiting the extension of the thrombosis. The disaster has occurred chiefly where primary union has taken place, and where none of the ordinary clinical evidence of sepsis has been manifest. It is, however, just in mild phlebitis that the detachable clot is formed. Where a vigorous sepsis occurs, with even double thrombosis and oedema of the legs, the clot is adherent and not likely to be detached. Looking back on the course of a case where uninterrupted recovery has followed, say, a simple appendicectomy, with no disturbance of temperature or pulse worth recording, small changes in the general condition of the patient will be recalled. There has not been the romping recovery, the subnormal temperature, the strong relish for food, the alert mental outlook one is accustomed to see. Small evidences of a disordered organism may be recalled, too slight to be recorded by the thermometer, or to affect a change in pulse rate. The pulse lacks tension, the blood pressure is probably low, sleep is not sound and prolonged, the mind is easily tired, and other small departures from the normal can be recorded. Finally, the patient is moved to a sofa or sits up, and then the oedema of the foot and ankle is discovered. At one time I made it a rule to examine the upper part of the thigh, where oedema shows itself in the recumbent position, before allowing the patient to get up. More than once it has been present. It is well to do this when the slight symptoms mentioned are present in a case where the wound runs a normal course.

It is a common observation that post-operative pulmonary embolism is seen only in connexion with operations on the abdomen. The inguinal canal and scrotum, as well as the rectum, must be included in this region. After an operation for inguinal hernia in a lady, a severe embolic attack occurred, through which she struggled for twelve hours, with great dyspnoea, cardiac pain, and cyanosis. A second attack followed the next day, and from this she also recovered. After a radical cure for

* That is, sterilization by torsion of the spermatic cord.

hydrocele in a young man, there occurred the most severe attack I have seen ending by recovery. He was unconscious for several hours, with a flickering pulse and cyanosis. This patient had been about the ward for some days.

Has anyone seen a case occur after an operation above the diaphragm? Here much tissue is often included in the ligature, sepsis is common as in breast cases, and is inevitable in operations for removal of the tongue. Nor has the complication, I believe, been recorded in children after any kind of operation. The common feature in these two conditions is free movement. It is impossible to keep a child quiet: he will move his legs about, and turn on his side after an operation for acute appendicitis. It is in movement, I believe, that safety lies.

It is the common practice to adopt the dorsal position, with knee-pillow, after abdominal operations, and also after parturition. Looking upon this position as tending to slow the current, as possibly determining thrombosis, or at any rate its extension, I abandoned the method in all but grave cases of suppurative peritonitis. For many years no case of embolism has occurred in my practice, and this I have attributed to the free movement permitted. If the knee-pillow is not begun the patient never knows of the luxury; it is a luxury, and moreover encourages complete rest. Then the hips and knees are moved three times a day, and the patient is encouraged to turn on his side as soon as possible. He is made to lie quite flat in the bed for part of each day. Nurses looked horrified fifteen years or more ago when these directions were given, and even now it is difficult to get rid of the knee-pillow.

Is it necessary to keep the parturient woman on her back for days together? From my experience, after abdominal operations I am inclined to think early movement of the limbs and frequent changes of position would diminish the number of cases of embolism. The suggestion that movement of the body interferes with the success of abdominal operations of any kind, is disposed of by the fact that vigorous vomiting even for a couple of days seems to have no injurious effects, and no ordinary movements can produce as much disturbance of the parts as vomiting. It was this observation, indeed, that led me to abandon a recumbent position of the rigid sort.

Nor can the mere size of the veins explain the thrombosis and embolism. In the neck the internal jugular can be divided and ligatured with impunity. It is often exposed in septic areas, as are the large facial and lingual veins, and yet only once have I seen thrombosis extend into the subclavian, and that was because, after an extensive dissection for glands, I left the vein instead of resecting it. That the anatomical condition of the veins has probably a good deal to do with the occurrence is no doubt true. The veins are unsupported by muscle, and this mechanical check to extension is absent.

Again, the smaller veins running a straight course enter directly into large vessels, as, for example, the spermatic into the renal, and the infected clot is swept away by the strong current.

Summary.

1. Pulmonary embolism does not occur after operation above the diaphragm.
2. Nor in children.
3. The common factor in the after-treatment of these two examples is freedom of movement.
4. Usually after abdominal operations movement is restricted, the dorsal position is enforced, and the knee-pillow adopted.
5. It is suggested that this practice determines massive thrombosis by slowing circulation.
6. It is suggested that the above restrictions should be abandoned, together with the knee-pillow, and daily movement insisted upon.

THE faculties and schools of medicine in France had a total number of 10,045 students in 1914. In 1915 the number had fallen to 2,944, rising again to 3,263 in 1916 and to 3,375 in 1917. There were therefore 6,640 fewer in 1917 than in 1914. In 1914 there were 1,038 women students. In 1915 the number fell to 772, and in 1916 to 765, rising again to 822 in 1917. There were therefore 266 fewer women studying medicine in France than in 1914. In 1914 there were 1,421 foreign students. In 1915 the number was 625; in 1916, 539; and in 1917, 515.

Reports of Societies.

WAR NEUROSES.

Cinematograph Demonstration.

At a meeting of the Section of Neurology of the Royal Society of Medicine on March 12th, the President, Dr. R. PERCY SMITH, being in the chair, Major A. F. HURST, M.D., F.R.C.P., R.A.M.C., gave a cinematograph demonstration illustrating the essentials of treatment of soldiers and discharged soldiers suffering from functional nervous disorders. The series of films shown had been taken during the last nine months at the Royal Victoria Hospital, Netley, under the auspices of the Medical Research Committee, in order that a permanent record of some of the remarkable neuroses which had developed in soldiers should be obtained to form a part of the medical history of the war. At the same time they illustrated the development of methods of treatment pursued. A year ago the workers were satisfied if they taught a man admitted for hysterical paraplegia, which had already persisted for several months, to get about within a day or two of admission, but they realized that he would require several weeks of further treatment by re-education before he could walk normally. Increased experience had given them greater confidence, and they were now disappointed if they did not cure all cases of hysterical paralysis, contractures, speech defects, such as mutism, aphonia, and even stammering, and the tremors and tics, which were formerly regarded as incapable of rapid recovery, within twenty-four hours of admission, however long the symptoms had persisted before the men reached Netley. This was demonstrated in the slow but steady progress shown by the cinematographs of the early cases contrasted with the more recent films, which afforded actual records of complete recovery, in the course of an hour, from hysterical paraplegia which had lasted for several months. The one essential for success in dealing with hysterical cases was complete mutual confidence of patient and medical officer. From the moment the former entered the hospital he was made to realize that he would quickly get well. Hypnotism was no longer used, and very rarely such adjuncts of suggestion as electricity or etherization; the medical officers contented themselves with vigorous persuasion and manipulation, being convinced that it was greatly to the patient's advantage that he should feel that he had taken an intelligent part in his own cure and that there was nothing mysterious about the proceedings. The opinion was expressed that the men should be admitted direct from France into special county hospitals, with special medical officers, who knew how to create a true atmosphere of cure. Here, along with the neurasthenics and psychasthenics, they would quickly recover, by being given, when convalescent, healthy and interesting outdoor employment, instead of lounging about the wards and corridors of large general hospitals with no opportunity of taking exercise except in the streets. Most would eventually return to military duty, whilst the remainder would be discharged from the service after a few weeks or months, but never before they had recovered sufficiently to earn a living in some civil occupation of national importance.

Discussion.

Dr. E. G. FEARNSIDES said that there was no single system which might not be affected by a functional nervous disorder. The commonest mistakes were those in which diagnosis referred to muscles, nerves, joints, and the extremities, such as "myalgia," "rheumatism," "lumbago," "sciatica," "neuritis," "rheumatoid or osteo-arthritis," "trench feet," and "frost-bite." In many cases diagnoses of affections of the alimentary tract or pulmonary system were attached to patients whose real trouble was of psychological origin. The majority of patients diagnosed as suffering from "D.A.H." would be benefited by special treatment directed to the psycho-neurological aspect of their disabilities. Cases in which the diagnosis of organic diseases of the central or peripheral nervous system was made were much less frequent. Schemes for the distribution of soldiers or pensioners in houses, with isolated families, were impracticable, owing to the size of the problem; and, moreover, in such houses there was no

atmosphere of cure. Special hospitals were necessary, but under military conditions a man must be either doing military work of some kind or be in hospital, yet no person who had broken down with a functional nervous disorder was fit on the day he left secluded ward life to meet the difficulties of the everyday life of the soldier; the hospitals, therefore, must have grounds for treatment in the stages between hospital and duty. As patients might show evidence of disorder of other portions of the body, the hospital should not be too far from experts in other classes of disease and injury, nor too distant from a general military or large civil hospital. Military hospitals should be near a railway station or there would be difficulties in transport and conveyance both for patients and consulting staff. There were two great groups of these cases: (1) The passive suggestible hysteric who had shrunk into himself and developed fixed, circumscribed, obvious objective difficulties, and was usually best dealt with by a *force majeure* sent in as a stimulus from the external environment; and (2) the restless, discontented, hypersensitive psycho-neurasthenic, with his much less easily comprehended subjective worries, fears, and bothers, ego-centric and yet expansive when approached sympathetically, who, if treated in the manner adequate in the hysteric would not only not be cured, but rendered wellnigh incurable. Occupation of a useful kind was essential, such as needlework, mat-making, wood-carving for bed patients; for those who could go about, training in some occupation likely to be of use in after-life had provided the most stable recoveries. Instruction in workshops was a necessary part of treatment in those who were not returning to the fighting ranks, but for those whose civil and military work would in the future be out of doors work on the land should be provided. Entertainments, especially those with a competitive element in which the patients took part, generally increased the rate of recovery. Physical drill and gymnastic displays were useful. Much depended upon the training and previous experience of the medical officer. He must know each patient and must not have too many on his hands. In general, fifty patients would be a maximum. Modified psycho-analysis was useful; dreams might be helpful in diagnosis and in elucidating the divers problems of psychological origin with which the patient was faced. Suggestion of some sort was essential, whether used through strong faradism, by personal contact, or during hypnosis. Massage, electricity (high frequency, faradism, static breeze, etc.), baths (sinusoidal, *can courant*, hot and cold douches, etc.), radiant heat, remedial exercises, gymnastic exercises, and physical training, were useful but secondary adjuncts. It would be well that the military authorities should establish near the special hospitals repairing dépôts for the A.O.D., the A.S.C., the A.S.C.M.T., and R.E.'s, where the working capacity of men in special hospitals might be put to immediate useful national military work. At the same time such dépôts would be a means of training soldiers suffering from functional nervous disorder before transference to these specialist branches of the army. Dr. Fearnside gave an analysis of results of treatment at the Home of Recovery, Golders Green, for the five months between October 1st, 1917, and February 28th, 1918. The number of discharges was 186. Of these 24 were medically unsuitable, 12 resented treatment, 3 left for good family reasons, and 4 were disciplinary discharges, a total of 43. Of the remaining 143, 4 practically attained pre-war standard, 39 were fit for work, 53 returned to former employment, 33 went to new work, and 14 went to further training.

Captain E. D. ADRIAN, R.A.M.C., said that when considering treatment the psycho-neurasthenic must be regarded as a type apart from the hysteric. Of 1,000 patients who had passed through his hands at Aldershot, 70 per cent. had been psycho-neurasthenics. These men as a class were far more difficult to treat, and for them treatment had to be more protracted.

Dr. J. CHARLTON BRISCOE said that after discharge from military service the men should be followed up and given an inducement to work; at the time of their discharge from Golders Green most were not fit for full employment, but many had been interested in the employments offered there, and had applied for further training in carpentry, engineering, etc. When a man left institutional

life he should at once go back to active employment. Some scheme to ensure this happening in the case of every single individual patient was necessary.

Sir R. ARMSTRONG-JONES, Dr. HENRY HEAD, and Sir JAMES FOWLER also spoke, and Major HURST, in reply to various questions, said that under favourable conditions about 50 per cent. of the patients could return to military duty, and at the time of discharge the other half were fit to earn their living in ordinary civil life. There was a great need for some scheme by which patients could be given work directly they left hospital. Of the types he had seen at Netley the hysterics were the easier to treat; they formed about the same proportion as at Aldershot. More medical officers were required, and kindness and sympathy were needed. The medical officer must be the patient's friend. Some means should be devised to prevent patients, before appearing at medical boards, being subjected to long and tiring journeys, or they would then seem much more incapacitated for work than they really were. It was desirable that the medical officer who had treated a patient should be a member of any board appointed to estimate incapacity.

Reviews.

MALARIA IN MACEDONIA.

Two medical officers—Major W. G. WILLOUGHBY, R.A.M.C., T.F. (M.O.H. Eastbourne), and Captain LOUIS CASSIDY, R.A.M.C.—who have been serving in Macedonia, have produced a book, entitled *Antimalaria Work in Macedonia among British Troops*,¹ which, small as it is, is likely to become a classic in the literature of malaria, for, although later editions may appear, this first issue, as giving the point of view of men actually facing the difficulties during the first two years in Macedonia, will always retain historical value. We may say at once that the book is a very complete little treatise on the mode of dissemination of malaria, and of the measures which can be taken with an army in the field for its prevention. As such it will be of immense value to military medical officers who serve in malarious countries; and not to them alone, for it puts the matter so clearly and simply, but yet fully, that it will serve as a useful *vade mecum* to officers of combatant units, of the Royal Engineers, and of the Army Service Corps.

The natural characteristics of the part of Macedonia occupied by British troops conduce to malaria. At the foot of the mountains, which are traversed by many ravines and valleys, there are large plains through which the water from the hills finds its way to lakes and to the sea. In the ravines the watercourses, overhung with vegetation, are narrow, with frequent rocky pools, in which mosquito larvae are found. Moreover, in the dry season some of these streams may become very scanty, with many side pools for which there is no natural drainage. In the plains during the hot malaria months the stream beds are only partially filled with water, leaving pools and patches of stagnant water generally full of weeds and many weedy shallows. In addition there are lakes with large surrounding patches of marshy ground overgrown with rushes and reeds. There are also many village springs, and where the flow is constant all the year round the overflow forms semi-stagnant waterlogged areas. Wells are less common, but they also are infested with larvae. Owing to these natural characteristics of the country and to the great heat of the summer, mosquitos, both *culex* and *anopheles*, have no difficulty in maintaining themselves. The native inhabitants are probably all more or less carriers of the parasite, so that the mosquito has easy work in transmitting malaria. Its opportunities have been greatly increased by the large number of soldiers who suffered from the disease during 1916.

Attention is directed to the need for destroying the adult insect, both when hibernating and during the summer, when it infests the vegetation on the borders of streams and lakes, and also in buildings and dug-outs. For the destruction of mosquitos in such places fumigation

¹ *Antimalaria Work in Macedonia among British Troops*. By W. G. Willoughby, M.D., Major R.A.M.C.(T.F.), and Louis Cassidy, M.B., Captain R.A.M.C. 1918. London: H. K. Lewis. (crown 8vo, pp. 68. Price 3s. 6d. net.)

with sulphur (1 lb. to 500 cubic ft. of space), the burning of cresol, and spraying with 1 per cent. solution of formalin are advised. It seems certain that when precautions are neglected many men become infected in the dug-outs. The main attack must, of course, be on the larval stage, which lasts seven to ten days. Large lake marshes are extremely difficult to deal with, but something may be done by reducing the amount of vegetation and by oiling the parts near the shore where the larvae are mostly found. Pools and marshy ground left by the summer dwindling of rivers in the plains can be dealt with by digging drainage channels, but in the rocky bed of a torrent special difficulties are encountered. An instance is recorded in which a pond, a fertile source of mosquitos, was situated in marshy ground but itself in a saucer-like depression in the rock, which could not be drained without much blasting and was too large to be filled in. A 6 in. iron pipe siphon was fixed and the level of the water reduced by 4 ft., thus lessening the area of water to be treated with oil. Constant supervision is required, and the patrols should be trustworthy and intelligent men who can be depended upon to carry out instructions and to report defects.

When all is done the whole area occupied by troops cannot be rendered free from mosquitos and their larvae in the time and with the means at disposal, and consequently personal prophylaxis is necessary. Here the chief implement is the mosquito net, but it is useless unless kept in good repair and properly adjusted each night. Face nets are also recommended, but it appears to be difficult to get the nets, and afterwards to induce the men to use them properly. The prophylactic value of quinine in the doses given has proved incomplete and questionable. Men receiving at least ten grains of quinine sulphate in solution twice a week, and often up to ten grains daily for a long period, have been taken ill with malaria, primary and recurrent. The conclusion is that while quinine prophylaxis should still be employed, especially where other precautions are difficult, reliance should be placed infinitely more on the various methods of protecting men from the bite of the mosquito, of which the most effective is the elimination as far as possible of its breeding places in pools, marshes, and casual water in wells, tubs, and hoof prints.

NOTES ON BOOKS.

DR. CAMPBELL MACFIE'S brightly written book, *The Art of Keeping Well*,² is intended for the general public, and contains many common-sense maxims, especially as regards diet and exercise, set forth with a wealth of apt illustration. The author, who has had much experience in sanatorium work, insists that no ventilation is good unless it creates a perceptible movement of air or breeze to stimulate the skin. In some practical remarks on sleep many readers will be glad to find that there is no hygienic or moral merit in early rising, and they should take to heart the further statement that in children it may impair the growth both of body and mind. As an example of the author's happy knack of epigram, his dictum that probably the two main causes of constipation are unpunctuality and pills may be quoted. Like most books this one shows the influence of war conditions in some of the analogies, and in a reference to the erroneous belief that war bread is indigestible.

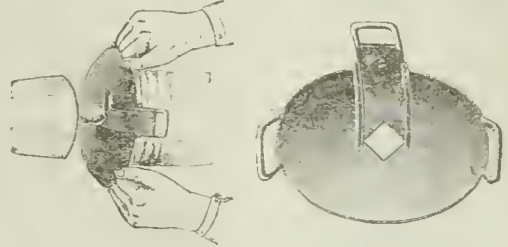
MM. COPPEZ and VAN LINT have written for nurses an eminently readable and very useful little book³ on the care of the eyes. Especially worthy of note is the profusion of illustrations, admirable reproductions of actual photographs. The first part of the book deals with the anatomy and examination of the eye, the second part with such matters as lavage, bandages, shades and goggles, lotions and drops, electrotherapy, ocular massage, and the application of heat and cold to the eye. The third part describes the hygiene of the sick-room, the operation room, the sterilization of instruments, and ophthalmic nursing before, during, and after the actual eye operation. The fourth part is devoted to certain special subjects, such as the nursing of purulent ophthalmia in the newborn and

first aid in accidents, burns, etc. There is an excellent chapter on prosthesis, and a glossary of the various ophthalmic drugs and instruments in common use completes the volume.

MEDICAL AND SURGICAL APPLIANCES.

An Amputation Flap Retractor.

CAPTAIN R. BUTE MACFIE, M.B., F.R.C.S.E., R.A.M.C. (I.C.), writes: The illustrations will give an idea of the construction of this instrument which I have designed. Its main objects are to give the maximum retraction of skin and muscle flaps in amputating and the easiest access to the bone to be divided. It is easily applied by one assistant, and, when the operator is dividing the bone



the assistant's hands are well out of the way—the bone can be divided without obstruction at the desired point. The diamond-shaped opening gives ready adjustment to any size of bone, and the whole is readily sterilizable in the army pattern sterilizer. This form of retractor has been used in several hospitals in France for eighteen months and has given satisfaction in every way. It is made by Messrs. Mayer and Meltzer.

ROYAL MEDICAL BENEVOLENT FUND.

THE annual general meeting of the Fund was held on March 12th, when the officers were re-elected. Votes of thanks were passed to the Editors of the *Lancet* and *BRITISH MEDICAL JOURNAL*, Mr. Guy Elliston (Financial Secretary of the British Medical Association), and to the lay press.

Owing to the growth of the work, a subcommittee has been appointed to deal with cases and to report to the Committee of Management in the same manner as another subcommittee reports on annuities. Reference was made to the loss the Committee had sustained by the death of Dr. Parker Young, who had been a member for forty years, and had served the Fund with great constancy and devotion. During the year Dr. W. S. Colman, Dr. John Fawcett, Mr. Guy Elliston, and Dr. Leonard Guthrie had been elected members of the Committee, and Dr. Newton Pitt had been appointed representative of the Royal Medical Benevolent Fund upon the Professional Classes War Relief Council. The report contained an expression of the view that disputes between the Fund and Epsom College with reference to legacies should be settled amicably, and of the hope that some means of referring such matters to arbitration would be found.

War Emergency Fund.

The report contained a brief explanation of the reasons for the establishment of the War Emergency Fund. It was started in 1916, and more recently a second appeal was made, which was supported by a letter addressed to members of the Association by the President, the Chairman of Representative Meetings, the Chairman of Council, and the Treasurer (*BRITISH MEDICAL JOURNAL*, December 22nd, 1917, p. 842). The report pointed out that many medical men, when called up, had to leave on very short notice, without time to make adequate provision for the continuance and maintenance of their practice during their absence. As a result they had to face a severe fall in income, even when supplemented by army pay, while many expenses, such as rent, insurance, taxes, family maintenance, and education, could not be materially reduced. Although in a year or two after their return it may be hoped that those affected will recover their position, still in the interval help is and will be required, and it is to meet these needs that the War Emergency Fund was instituted. To be effective the grants must be made on a liberal scale, and the fund from which they are

² *The Art of Keeping Well*. By Ronald Campbell Macfie, M.A., M.B., C.M., Honorary LL.D. Aberdeen. 1918. London: Cassell and Co., Ltd. (Pp. 244, with one colour and three half-tone plates. 6s. 8d.)

³ *Soins Oculaires à l'Usage des Infirmités*. By H. Coppez, Agrégé à l'Université libre de Bruxelles, and A. van Lint, Chef de Service à la Policlinique de Bruxelles. Brussels: O. de Rycker and Mendel. 1916. (Cr. 8vo, pp. 186; 114 figures.)

to be drawn must be a large one. The appeal is for the sum of £25,000. The following statement shows the response so far made:

	£	s.	d.
First appeal (1916)	3,892	2	2
Second appeal (1917-18):			
Received	£10,833	7	9
Promised	500	0	0
Dividends		247	5
	15,472	14	11
The investments in National War Securities amount to... ..	13,500	0	0

Hitherto the cases with which it has been called upon to deal have not been numerous and the amount actually expended is small. It was anticipated that this would be the case so long as the war lasts; when it is over and the medical men return to civil practice their army pay will cease and many will be hard put to it to meet necessary expenses while they are recovering their former position. Many of the cases already dealt with have been very hard; the help given has been most valuable and has most conclusively proved the need for such a fund. It is expected that the number of cases will become large when demobilization occurs, and the money not immediately required is being invested in War Loan. It is calculated that the whole amount in the Fund will be spent in the course of two years or so after the war ends. The money received by the Fund has so far been subscribed entirely by the medical profession itself, and it is felt that an appeal should be made to a wider circle. No profession has been so hard hit by the war as the medical, and no other has been called upon, as a profession, to give its services unreservedly, though often at very great personal sacrifice. The value of the services rendered is shown by the immunity from diseases which were formerly the scourge of armies in the field and by the success of modern medical and surgical methods.

The General Fund.

The finances of the General Fund are administered in two departments—grant and annuity. The total donations and subscriptions to the grant department in 1917 amounted to £2,713, an increase of £645 over the previous year; this included a legacy of 100 guineas left by Lieut.-Colonel Leahy. The amount distributed was £2,269, including £120 in war-time gifts at Christmas. The decrease is due to the fact that twelve of the new annuitants had for long received grants from the Fund. The income of the annuity department was £2,911, or £75 less than last year, but when income tax on dividends has been refunded the total income will be about £200 more. The amount distributed was £3,221, including Christmas gifts of £1 each to the annuitants, who number 161.

THE THERAPEUTIC VALUE OF RADIUM.

THE annual report for 1917 of the London Radium Institute differs from its predecessors inasmuch as in place of any detailed account of the 603 cases treated in that year it provides summaries arranged under various heads of the conclusions drawn from the experience of the six and a half years which have elapsed since the institution was founded. During that period 40,000 treatments have been given to nearly 5,000 patients, of whom about half were suffering from malignant disease (including rodent ulcer). Each section is illustrated by cases. It was not found practicable to state the later results of all the cases treated, and as an alternative it was decided to select from the after-histories of those patients who could be traced a series of cases of cancer and of sarcoma which were apparently cured, if the test of immunity for more than three years is held to justify that term. Some such test is the only one that can be applied, and three years is the period usually accepted by surgeons. We regret that the limitation of space prevents us from giving a detailed account of all these remarkable cases, but we understand that a copy of the report will be sent, post free, to any medical practitioner who will apply to the Secretary of the Radium Institute, 16, Riding House Street, Portland Place, W. 1. The report, which is the work of Mr. A. E. Hayward Pinch, F.R.C.S., medical superintendent, who acknowledges his indebtedness to the assistant medical superintendent (Dr. J. E. A. Lyubain),

opens with a reminder that in judging the results recorded it must be remembered that the policy of declining to treat operable cases of malignant disease, rodent ulcer alone excepted, has been rigidly followed, save only in those instances in which patients have absolutely declined to submit to operation.

Epitheliomata.

The after-results of radium treatment of epitheliomata of small size, and affecting glabrous surfaces, when taken at an early stage and before lymphatic infection is evident, have been encouraging, and it is considered that when patients decline to submit to removal by excision the treatment may justifiably be resorted to. The results with epitheliomata of mucous membranes (mouth, tongue, fauces, or oesophagus) have been disappointing. In the mouth disappearance or fibrosis of a small primary lesion may be obtained, but sooner or later lymphatic involvement occurs. In the oesophagus definite temporary improvement may be obtained, the stricture becoming more patent, so that the patient is able to swallow solid food for six or nine months, or even longer. Some patients treated for epitheliomata of the vulva and vaginal mucosa remained apparently well for many months.

Carcinoma of the Uterus.

The larger number by far of these cases presented themselves at a stage when the disease was very far advanced, so that there could be no hope of apparent cure; but arrest of hæmorrhage, diminution of discharge, healing of ulceration, lessening of induration and relief from pain, were almost invariably obtained. Some patients responded much more speedily and completely than others, but in almost every instance distinct benefit was observed, and the rate of progress of the disease greatly retarded.

CASE 1337.—A woman, aged 46, who had undergone two partial operations in September and October, 1913. She received radium treatment in December, 1913, and in January and March, 1914. The disease was arrested, and the patient rapidly regained health and strength. In January, 1918, her medical attendant reported that she was quite free from any recurrence of the carcinoma.

CASE 382.—A woman, aged 68, with extensive cervical and vaginal cancer, declared to be inoperable by the surgeon consulted. She received treatment in February, April, and October, 1913, and in March, 1914. Great local improvement ensued, and from March to the end of September, 1914, she was apparently quite well, but in October symptoms of kidney disease appeared, and she died of uræmia in January, 1916. There had been no recurrence of the local trouble.

CASE 5348.—A woman, aged 34, with inoperable carcinoma of the cervix. She was treated at intervals varying from two to six months, the last time in July, 1916. In February, 1918, her general condition was good; she had gained in weight and was equal to all her household duties. There was extensive fibrosis of the vaginal walls.

Carcinoma of the Rectum.

The results here were not constant or uniform, but in some instances growths regarded as inoperable were so much improved, their size and vascularity being so lessened and the degree of fixation so diminished, that they were removed, and the patients remained free from recurrence. This, however, has not frequently happened, and in the majority of cases the most that can be hoped is healing of ulceration, diminution of the rate of growth, checking of the hæmorrhage, and postponement of the date at which colostomy becomes imperative. The best results were obtained where the growth was annular, spongy, and situate in the upper half of the rectum. The plaque-like, infiltrating growth was not found so amenable.

CASE 225.—A man, aged 70, underwent excision of the rectum for malignant disease in 1901. A recurrence in April, 1912, was excised; a second recurrence in October, 1912, was declared inoperable. He then had a hard carcinomatous ulcer immediately inside the anal opening, with much surrounding induration. He received radium treatment in October and November, 1912; the ulceration healed, and the growth was replaced by fibrous tissue, which caused stricture necessitating occasional dilatation; the patient when last seen, in January, 1918, was in good general health.

CASE 35.—A man, aged 35, received radium treatment in October, 1911, for a large ulcerated carcinomatous growth in the lower half of the rectum, declared to be inoperable. The ulceration healed, and the growth became reduced in size and much less fixed. Early in December Kraske's operation was performed, and the patient was given a course of prophylactic irradiation. He made a good recovery, and the latest information,

in February, 1917, was that he was in perfect health and leading an active and busy life.

CASE 752 is another example of malignant growth of the rectum pronounced inoperable, but after radium treatment successfully submitted to operation. He died from granular kidney and nraemia about a year later, but there was no evidence of recurrence of malignant disease.

CASE 1997 was that of a woman, aged 40, with extensive inoperable cancer of the rectum. She received radium treatment in January, April, and October, 1916, and January, May, and November, 1917. When last seen, in January, 1918, the disease was apparently quiescent, and there had been no rectal haemorrhage since the previous August.

Carcinoma of the Bladder.

Inoperable cases tolerant of intravesical applications may be advised to undergo radium treatment, as sometimes apparent cure results. Definite improvement in the symptoms is usually evident in about three weeks, and in the most favourable cases healing of the ulcer, with the transformation of the carcinomatous material into a fibrous mass, takes place.

Carcinoma of the Breast.

Cases of carcinoma of the breast form the largest class applying to the Institute; all those in which operation was at all practicable were invariably advised to submit to operation, so that those treated were nearly all in an extremely advanced state with extensive lymphatic involvement. In some instances great improvement followed radium treatment, especially in cases in which the disease was chiefly superficial, and confined to the skin of the operation area and the axillary and supraclavicular glands. Superficial ulceration unaccompanied by much subjacent induration often healed rapidly and completely after a radium exposure of eighteen to twenty-four hours. If the deeper lymphatics are involved and the lungs, or any of the abdominal viscera affected, little can be looked for beyond possible retardation of the rate of growth and the prevention of extensive ulceration. Cases of atrophic scirrhus in patients over 60 years of age may be kept in check for an almost indefinite time by radium irradiation repeated every three or four months.

CASE 1125.—A woman, aged 47, underwent in July, 1911, amputation of the right breast, with clearance of the axilla; in June, 1913, there was recurrence in the axilla. She was treated with radium during February, 1914, and by April the induration which had been present in the right axilla and in the left supraclavicular fossa had disappeared. In January, 1918, she wrote that she was better than she had been for many years.

CASE 151.—A woman, aged 64, underwent Halsted's operation in June, 1911. There was recurrence in February, 1912. She received radium treatment in March and April, 1913, and in January and March, 1914. When last examined, in April, 1917, no indication of any malignant trouble could be detected.

CASE 854.—A woman, aged 51. Right breast removed May, 1912; recurrence in ear September, 1913. She first received radium treatment in November, 1913; it was repeated in February and April, 1914. When last examined, in January, 1918, no trace of the disease could be found.

CASE 5003.—A woman, aged 48. Excision of the right breast in 1906; clearance of the axilla in 1909 for glandular recurrence; several operations for nodules, the last in 1912. In 1913 there were multiple recurrences, and a further operation was declared impracticable. She received radium treatment in January, March, and April, 1914; when last examined, in October, 1917, no trace of the disease could be detected.

Sarcoma.

The results of radium treatment of sarcoma are said to be on the whole more satisfactory than those of any other form of malignant disease, with the exception of rodent ulcer. The treatment must be vigorous, the tumours being treated whenever practicable both by the insertion of emanation tubes and by external radiation. The best and most rapid results were obtained in lympho-sarcomata; the disappearance of the tumours when the dosage was correct is said to be little short of marvellous. Sarcoma of the tonsil and post-nasal space have responded extremely well. The response of periosteal sarcoma has been good, but not so uniform, though the percentage of recurrence has been slight and cases are recorded in which the patient remained free from any manifestation of the trouble for a period of more than four years. Melanotic sarcoma usually proved unamenable, but in one case of melanotic sarcoma of the choroid and in another of the skin of the

back complete disappearance of the primary growths was observed. The former case (a woman) has remained well for two years, but the latter (a male, 21) died fifteen months later from secondary deposits in the brain and lungs.

CASE 50.—A man, aged 41, treated for a large and rapidly growing recurrence of lympho-sarcoma of the neck. He received fourteen treatments from October, 1911, to January, 1912. The growth had disappeared at the end of February, and in January, 1917, the patient was seen free from recurrence, and in excellent health.

CASE 4931.—A woman, aged 32, with a large periosteal sarcoma of the right thigh, for which amputation at the hip-joint had been suggested. Microscopical examination showed that it was a spindle-celled sarcoma. She received radium treatment during February and April, 1914. Improvement was very rapid, and the patient at the date of the report was in excellent health.

CASE 567.—A woman, aged 62, with a large rapidly growing sarcoma of the clavicle. Radium treatment (June, 1913) was followed by rapid disappearance of the growth. When examined in January, 1918, there had been no recurrence.

CASE 4905.—A woman, aged 32, with rapidly growing recurrence of sarcoma of the nasopharynx. She received radium treatment in 1912, and at the last report (March, 1917) was in excellent health.

CASE 140.—A girl, aged 15, round-celled sarcoma of the superior maxilla with recurrent sarcoma following operation for a growth in the antrum. Radium treatment was begun in February, 1912; at the end of June all signs of recurrence had disappeared, and when last seen, in March, 1917, she was in excellent health.

Mediastinal Tumour.

Some remarkable results have been obtained in mediastinal tumours causing dyspnoea, venous congestion, and disturbance of the sympathetic and recurrent laryngeal nerves. It was considered probable that the majority of these growths were lympho-sarcomata, as this would account for the favourable influence that radium rays exerted upon them.

Lymphadenoma.

The response of lymphadenoma of recent origin, with enlargement of the spleen or mesenteric glands, to radium treatment may be rapid. In some cases, especially those treated in the early stages of the disease, the patients can go on for eighteen months or two years without further treatment, but the majority require the irradiation to be repeated at intervals of four to six months.

Rodent Ulcer.

Of rodent ulcer it is said that cases which have not received previous treatment with carbonic acid snow, ionization, or x rays, and in which the lesion does not exceed 3 to 4 cm. in diameter and does not implicate cartilage, bone, or mucous membrane, can almost invariably be cured by one or perhaps two exposures with powerful unscreened applicators. The tissues must be irradiated well beyond the margin as appreciable by sight or touch, and a long exposure given; otherwise recurrence will usually be noticed within twelve months. When the mucous membrane, more especially the nasal, is affected it appears almost impossible completely to eradicate the disease unless the area involved is very small. Advanced cases of old standing, with great destruction of the cheek, nose, and upper lip, involvement of the nasal mucous membrane, and perforation of the hard palate, could only be slightly benefited, but such severe cases, often seen during the first two or three years of the work of the Institute, have now become rare, probably because the efficiency of radium treatment of rodent ulcer in its early stages has been more widely recognized.

The report also contains a note upon the effect of radium in checking menorrhagia and metrorrhagia accompanying fibroid disease of the uterus. Among other conditions treated with greater or less success are to be mentioned papillomata of the bladder, lupus vulgaris and erythematosis, keloid, lichenification of the skin, pruritus, and naevi. When used in exophthalmic goitre radium may at first cause exacerbation of all the symptoms, but usually within six weeks or two months tachycardia lessens, the tremors diminish, the exophthalmos becomes less noticeable and the restlessness and irritability decrease.

British Medical Journal.

SATURDAY, MARCH 23RD, 1918.

MALARIA IN THE ARMIES.

MANY districts of Macedonia are notoriously malarious. Though no detailed statistics have been published it is known that the allied armies have suffered severely and that the mosquito hosts have upset many military plans, especially in the Struma Valley. That some of the delays and failures from this cause might have been obviated had the general staffs been better acquainted with the mode of dissemination of malaria and the measures necessary for its prevention or mitigation seems to be demonstrated by the fact that very considerable improvements were obtained last year. The casualty figures have been dwarfed by those of sickness due to malaria. The season at which the disease was most prevalent was from May to October. In the British army, in one region during January, about 1 man in 1,000 was evacuated weekly to the base with malaria. The number then rose steadily, until in the third week of May about 1 in 130 (about 7.6 in 1,000) had to be evacuated; then followed a slight remission, with a sudden rise towards the end of June, the figure reaching about 1 in 55 (about 18 in 1,000) in July, and continued about the same rate until September, when there was a slight fall. In mid-September there was a sudden rise, the maximum for the year being reached in the second week of October, when the rate was 33 in 1,000. Some specially exposed units, we are told, had almost, if not absolutely, all their personnel infected at the same time, and in a few cases as much as one-third of the strength of the unit has been evacuated to hospital within a month in the height of the malaria season. These figures, we understand, refer to 1917, when the continuous antimalarial work had resulted in a considerable diminution as compared with the previous year. Some rates issued by the War Office last July,¹ referring to a period of four weeks ending on June 23rd—not covering, that is to say, the season of the severest incidence—showed that primary cases of “malaria and other fevers” were 7.79 per 1,000 a week in 1916, and 5.56 in 1917. Had the recurrences been included the rates would have been very much higher. With regard to malaria in the French army in Macedonia, we published some figures last November showing that considerable improvement had taken place, which was attributed to the attention given to the sanitation of localities, to the free distribution of mosquito nets, and to the administration of a daily dose of quinine under supervision. The rate in August was 39.16 in 1916, and 23.8 in 1917; in September it was 74.6 in 1916, and 29 in 1917; only about one-sixth of the admissions in September, 1917, were new infections.

These high rates of sickness from malaria, coupled with the severe prevalence of dysentery and diarrhoea, embarrassed military operations. General Milne stated in his dispatch² that when in May, 1917, it was determined not to make a general attack, he found it necessary, moved by the experience of malaria and dysentery gained in the previous year, to abandon the forward positions on the right and centre of the line

and to retire to the foothills. It can hardly be doubted that the operations throughout have been hampered by the high rates of sickness.

That these misfortunes should have happened to the armies of France and Britain, the two countries which in friendly rivalry have solved the root problems of malaria—the nature of the infective agent and the mode of its dissemination—is one of those ironies of history which will lend point to the satire of some future Gibbon. The book by Major Willoughby and Captain Cassidy, reviewed elsewhere in this issue, provides ample material for judging the difficulties of the problem. The Intelligence Departments must have known that it would be impossible, having regard to the configuration and climate of Macedonia, to carry out a campaign in that country without incurring the risk of serious sickness from malaria. The country is infested with mosquitos, including several species of *Anopheles*, which find suitable breeding places not only in the marshy rivers of the plains, but in the valleys, ravines, and upland bogs of the hills. It was known, moreover, that malaria was endemic in Macedonia and that infected persons abounded among the natives. The conclusion that ought to have been drawn was that the mosquitos of the species capable of carrying the haematozoon would certainly be infested. To send large numbers of young soldiers into such a country without taking every precaution that science could suggest or experience dictate was a heinous military fault. We have no doubt that the risks were fully brought to the notice of the general officers commanding and their staffs by the respective medical departments, but there seems grounds for the belief that the full significance of these warnings was not appreciated. As the authors of the book to which we have referred say, “co-operation between officers of all branches of the army is far more satisfactory when its basis is intellectual.” Were the military importance of the problem fully appreciated, executive officers would be readier to consult with medical officers expert in malaria as to camp sites where these have not to be fixed by purely military exigencies. The medical department of the army, we are told, has too little executive power in many respects; mere recommendations lead to delay. The hibernating mosquito should receive special attention in the winter and spring months, and canalization and similar work should be begun early in the year, even in March or April, as soon as the waters begin to subside. Education of officers and men of all branches should be considerably extended, for it appears that insufficient notice is too often taken of lapses of care on the part of individuals in protecting themselves and others from exposure to needless risks of mosquito bites. One instance is mentioned in which at a night visit to a camp it was found that only 6 per cent. of the men had taken the trouble to close their nets properly. “The only censure in the case of which we heard was apportioned to the officer who made the discovery for not properly notifying his visit before examining the nets of the unit.” Clearly education is very much needed, and it is depressing to read that two medical officers newly arrived in Macedonia stated that attendance at lectures on malaria in their recent home R.A.M.C. training was optional. Macedonia is not the only malarious district in which the British armies are engaged. It is known that the incidence of the disease in Mesopotamia was severe, and if half of what rumour says can be believed the condition of things in East Africa is little, if at all, better.

¹ BRITISH MEDICAL JOURNAL, 1917, vol. ii, p. 56

The difficulties created for the army medical administration do not end when a malaria patient is invalided home. The number of men under treatment in this country has been very large, and we are afraid that no entirely satisfactory system of curing them has yet been evolved.

PROPHYLAXIS OF PNEUMOCOCCIC INFECTIONS.

THE black races are peculiarly susceptible to pneumococic infection; among the natives of Madagascar and Senegal and the Annamites virulent septicaemia with invasion of the serous membranes is prone to occur, and this tendency is aggravated when these natives are exposed to unusual conditions of cold. Jonin¹ has been impressed, from his experience at the colonial labourers' camp at Toulon, by the frequency of sudden death among these natives during the first few days of frank pneumonia; the heart was free from any murmur, but the pulse was rapid, and the systolic blood pressure often below 100 mm. Hg. In these cases the myocardium was degenerated, pericarditis and early pneumonia were present; death was ascribed to a toxic neuritis of the cardiac nerves, against which cardiac tonics and adrenalin are recommended. In the camps at St. Raphael and Fréjus the same tendency to septicaemia was shown, and among 52 cases of acute meningitis Banjean² reports 22 due to primary pneumococic infection—that is, not secondary to pneumonia; all ran a rapidly fatal course, were remarkably free from vomiting, and often showed pus in the accessory nasal sinuses; the cases occurred sporadically and not in an epidemic form. He also describes six interesting cases of pneumococic infection of the skin, four being on the face and suggesting erysipelas with oedema and great swelling. Small bullae then appeared in successive crops, and desquamation was sometimes followed by small yellow abscesses crammed with pneumococci.

In order to protect natives sent to France in labour contingents, the South African Institute for Medical Research provided a prophylactic vaccine, and the results of this immunization appear to have been very satisfactory, although as yet official figures are not available. This was but a small part of the extensive work carried out by F. S. Lister,³ under the South African Institute for Medical Research, on the immunization of man against pneumococic infection, and especially of the native mine labourers against lobar pneumonia. In America Douchez and Gillespie in 1913 established four main types of pneumococci,⁴ and shortly afterwards Lister began to isolate the groups in South Africa, and now refers to about a dozen, of which "A," "B," and "C" are responsible for 69 per cent. of cases of pneumonia there. It is interesting to note that group A, which is the predominant pneumococcus in the Transvaal natives, is not represented in America, and that groups "B" and "C" correspond to the American types II and I, which are the most important in the etiology of lobar pneumonia. A prophylactic vaccine of groups "A," "B," and "C" was given to large numbers of native mine labourers with most encouraging results; in the Crown mines the natives thus inoculated became absolutely immune to pneumonia due to these groups of pneumococci, though pneumonia due to these groups was prevalent among uninoculated natives

in other mines. But 82 cases of pneumonia occurred in the Crown mines among the inoculated natives; they were due to groups of pneumococci, mainly "E," "II," "J," "K," which are therefore probably of sufficient epidemiological importance to warrant their inclusion in a more comprehensive vaccine for future use. These observations are obviously not only of scientific interest, but of great economic importance. Apparently the results have met with some hostile criticism, and the suggestion has been made that the fall in the incidence of pneumonia among the inoculated natives is only part of the admitted decrease of pneumonia due to general causes.

Though these criticisms have only come to our notice in Lister's controversion of their validity, it certainly appears that he has a very strong case, and in any event his labours deserve sympathetic attention. After resorting in 1912 to Sir Almroth Wright's inoculation against pneumonia in the Rand mine labourers there was a remarkable fall in the mortality from pneumonia, but at that time the pneumococcus had not been classified into distinct groups, and it is therefore impossible to say what groups were prevalent in the pneumonia or were represented in the vaccine. Lister's work, therefore, constitutes what promises to be an advance in the practical and scientific application of vaccine therapy. It would be interesting to know what strains of pneumococci are responsible for pneumonia in this country, and how future specific protection by vaccine or curative treatment by antipneumococic vaccine will compare with the results in South Africa and in America respectively.

THE MINISTRY OF PENSIONS.

In seeking an explanation of Mr. Hodge's outburst at Worcester last Sunday we turned to the report of the War Cabinet for the year 1917—a new kind of Blue Book which seems to have greatly perturbed some of the old guard of the Liberal Party. We find there a section dealing with war pensions, covering the whole history of the Ministry which came into existence on December 22nd, 1916. Two main statements are made with regard to its work. The first is that the monetary scale of pensions has been increased and the conditions attached to them widened, so as to effect a more liberal recognition of the country's debt to its defenders. The estimated expenditure for 1918 is 23 millions, and for 1919, 41 millions and a half. But we gather that Mr. Hodge is of opinion that the allocations are in some respects inadequate; that he has had a severe conflict with the Treasury on the subject; and that it is now engaging the attention of the War Cabinet. The other statement in the Blue Book is that "the principle of compensation has been reinforced by that of restoration of social and industrial efficiency," and that the Ministry is concerned with "the continuing medical treatment of the discharged man, his education and equipment as a producer, and the avoidance of any feature in its code that would set a premium upon resigned helplessness or diminish the incentives to profitable exertion." Its obligation in this respect is set out in a later sentence, where it is stated that in the matter of after-care it "has established, and is still developing, extensive safeguards both for health and efficiency." The extensive safeguards enumerated are two: the first is an extension of an arrangement made through the National Insurance Commission for dealing with discharged sailors and soldiers suffering from tuberculosis and for medical treatment of the insured man, so as to provide medical and sanatorium benefits for all such invalided soldiers and sailors, whether insured or not, but subject in the case of the uninsured to an income limit of £160 a year. It is also stated

¹ Bull. Soc. de Path. Exot., Paris, 1917, x 774-7.

² Ibid., 816-827.

³ Publications of the Institute, edited by W. Watkins-Pitchford, M.D. (No. x.) Johannesburg, 1917.

⁴ BRITISH MEDICAL JOURNAL, January 12th, 1918, p. 57.

that, in cases where "special treatment beyond the competence of an ordinary practitioner" (the phrase of the insurance regulations) is necessary, an organization has been set up whereby the services of the nearest suitable hospital are utilized, the Ministry of Pensions defraying the cost. It is claimed also for the Ministry that it has co-operated with other authorities and with the Red Cross Society in enlarging the number of institutions available for the treatment of paraplegia, neurasthenia (including shell shock), epilepsy, and advanced tuberculosis. We are afraid that these phrases express intention rather than achievement. Recent statistics of local authorities show that large numbers of tuberculous men are awaiting admission to sanatoriums. With regard to paraplegia, we are under the impression that the Ministry has hitherto relied upon the Star and Garter Home, established at Richmond by private enterprise, and on provision on a similar basis in Scotland. The care of limbless men is stated in the report to offer the best illustration of the efforts made to combine medical treatment with industrial re-education, but here, again, we are under the impression that the system was in full working order in England, Wales, Scotland and Ireland before the Ministry came into existence. As to the enlargement of the number of institutions available for the treatment of neurasthenia, the only tangible information we have is contained in Mr. Hodge's onslaught on the Home of Recovery at Golders Green. Mr. Hodge committed himself to the opinion that to send men suffering from shell shock to this institution, which is within a raid area, was absurd, and to the further view that a system of hospitals for such cases only was not the best method of treatment. He wished neurasthenic cases mixed with others, "so that the chirpy cheery chaps would shed some of the sunshine of their presence on the neurasthenics." Mr. Hodge went on to say that he proposed to close the institution at Golders Green and to use it for entirely different purposes. The net result of Mr. Hodge's efforts to enlarge the number of institutions available for nervous cases would seem to be to diminish their number by one, yet from the statistics given by Dr. Fearnside (p. 346) it appears that of 143 cases treated to a conclusion at the Golders Green institution 66 per cent. returned to work and a further 24 per cent. were rendered fit for work. These results do not seem to support Mr. Hodge's view, and it may, indeed, be argued that if men are eventually to reside and work in London, or any other district exposed to air raids, it might not be a bad plan to let them complete their recovery in a home of recovery within such a district. We would, indeed, commend the whole trend of the discussion at the Neurological Section of the Royal Society of Medicine last week (reported at p. 345) to the attention of the Ministry of Pensions. It shows that, as in so many other instances, skilled treatment is the truest kindness. Another matter on which Mr. Hodge commented was that medical boards asked men what their work and wages were. Doctors, he said, had no right to ask such questions. It appears from the form for a medical report on an invalid that the doctor is only required to state the man's former trade or occupation. Mr. Hodge said that he hoped in the near future to have civilian boards for discharged men, and that doctors who asked such questions would have to answer to him. We believe that as things stand, men who on leaving hospital are not returned to their units, or to convalescent camps, or command dépôts, with a view of their returning to the fighting ranks, nor finally discharged from the army, may be sent to discharge dépôts, of which there are, we believe, five in England and Wales, one in Scotland, and one in Ireland. Here they are examined by one of two boards—a military board, which may discharge them from the army, when they pass directly into the sphere of the Ministry of Pensions; or they may be examined by a civilian board appointed by the Ministry of National Service, which may place them in one or the other of the low categories surplus to the establishment of the army. Such men will be available for civil work, but

the army will retain a call upon their services. As we go to press we receive a letter from Sir Matthew Nathan, secretary to the Ministry of Pensions, warning medical practitioners that if they attend pensioners, or the wives of serving soldiers, or widows whose husbands have been killed in the war, they do so at their own risk, and that the Ministry will not be liable for any charges which may be incurred. Such persons must in the first place ask the assistance of the local War Pensions Committee. The Ministry appears to have forgotten that the onset of an illness is sometimes acute. The Ministry of Pensions no doubt has a very difficult task, but we are not sure that it is tackling it in the right way from the medical point of view.

A PARSON-DOCTOR OF THE SEVENTEENTH CENTURY.

In his presidential address to the Medical Society of London¹ Mr. D'Arcy Power gave an account of John Ward, vicar of Shakespeare's native town in the seventeenth century. He graduated M.A. at Oxford in 1652. Although while at the university he was chiefly interested in chemistry, botany, and medicine, he never took the degree of Bachelor of Physic. It is probable that he was a student of medicine—a recognized status abolished at Oxford within Mr. Power's own recollection—and he seems to have treated sick persons. He left Oxford in 1660, and attended lectures on anatomy at Barbers' Hall, London. He thought of getting a bishop's licence to practise or the M.D. from a foreign university, but took orders instead, and in 1662 became vicar of Stratford-on-Avon, a living he held till his death in 1681. He left a diary, now in the possession of the Medical Society, which consists of a series of sixteen notebooks, extending from 1648, about a year after he entered the university, to 1679. At Oxford he lived in intimacy with members of the "Invisible College," out of which grew the Royal Society. As to the origin of that body he says: "I have heard this guess abt as ye ground of founding ye Royal Societie. The King well knew yt Harrington who wrote Oceana and such strange fellows as have had their discourses and meetings and have talked of a Commonwealth: whereupon he instituted another societie whereof his Royal Self vouchsafed to be one, in opposition to itt, not thinking fitt to put down ye other by open contradiction." The first volume of the diary contains notes of a Latin lecture on pleurisy, the urine, and menstruation. There are also extracts on the chemistry of antimony from the *Opera medico-chymica* of Angelo Sala, the first of the chemists who ceased to talk nonsense. Ward learnt botany from Bobart, the keeper of the Oxford Physic Garden; the structure of the body he studied in "Briggs, his *Anatomia*"; physick in Ramondaeus, translated by Tomlinson; and surgery in Paracelsus (Ambroise Paré), rendered into English by Johnson. Incidentally he mentions a case of hysterectomy: "Dr. Witherburne in London took out ye womb of a woman." From a note written in 1652 we learn that Glisson said that "Jolivius, one of his friends," stated that there was a kind of vessel distinct from the arteries, veins, and nerves, so connected throughout the whole body that their function was constantly to distribute a watery humour through the whole body. This statement was confirmed by Glisson in 1654. Jolivius, or George Joyliffe, after serving as a lieutenant in the Royalist army, studied physick and was incorporated doctor of physick at Cambridge in 1652. He never himself published his discovery, but the lymphatics were described by two other observers—Rudbeck, a Swede, in 1651, and Bartholinus in 1652. Ward assisted "Dick Lower" in some of his experimental work and was much under the influence of that famous anatomist. The notes relating to the practice of contemporary physicians show that medicine was not studied in the same scientific way

¹ Reprinted from the *Transactions*, vol. xl.

as anatomy and physiology. He relates how Thomas Willis, one of the leading investigators and physicians of that day, "imparts his receipts chiefly to two Apothecaries in Oxford." Of George Ent, to whom we owe the publication of Harvey's treatise, *De Generatione*, it is said that he was called to Warwick Castle, "my Lord Brook having a man very sick of ye griping of ye gutts, My Lord asked ye Dr. what was good for itt. He answered white wiue plentifully drank if itt was not too sharp would doe itt, hee would lay his life of itt." The result is not recorded. There are many references to George Bate, who at Oxford practised chiefly "among precise and puritanical people, hee was then taken to be one of their number." He moved to London and attended Cromwell in his last illness. At the Restoration he became physician to Charles II. Ward says he had heard that "Bate writt few bills wherein hee did not prescribe scurvy grass, hence some have styled him in my hearing, as relating itt for others, ye Scurvigras Dr., imaginiung, I suppose, there might be a tang of itt in most diseases." Mr. Power's address deals only with the first six volumes of Ward's MSS., but he hopes at some future time to give an account of the remainder. He says that the notes shew Ward to have been well read, clear in his opinions, with knowledge based on experiment, yet with a simple credulity inevitable in an age when scientific knowledge was so scanty and uncertain.

RETINAL DETACHMENTS IN RENAL RETINITIS.

FOSTER MOORE has shown that retinal detachment, though not common in renal retinitis, is yet not so uncommon as has been supposed. He has added¹ thirteen cases to those already published. The detachments are either flat or semi-globular, the former usually occurring in the central region, the latter in the periphery. He considers that they are dependent solely on the retinitis, which is generally of a severe type, and that they are independent of oedema of the rest of the body. The intraocular pressure remains within normal limits. Retinal detachment is especially frequent in the retinitis of pregnancy, and is usually bilateral. Nephritis does not cause detachment in the absence of retinitis. The liability to detachment is largely proportional to the severity of the retinal changes. The immediate cause of a detachment is an active subretinal exudation. If the patient recovers, reattachment of the retina occurs, but after recovery permanent visual defects remain, not due so much to the detachment as to the changes resulting in the central parts of the retina from the extensive and severe retinitis. The prognosis as to life is not modified by the existence of a retinal detachment. The paper is illustrated by some very beautiful photomicrographs of a preparation obtained *ost mortem*.

TRENCH FEVER AND THE LOUSE.

THE case against the louse is growing. The theory that it transmits the virus of typhus fever is now generally accepted; it has even been suggested that the virus, whatever its nature, passes through a stage in the louse, but this suggestion is not borne out by the fact that the fever may be directly communicated from one man to another by inoculation. The report of Sir David Bruce's committee on trench fever, which is published elsewhere, gives very strong grounds for believing that the infection of that disease is derived from the contents of the alimentary canal of the louse, since its excreta dusted on, or the crushed bodies rubbed into, a scarified surface induced an attack in six to eight days, while bites of lice from the same batches did not cause infection. The observations rather suggest that the infective agent may be an animal parasite, and as a mere guess the possibility that it is a haemogregarine may be thrown out. An organism of this genus, by which the Indian field rat is infested, passes one stage of its existence in a louse—*Haematopinus stephensi*.

¹ The Royal London Ophthalmic Hospital Reports, vol. xx, part ii.

A MINISTRY OF HEALTH BILL.

It is understood, writes our lobby correspondent, that the draft of a bill for establishing a Ministry of Health is ready for consideration by the War Cabinet, if, indeed, it has not already been submitted to them. The framing of the measure follows upon the conferences which Dr. Addison, Minister of Reconstruction, has had with various departments and parties affected. Nearly a fortnight ago he announced that agreement had been reached, and encouraged the hope that legislation would be obtained this session. Mr. Bonar Law, replying to a question in the House last week, stated that those concerned with the matter were sanguine that a scheme could be carried through, but he was careful to say that they were sanguine and not to suggest that he was. There is ground for the inference that he is not. Apart from the merits of the bill, whatever they may be, the question of time must weigh seriously in the mind of Mr. Law, as leader of the House. The Government resolved a long while ago that, subject to contingencies, the session should be made as short as possible, more especially because the new Register of Electorate will be available in the late autumn, and it is only right, whether or not there be a dissolution then, that parliamentary work should be rounded off so as to allow of a free decision as to a General Election according to the circumstances of the war. If a bill is to be passed this session, therefore, it must go through practically as an agreed measure, for even so, the detailed examination of the clauses in Committee and on Report would take some little time. The fact that so many persons have been consulted in regard to the drafting of the scheme has led to gossip in the lobby in reference to its provisions. It appears significant that amongst those who are in closest touch with the Insurance Commission the proposals find the least sympathy. The deduction is that between the rival claims of the Local Government Board and the Insurance Commission for place in the fresh constitution, the first named (in so far as it is at present concerned with health) has received greater recognition. Generally, however, the measure is spoken of as a compromise, not going very far at first, and the suggestion is made that it may excite criticism on that account quite as much as if it were comprehensive and definitive. The *Times* of March 21st stated that at a private meeting with Welsh members Dr. Addison said that the bill would probably be introduced immediately after the Easter recess.

THE QUEEN has appointed Sir John Phillips, M.D., to be honorary physician to Her Majesty.

THE Editor of the *Lancet* and the Editor of the *British Medical Journal* have been elected, at the annual meeting of the Royal Medical Benevolent Fund, Vice-Presidents of the Fund, in recognition of assistance given to the work of the affiliated War Emergency Fund.

Medical Notes in Parliament.

The Education Bill.

THE Education Bill obtained its second reading on March 18th. The debate began on March 13th, and in its course Mr. Peto presented the objection raised by the British Medical Association to Clauses 18 and 19 as introducing fresh complications in an already very complicated state of affairs with regard to the inspection and attendance on children under existing Acts. No fewer than nine different professional men might be attending a single family under different Acts of Parliament. Most boys between 16 and 18 years of age would be insured persons, and the bill would not only introduce a fresh complication and an overlapping with the health provisions of the Insurance Act, but would be a positive barrier to dealing with the whole of the question of the health of the people on broad and

comprehensive lines. Sir Henry Hibbert said that the medical grant regulations of the Board specified that if the school medical service was adequate and efficient the grant was to be at the rate of one-half of the expenditure. Lancashire had never received more than 40 per cent., because the Department alleged that no comprehensive treatment scheme was in operation, but it was infinitely more difficult in a county area than in a county borough to have a comprehensive medical scheme. In the year ended March 31st, 1915, the expenditure of Lancashire on medical inspection was over £11,000, and the grant £4,166, or 37.85 per cent. The Board refused to take into account any payment to an absent officer in excess of an amount equivalent to his ordinary naval or military pay. The Lancashire Committee in the early stages of the war offered to their officials—of whom they employed nearly 300—that if they would join the forces they would be given their full salary minus one shilling a day because most of them joined as privates. When the full salary was charged to the grant it was immediately objected to. In the resumed debate, on March 18th, Sir Philip Magnus also referred to Clause 15, urging that it was questionable whether the arrangements suggested in the bill were best calculated to secure good physical development or careful and sympathetic treatment during illness. Possibly such arrangements as were now suggested in this bill should be regarded as provisional only, until a Ministry of Health was appointed. Sir William Collins, referring to the physical welfare portion of the bill, gave his support to most of the changes it contained. He considered that the institution of camps, gymnasia, and swimming baths was all to the good, but medical inspection and treatment were to be spread over a much larger area as they were to be applied to secondary schools, and very large considerations would come under review. Some consideration would have to be paid to the representations of the British Medical Association. All questions of medical inspection and treatment would have to be reconsidered in the light of any proposal for a Ministry of Health.

Royal Air Medical Service.—In reply to Major David Davies, who asked what steps were being taken to expedite the transference of R.A.M.C. officers previously attached to the Royal Flying Corps to the Air Force, Major Baird said that the Medical Administrative Committee had met and had come to a number of decisions which were now being dealt with by the Air Council. The officers referred to would, in the first instance, be lent to the air force and would be under the direct control of the Medical Administrator. When the conditions of service for medical officers who were to be seconded to the air force had been decided, those officers who were considered suitable would be seconded to the air force.

Artificial Limbs for Officers.—Colonel Ashley asked why officers were not supplied with a new artificial leg when one was needed, as was done in the case of non-commissioned officers and men. Mr. Hodge said, in reply, that an officer of the army who had lost a leg was fitted with an artificial one free of cost, and was given a wound pension of £100 a year, out of which he was expected to defray the expense of repair and renewal. The wound pension was in addition to retired pay, so that actually no officer who had lost a leg in action got less, in the aggregate, than £150 a year. The question whether it was possible to give military officers further assistance in the matter of artificial limbs was engaging his attention.

Pensioned Soldiers Readmitted to Hospital.—Mr. Macpherson, in a written answer to Mr. Alden, has stated that cases of facial injury in soldiers who received pensions were at present being readmitted to military hospitals. Certain other cases of a special nature were readmitted when the nature of the injury rendered their treatment in a military hospital absolutely necessary in view of the urgency of the particular case.

Maternity and Child Welfare Bill.—This bill, defined as a measure to "make further provision for the health of mothers and young children," was introduced by the President of the Local Government Board on March 14th. It is a bill for England and Wales, and applies to the council of any county or county borough, the common council of the City of London, the council of any metropolitan borough, and the council of any borough or urban district having a population of over 20,000. Power is taken to add to the list the council of any county district. Any of these local authorities may make arrangements, subject to the sanction of the Local Government Board, for attending to the health of expectant mothers and nursing mothers, and of children under five years of age, not attending schools recognized by the Board of Education. There is a proviso that nothing in the Act shall authorize the establishment by any local authority of a general domiciliary service by medical practitioners. A second clause provides that every council in England and Wales exercising powers under this Act or under Section 2 of the Notification of Births (Extension) Act, 1915, shall establish a maternity and child welfare committee, and that all powers of the council under either Act shall stand

referred to this committee, which is to consist, as to two-thirds, of members of the council, and as to the remainder, of persons qualified by training or experience in subjects relating to health and maternity; women and members of the Insurance Committees concerned must be included.

Maternity and Child Welfare in Ireland.—Mr. Duke, in reply to Mr. Scanlan, said that arrangements for maternity and child welfare, in pursuance of the Notification of Births (Extension) Act, 1915, had been undertaken by the local authorities of twenty-six urban districts (including the county boroughs of Dublin, Belfast, Londonderry, and Waterford) and of two rural districts, and comprised schemes of health visiting of mothers and young children by duly qualified nurses, provision of medical and midwifery attendance in necessitous cases of confinement not otherwise provided for, the institution of maternity centres and day nurseries, and the supply of milk and dimmers for necessitous mothers and young children. An Exchequer grant was available to defray half the cost, and in the current financial year was being distributed by the Local Government Board to twenty-four local authorities and to twenty-eight voluntary agencies administering approved schemes. Further schemes on similar lines were being formulated.

Maisons Tolérées in France.—In reply to Mr. Lees Smith, Mr. Macpherson said, on March 19th, that it had been decided, with the permission of our allies, to put *maisons tolérées* in France out of bounds for our soldiers. He added that it was not the British authorities, as had been asserted, who established these houses or who provided the women in them, nor could he find any justification for the assertion that any part of the French civil population protested against any of these institutions established under their own laws; nor did our military authorities in France receive any such protest. Though this statement had been taken the House must not think that the very grave problems of venereal disease which confronted the military authorities in France had been disposed of. Military advisers had grave doubts that the contrary might not be the effect. The question, which it must be remembered was not merely a military one, but a great social and national question, would continue to be watched with anxiety by the War Office. Brigadier-General McMahon asked whether the decision had been come to without the concurrence of the military authorities. Mr. Macpherson replied that it had been come to with the concurrence of our allies. Mr. Gulland asked what was the punishment for being out of bounds. Mr. Macpherson said that one great effect of the new order was to add to the many punishments which were inflicted under the Army Act.

THE WAR.

TRANSMISSION OF TRENCH FEVER BY THE LOUSE.

A COMMITTEE for the study of trench fever, with Major-General Sir David Bruce, K.C.B., M.D., F.R.S., as chairman, was appointed last December by the Director-General, Sir Alfred Keogh, G.C.B., acting on a suggestion received from France regarding the co-ordination of research on this most important subject.

The committee at once set itself to try to solve the problem of the causation and spread of the disease, and has now presented the following interim report.

Method.

In view of the already widespread belief that the body louse was the guilty agent steps were at once taken to feed lice bred from "clean stock" on trench fever patients, of whom there were at the time many in the new end section of the Hampstead Military Hospital under the charge of Major W. Byam, R.A.M.C., a member of the committee, who has supervised the clinical and experimental work. The committee was fortunate in having Mr. Bacot of the Lister Institute to control the supply and feeding of the lice.

Experiments with Living Infected Lice: Negative.

Two volunteers, Messrs. Cole and Edgeler, came forward on January 3rd, 1918, for the purpose of the experiment from patriotic motives, as they were well over military age and not able to serve their country in more strenuous ways. Lice were taken from clean stock bred in this country. These lice were fed at intervals on many febrile and afebrile trench fever patients, at all stages of the disease, who had been sent over from France and had relapsed in this country. The lice were then placed on the volunteers, directly on the skin without any intervening gauze, the shortest interval between feeding on a case of trench fever and on the volunteer being six hours. After feeding they were returned to the box and kept in the incubator at 25° C. until again required. This experiment was commenced on January 5th, and was continued

daily for one month, at least 500 lice being used every day. The feeding experiment in one of the men was then discontinued, and although he has now been under observation for over two months he has shown no signs of fever.

The experiment was continued on the other man, but the conditions were altered: lice were fed on febrile cases of trench fever, and then after intervals of, at one time, fifteen minutes, at another of one hour and two hours, on the volunteer daily up to February 13th, but again without any positive results as regards development of trench fever.

Experiments with Excreta and Crushed Bodies of Infected Lice on Raw Surfaces: Positive.

At the committee meeting on January 23th, Major Byam, in reply to a question, stated that these men did not scratch themselves, and, indeed, purposely refrained from scratching, this excluding to a large extent infection by means of excreta or crushed bodies of the lice: he therefore proposed that two more volunteers should be obtained and "scarification" experiments carried out.

On February 5th two men, Seymour and Sullivan, who also volunteered, were used for this purpose. In the case of Sullivan a small area of skin, one inch square, was slightly scarified, and a small quantity of the dried excreta taken from the boxes of lice which had fed on trench fever cases was dusted on this area and rubbed in. On Seymour's arm eleven lice taken from a trench fever case were crushed on the scarified area. On February 14th Sullivan was suddenly attacked with typical trench fever after an incubation period of eight days. On February 16th Seymour also went down with fever (incubation period ten days).

This dramatic result was at once (February 19th) reported to the Director-General, Army Medical Service, and also to the Medical Investigation Committee in France, with whom the committee had been in close collaboration throughout, all minutes and results of experiments having been forwarded; in addition, Lieutenant Peacock, R.A.M.C., who had assisted Mr. Bacot in the earlier work here, was sent to the Medical Investigation Committee on January 24th to assist in the same work in France. The fever which these men Sullivan and Seymour developed was indistinguishable from that produced in other volunteers by an injection of whole blood from trench fever cases who had contracted their disease in France. In view of the importance of this discovery the committee decided to repeat the same experiment.

Three other volunteers at once came forward—Messrs. Reynolds, Tullett, and Glover. These men were each inoculated on February 19th on a scarified spot on the forearm with a small quantity of dried excreta from boxes of lice fed on trench fever cases.

On February 26th Reynolds went down with trench fever. On February 27th Tullett was taken ill, and on February 28th Glover; the incubation periods being six, seven, and eight days respectively.

The chain of evidence was completed by the fact that a small quantity of blood taken from Reynolds on the second day of his fever, and inoculated into another volunteer (Ward), produced a typical attack of trench fever after an incubation period of five days.

The fever in every instance, although mild, was yet typical of the so-called trench fever—sudden onset, temperature of 103° F., pain in the head and limbs, and over the spleen, the initial attack of fever lasting two or three days, and followed in practically every case by a relapse or relapses at an interval of usually seven days; the fever in the relapse being lower and more transient, with a recurrence of the symptoms associated with the initial attack.

Conclusions from Experiments.

It will thus be seen, from the above experiments, that it has been shown that the bite alone of the infected louse does not produce trench fever, but that when the excreta taken from such lice are scratched into the skin fever followed in every instance, the average incubation period being eight days.

This observation is of great importance in view of the prevention of the disease, and would explain cases of trench fever arising in wounded men who may have had no lice on them for some weeks, as the dried excreta, if blown on to a raw surface, would readily give rise to the disease.

Some further experiments carried out at Hampstead on the migration of lice are also of great interest, as it has been shown that if two men be available, one with a normal temperature and the other with fever, the lice will leave the fever case and pass quickly to the man with the normal temperature. Experiments are now in progress with the excreta of normal lice, as it is possible that the disease is not necessarily carried from man to man by lice but simply from louse to man.

Action Proposed.

In view of these results and their corroboration by the Medical Investigation Committee in France, it is hoped that a very determined campaign will be instituted against the louse, and thus eliminate, or at least reduce, the incidence of a fever which has up to now caused so great a drain on our man power at the front.

The fact that these experiments have been carried out in London is of the first importance, as there can be no suspicion of an accidental or natural infection, for the men employed had not been out of England for many years and had been under observation for some months previous to the experiments; also they were housed entirely apart from the hospital in which the cases of trench fever were being cared for.

The funds for this research have been provided by the Lister Institute of Preventive Medicine.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

SURGEON T. S. BRADBURN, R.N.

Surgeon Thomas Stratford Bradburn, R.N., died at Wasperton, Warwick, on March 8th, age 37. He was the only son of the late Thomas Bradburn of Sade Hill, Wolverhampton, and was educated at the universities of Oxford, where he graduated M.A. in 1903, of Edinburgh and Birmingham. He took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1909, and D.P.H. Bristol in 1913. After acting as house-surgeon and house-physician of Queen's Hospital, Birmingham, and as house-physician of the Brompton Consumption Hospital, he took a temporary commission as surgeon in the Royal Navy in 1914.

ARMY.

Died on Service.

LIEUT.-COLONEL M. E. REPORTER.

Lieut.-Colonel Maneckjee Eduljee Reporter, Madras Medical Service (retired), died of heart failure at Kistna, Madras Presidency, where he was district medical and sanitary officer, on January 18th, aged 67. He was educated at the Grant Medical College, Bombay, where he took the diploma of L.M.S. in 1876, subsequently taking the L.R.C.S. Ed. and L.R.C.P. Lond. in 1877. Entering the I.M.S. as surgeon on October 1st, 1877, he became surgeon on January 1st, 1889, and surgeon-lieutenant colonel on October 1st, 1897, retiring on November 27th, 1902, and rejoined for duty during the war. He served in the third Burma war in 1887-88, taking part in the operations of the 5th and 6th Brigades, and received the medal with two clasps.

Wounded.

Captain J. F. Carroll, R.A.M.C. (temporary).

Captain D. A. Wilson, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Corbett, Reginald David de la Cour, Major Indian Infantry, attached Royal Flying Corps, eldest son of the late Colonel R. de la Cour Corbett, R.A.M.C., died as a prisoner of war at Changri, in Asia Minor, on December 25th, 1914, aged 32. He was born on August 22nd, 1881, educated at Bedford, and at Sandhurst, where he was in the Rugby Fife n, and got his first commission in the Royal Irish Rifles on May 8th, 1901. He served with them in the South African war in 1901-2, and received the Queen's medal with four clasps. On May 2nd, 1904, he joined the Indian Army, being posted to the 48th Pioneers. He became captain on May 8th, 1910, and had reached the rank of major during the war. In 1903 he was on famine duty, and in 1912 was appointed tutor to the Raja of Awa. In 1914 he rejoined his regiment, and went with it to Mesopotamia, and in May, 1916, he was mentioned in dispatches. He was one of the garrison of Kut.

Gough, John Noel, Second Lieutenant Royal Field Artillery, third son of Dr. H. E. Gough, of Northwich, killed in action on

March 8th, aged 20. He was educated at Elstree, at King's School, Canterbury, and at Trinity College, Cambridge, where he held a scholarship. He had served in France for a year. His eldest brother was killed in Palestine last December, the second is serving in Mesopotamia.

Inglis-Clark, Charles, Captain Army Service Corps, son of Dr. Inglis-Clark, of Edinburgh, died of wounds on March 6th. He got his first commission on January 20th, 1915.

Lynden-Bell, Colin Sutherland, Lieutenant 99th Dekkan Infantry, son of Colonel E. H. Lynden-Bell, A.M.S., accidentally killed recently in Mesopotamia. He was educated at Harrow and Sandhurst, joined the Royal Fusiliers, served with them in France in 1914, and was invalided home for wounds. On recovery he joined the Indian army, and had served on the North-West frontier before going to Mesopotamia. His commission was dated August 15th, 1914.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

Major-General (temporary Lieut.-General) T. H. J. C. Goodwin, C.M.G., D.S.O., Director-General Army Medical Service, has been appointed a Companion (Military) of the Most Honourable Order of the Bath for valuable services rendered in connexion with the war.

MENTIONED IN DISPATCHES.

Lieut.-General Sir Stanley Maude, K.C.B., Commanding-in-Chief, Mesopotamia Expeditionary Force, in a dispatch dated November 2nd, 1917, mentioned the following medical officers for distinguished and gallant services and devotion to duty:

Staff and Head Quarters.—Colonel (temporary Surgeon-General) A. P. Blenkinsop, C.B., A.M.S.; Major (temporary Lieut.-Colonel) W. H. Hamilton, D.S.O., and Lieutenant J. B. de W. Molony, I.M.S.

Royal Army Medical Corps.—Brevet Colonels M. H. G. Fell, C.M.G., J. M. Sloan, C.M.G., D.S.O.; Lieut.-Colonel (temporary Colonel) S. F. St. D. Green; Lieut.-Colonels J. H. R. Bond, D.S.O., W. A. Woodside, D.S.O.; Brevet Lieut.-Colonel D. S. Skelton, D.S.O.; Majors (acting Lieut.-Colonels) G. E. Cathcart, J. F. Whelan; temporary Major (temporary Lieut.-Colonel) R. Davies-Colley; Captain and Brevet Major W. McNaughton; Captains W. H. Biggs (T.F.), T. K. Boney (S.R.), A. E. Bonham (T.F.), J. W. Dalglish (S.R.), W. Dunlop (S.R.), M. Foster (S.R.), D. R. Hennessy (S.R.), T. P. Inglis (S.R.), C. M. Ingoldby, J. de M. Kneebone (S.R.), J. W. MacLean, J. P. Mitchell (S.R.), W. K. Morrison, D.S.O., G. N. Smyth (S.R.); temporary Captains R. C. Begg, T. P. Buist, T. S. Keith, G. S. Marshall, V. E. Negus, C. J. B. Pasley, A. Poole, K. N. Purkis, R. Y. Stones, G. S. Terry; Lieutenant (temporary Captain) H. P. Rudolf; Lieutenant J. Ewing; temporary Lieutenants D. F. Borrie, G. Dougan, A. C. Lambert; temporary Quartermasters and honorary Lieutenants C. Hunt, C. E. Malyon.

Indian Medical Service.—Lieut.-Colonels F. W. Gee, F. O. N. Mell, C.I.E., T. B. Kelly; Brevet Lieut.-Colonel C. M. Goodbody, D.S.O.; Majors (acting Lieut.-Colonels) E. W. Browne, C. A. Gourlay, J. C. H. Leicester, W. Lethbridge; Majors (temporary Lieut.-Colonels) R. M. Barron, F. P. Connor; Majors R. J. Bradley, R. Kelsall, D.S.O., W. H. Leonard, T. G. F. Paterson, D.S.O., E. A. Roberts; Captains C. H. P. Allen, M. Das, P. K. Gilroy, G. G. James, D. D. Kamat, R. F. D. MacGregor, M. C. A. A. C. McNeill, W. A. Mearns, J. A. S. Phillips, A. L. Sheppard, J. MacG. Skinner, W. D. H. Stevenson, W. E. R. Williams; Lieutenant W. P. Hogg.

ORDER OF THE BRITISH EMPIRE.

The following medical names appear in the list of further appointments to the Most Excellent Order of the British Empire for services in or for the Overseas Dominions, Colonies and Protectorates and in connexion with the war in France, Egypt and Salonica.

To be K.B.E.—Dr. James William Barrett, C.M.G., for services in connexion with the Australian Branch of the British Red Cross Society in Egypt, etc.

To be O.B.E.—Dr. Edith Helen Barrett, honorary secretary Australian Branch of the British Red Cross Society; Dr. A. Ruskin Cook, medical officer, Church Missionary Society Hospital, Kampala, Uganda; Lieut.-Colonel C. E. P. Fowler, R.A.M.C.; Dr. R. E. Weigall, organizer of motor service for the reception of returned and wounded soldiers.

A special Supplement to the *London Gazette*, issued on March 19th, contains the statements of the acts of "conspicuous gallantry and devotion to duty" for which the decorations announced in the *London Gazette* of October 27th, 1917, and noted in the *BRITISH MEDICAL JOURNAL* of November 3rd, 1917, p. 609, were conferred. The following officers of the R.A.M.C. are included in the list:

Distinguished Service Order.

Temporary Captain John Caruthers Sale, M.C.

He collected the wounded over a large tract of country exposed to heavy fire, and continuously went out by night in advance of the front line searching for the wounded, many of whom he brought back over a difficult ground and under heavy fire. His coolness and determination were a splendid example to his stretcher-bearers.

Bar to the Military Cross.

Temporary Captain Hugh Ross MacIntyre, M.C.

When in charge of the evacuation of the wounded he from time to time led his stretcher-bearers and cleared the wounded, although exposed to fire from snipers. He worked untiringly and incessantly for three days without sleep, and it was due very greatly to his efforts that the regimental aid posts were kept clear of wounded, and cases quickly evacuated to the advanced dressing station. He is fearless in the face of danger, and by his splendid courage and example he inspired confidence in his men.

Military Cross.

Temporary Captain Leslie Haden Guest.

On the night of an attack he gallantly led his stretcher squads under heavy shell fire and collected wounded who were lying out on newly captured ground. By his courageous example and disregard of danger he was the means of saving many wounded men.

Temporary Captain William Llewellyn Aplin Harrison.

He established his aid post within 200 yards of the front line as soon as the objective had been reached, and thereby saved many lives. Though his aid post was twice destroyed by shell fire, he continued at work with complete disregard of danger, inspiring all who came in contact with him by his splendid example.

Temporary Captain William George Johnston.

Whilst in command of the stretcher-bearers evacuating the wounded, he worked under shell fire for fifty-five hours, leading his bearers time after time to collect wounded lying out in the open. On another occasion he went out under heavy shell fire and succeeded in getting out alive some men who had been buried in the forward trenches. His fearless conduct, disregard of personal danger, and devotion to duty saved many valuable lives.

Temporary Captain Robert Kennon.

During the recent operations this officer continued for three days to dress wounded, during which period he was continually under heavy shell fire, and his dressing station was blown in. With the greatest coolness and devotion to duty he continued his life-saving work, and was a splendid example to all ranks.

Temporary Captain John Kirtan.

He went forward under shell fire to dress and collect wounded and help and encourage the stretcher-bearers at their duties, working for five consecutive days without rest. It was largely owing to his excellent work that the evacuation of the wounded of the division was successfully carried out, and by his efforts many wounded men were got into safety.

Temporary Captain Wilfred John Pearson.

When in charge of the evacuation of the wounded he worked under heavy shell fire for fifty hours without rest, and it was largely due to his untiring efforts that the wounded in this sector were got away so quickly. On one occasion, though caught in the barrage of the enemy's heavy guns, and though severely shaken, he continued to work without intermission, his untiring labours being instrumental in saving many valuable lives.

Temporary Lieutenant Henry Marston Layard Crawford.

He dressed and collected the wounded under heavy shell fire, and on the withdrawal he remained with the rearward, still under heavy fire, collecting more wounded. By his pluck and determination he succeeded in bringing in all his wounded, though compelled to make a wide detour through exceptionally heavy and difficult country.

Temporary Quartermaster and honorary Lieutenant Charles Elliot.

Whilst in charge of the arrangements for the evacuation of the wounded, he time after time took men out under heavy shell fire and repaired the line. He frequently volunteered to go forward and find out the position of wounded men lying out in the open. He worked incessantly for fifty hours without rest under fire, and showed a splendid example to others.

The Military Cross has also been conferred upon Captain John Joseph Harper Nelson, I.M.S., for conspicuous gallantry in action.

He tended the wounded in the open for a long period, although exposed to heavy fire of all descriptions. He showed fearlessness throughout, and his example was of great value to all.

Scotland.

THE SYMPATHETIC AND PARASYMPATHETIC SYSTEMS.

Dr. J. J. GRAHAM BROWN, Physician to the Royal Infirmary, Edinburgh, delivered the course of Morison Lectures for this year before the Royal College of Physicians of Edinburgh on March 4th, 6th, and 8th. The lectures were concerned with a review of certain disorders of the sympathetic and parasympathetic systems.

Introduction.

The lectures treated first of the general arrangement, functions, antagonism, and synergic action of the autonomic nervous system. That system consisted of two sets of neurones, the sympathetic and the parasympathetic, governing the organic functions outside the control of the will, smooth muscle, heart innervation, the secretion of glands, and the endocrine organs. The sympathetic and parasympathetic differed in origin and in function. They were antagonistic, yet in such a way as to harmonize for the good of the individual, synergic action taking place in connexion with the sexual activities. Their antagonism was well illustrated in their action on the

pupil, on peristalsis, and metabolism, their reaction to drugs, hormones, and toxins. Normally equipoise was maintained. But one or the other might be temporarily dominant, and that to a considerable extent, within the limits of health. But there were individuals whose sympathetic neurones were in too high a tonus, others in whom the parasympathetic was hypersensitive. Such persons might show no symptoms, but would be readily affected by toxins which had an affinity for the over-sensitized system. They often presented a clinical syndrome by which it was possible to recognize the dominant system, corresponding, as it were, to the old "temperaments," "constitutions," and "diatheses."

The Sympathetic System.

The sympathetic fibres originated in small cells in the medio-lateral tract of the cord and the pre-ganglionic fibres left the cord as the white rami communicantes from the level of the first thoracic to about the second lumbar segment. They had one synapse in a ganglion on their course, then the post-ganglionic non-medullated fibre passed to the effector organ; the synapse occurred either in the segmentally related ganglion of the lateral sympathetic chain, a ganglion at a higher or lower level, or in one of the prevertebral ganglia of the abdomen. An exception was afforded by those fibres which pass direct without a synapse to the suprarenal medulla, which developmentally is part of the sympathetic system; it only secreted adrenalin if stimulated by the sympathetic, and the latter only acted if its myoneural junction was sensitized by adrenalin. The functions of the sympathetic were widespread, and the corresponding clinical symptoms of overstimulation varied. It accelerated the heart and constricted the blood vessels, the splanchnics being most affected. In the alimentary canal it inhibited peristalsis and caused contraction of the sphincters; it inhibited the bronchial muscles, caused anabolic secretion of many glands, stimulated the liver cells, inhibited the external secretion of the pancreas, and thus caused polycythaemia, lowered the threshold for sugar, and regulated carbohydrate metabolism. It also stimulated the thyroid and possibly the posterior lobe of the pituitary, and increased the metabolism of fats and proteins. There was a tendency to an increase of the mononuclear lymphocytes of the blood. Other clinical results were dilatation of the pupil, protrusion of the eyeball, widening of the palpebral fissure, goose-skin, perspiration, pyrexia, accelerated breathing, and greatly increased blood pressure. Varying combinations of these were illustrated by cases, one showing marked unilateral symptoms.

The adequate stimulus for the sympathetic was strong emotion such as pain or fear; it acted as a rapid protective mechanism to brace the organism against danger. The sympathetic was also an instrument by which the ego manifested itself—for example, the eyes altered and lighted up on the recognition of a friend; in this connexion it was remembered that though the fibres appeared to arise in cells of the cord impulses passed down to these from higher centres, possibly from the optic thalamus, which probably influenced also the affective tone of the facial muscles. In some individuals the effects of a strong stimulus might remain, adrenalin and thyroid over-secretion continue, and a condition of what had been called "crystallized fear" result, as in Graves's disease, which was really a disease of the sympathetic system. The thyroid also stimulated the sympathetic apparatus through the suprarenal but was not so essential as adrenalin. Such a condition was more common in the female sex, and the clinical picture was a person of mid-height, spare, thin, of fine build, the features delicate and mobile, and complexion fair; the emotions were not under good control, muscular movements were quick and reflexes sharp, tachycardia was readily produced, the blood showed some mononucleosis, and the sugar threshold was lowered. Drugs which stimulated the sympathetics were iodine, beta-tetra-hydro-methylamine, morphine, and the autocooids adrenalin, thyroid, and probably the posterior lobe of the pituitary. Of the toxins which stimulated it, the more important appeared to be the monamines formed by putrefactive anaerobic action in intestinal stasis (what Barger called "sympathio-mimetic" amines). Of these, tyramine was the most important, and probably many

cases of sympathetic hypertonus were due to the long-continued production of such bodies; hence the good effects often got from the use of intestinal antiseptics.

Sympathetic hypotonus occurred normally during sleep, from exhaustion due to long-continued over-stimulation, and where toxic destructive processes had affected the suprarenal or thyroid, as in Addison's disease and myxoedema. The suprarenal secretion was also depressed by the toxin of tubercle even when the organ itself was not attacked.

The lecturer then spoke of the afferent neurones of the sympathetic system, especially in connexion with the reflex tonus of abdominal muscles, the phenomena of referred pain, and the axon reflex.

(To be continued.)

England and Wales.

THE MARY BIRRELL DAVIES MEMORIAL FUND.

It is little over a year since Dr. Mary Birrell Davies passed away, leaving behind the memory of a life well spent in doing good, not only in matters medical, but also in ameliorating the conditions of life and encouraging to self help and reliance the poorer classes of the city of Liverpool. Many of her friends and patients at once determined to keep her memory green by raising a fund which would be a tangible sign of the esteem and affection in which she was held. The sum received, amounting to £2,400, has been handed over to the University of Liverpool with the object of making one open entrance scholarship for women medical students. The scholarship is of the value of £60 a year, and is tenable for four years. It will be awarded every alternate year.

FINANCE OF HOUSING SCHEMES.

The Local Government Board (England and Wales) has issued a circular to local authorities stating the conditions under which financial assistance from public funds will be given to those local authorities prepared to carry through without delay at the conclusion of the war a programme of housing for the working classes. The arrangement with the Treasury is that the local authority should meet the full cost out of a loan (for not less than seven years), the state undertaking to make a grant relieving the authority of 75 per cent. of the estimated annual deficit. At the end of the period the property is to be valued and 75 per cent. of the excess, if any, of the amount of loan outstanding over the then value of the property is to be met by the state. In rural districts the proportion of the expense to be met by the state may be higher, if the cost exceeds the produce of a rate of a penny in the £. The Royal Institute of British Architects is conducting a competition for suitable designs for houses, and a committee appointed by the Board is considering questions of building construction. A committee appointed by the Minister of Reconstruction is investigating the question of material.

SMALL-POX IN LONDON.

Twenty-seven cases of small-pox have been notified in London, including three in the extra-county borough of East Ham. Mr. F. R. Anderton, Chairman of the Public Health Committee, informed the London County Council on March 19th that there was reason to hope that the measures adopted had obviated the possibility of a serious outbreak. As a matter of emergency, however, the Council decided to make chicken-pox a notifiable disease until June 30th. The Bethnal Green Borough Council had already made such an order for one month from March 6th. The Local Government Board has issued a notice recommending that persons living in or near localities where cases of the disease have occurred, and who have not been successfully vaccinated since childhood, or whose original marks of vaccination are imperfect, should secure the protection afforded by vaccination. It has been ascertained that a person suffering from small-pox in its earliest stage spent several hours in an air-raid shelter, and all the contacts have not been found.

Ireland.

SALARIES OF POOR LAW MEDICAL OFFICERS.

IN connexion with the agitation and the resignations, in certain districts, of Poor Law medical officers for increased salaries, the *Irish Independent* in an editorial says:

In the course of the lengthy correspondence about the grievances of Irish dispensary doctors the fact was demonstrated that there are boards of guardians which cannot, or will not, understand the position of the medical officers in their service. Having settled down into a rut of habit and, perhaps, prejudice, it is hard to get these boards to lift themselves out of it. They seem to think that the doctors are all too importunate in asking for increases of salary, but the same boards may be quite benevolently disposed towards claims of workhouse officials which are urged with much less reason and restraint than those of the medical officers. However, it is evident that the recent correspondence was not without producing a good effect. This is seen in the favourable reception given in various districts to a number of applications for increases which have recently been made by dispensary doctors. If the cases were dealt with solely on the merits there could be no cause of complaint.

IRISH MEDICAL SCHOOLS DINNER.

The Irish Medical Schools' and Graduates' Association held its St. Patrick's Day dinner at Pagan's Restaurant, Great Portland Street, London. Dr. Kenneth Frazer presided. The toast of "Our defenders" was proposed by Dr. Douglas, who mentioned that the guests included Surgeon-General Sir William Donovan, who had had charge of something like a million soldiers in the war. Deputy Surgeon-General Miller, R.N., responded for the navy, and Major Jocelyn Swan for the army. The latter said that two past presidents of the association—Sir Alfred Keogh and Sir Havelock Charles—had taken leading parts in the organization of the medical services in this war. No fewer than forty-two Irish medical graduates had distinguished themselves by signal heroism at the front during 1917. Dr. A. Giles gave "Our visitors," to which Major Willsoughby replied. The other toast, "The Association," was responded to by the president.

Correspondence.

LONGEVITY.

SIR,—Dr. William Bramwell gives a generous approval to my paper, "On the influence of muscular exercises on longevity," but finds that I have not sufficiently insisted on the importance of mental exercise. I therefore hasten to state that I thoroughly agree with him about "the life-long tendency of mental activity," to which I have devoted a paragraph in the little book on *Prolongation of Life*. My remarks in the *JOURNAL* of February 23rd I purposely restricted to muscular exercises, and alluded only slightly to the influence of mental work, and of the tenor of mind, of cheerfulness, and contentedness as prolonging, of gloominess and pessimism as shortening, agencies. Nor have I entered into moral matters, such as, on the one side, the suppression of anger, envy, jealousy, avarice, undue ambition, etc., and, on the other, the cultivation of sympathy, benevolence, helpfulness, and a good conscience, which is a great asset towards a happy old age.—I am, etc.,

Bournemouth, March 18th.

HERMAN WEBER.

SIR,—There is much more to be said on longevity than is contained in the contributions by Sir Herman Weber and Dr. William Bramwell.

To live long without being well in body, mind and soul is wearisome. The difficulty about the whole matter is that most men and women wake up too late in life to know the full importance of the growth of the whole man. We have waited many centuries to obtain Mr. Fisher's Education Bill, which for the first time takes into consideration, and means to put into practice, the education or drawing out of the three essential parts of our nature—namely, the physical, intellectual, and moral. It is when all these qualities are early trained and progressively taught and practised throughout the entire life, that the pleasures of health, mental equipment, and balanced character will be enjoyed even to old age.

Our profession has been slow to preach and practise these great truths, perhaps because of our want of political

and municipal power. I can conceive no greater advantage to our nation at this time than for the whole medical profession, with its unique knowledge, to throw its full weight and power into the present educational campaign.—I am, etc.,

Folkestone, March 18th.

W. J. TYSON, M.D., F.R.C.P.

ATTENDANCE ON DISCHARGED DISABLED MEN AND THE WIVES OF SERVING MEN AND WIDOWS.

SIR,—I am desired by the Minister of Pensions to ask your permission to call attention to a matter of some importance affecting the interests both of medical practitioners and of the public. Cases have come before Mr. Hedge in which both discharged disabled men and wives of serving soldiers or widows whose husbands have been killed in the war have obtained medical attention during illness and on being presented with the bill by the practitioner have appealed to the local War Pensions Committee or to the Ministry for assistance towards meeting it. It is clearly contrary to all principles of sound administration that bills thus presented after the event should be recognized as a charge upon public funds. A disabled man is entitled under the Instructions of the Ministry to apply to his local War Pensions Committee for the treatment necessary to his case, and is instructed to do so by notification at the time of his discharge and by public notice in post offices and elsewhere. Similarly widows of men who have been killed and the wives and dependants of serving soldiers are in cases of serious illness entitled to ask the assistance of their local War Pensions Committee. Practitioners should therefore realize, if they take up cases without previous understanding as to the extent of assistance which will be given by the local War Pensions Committee or the Ministry, that they do so at their own risk and that the Minister cannot be held liable for any charges which may be incurred.—I am, etc.,

MATTHEW NATHAN,

Ministry of Pensions, Secretary's Office,
Westminster House, Millbank, London, S.W.1.
March 19th.

SUPPLY OF ARSENOBENZOL DRUGS TO GENERAL PRACTITIONERS.

SIR,—In reply to Dr. J. A. Butler, I may point out that I did not say that the intramuscular route was clinically preferable to the intravenous: I agree that it is not. I said that the latter constituted the only passport possessed by the doctor usually consulted by the infected "amateur" for the possession of free salvarsan. My point was social, not clinical.

My personal experience with the intramuscular route does not quite agree with that of Dr. Butler, though, like him, I think it unwise to generalize from it. I have given arsenobenzol in some form intramuscularly in about fifty instances, excluding hospital cases, and I have only once seen anything like the disabling pain he describes. I think it is important to use a cream that has not been repeatedly heated, and which contains an adequate proportion of creocamp, but it is also essential to inject deeply in the gluteal muscle, and to avoid proximity to the sciatic nerve.

The bulk of our experience, however, has been obtained in the various hospitals, and I can find there no record of severe pain. I do not agree that in estimating the value of a remedy a large class should be ruled out because they are "under discipline."—I am, etc.,

Sheringham, March 18th.

A. KNYVET GORDON.

STAFF PAY FOR REGISTRARS OF MILITARY GENERAL HOSPITALS.

SIR,—I have for many years urged that medical officers filling the important part of "secretary and registrar" of military general hospitals should receive staff pay in addition to their ordinary military pay. For a general hospital of 500 beds I would give the registrar 5s. per diem extra salary, and for a 1,000 bed hospital 10s. per diem. It is a very important duty, and the pay would be a stimulus for medical officers to study specially this line of staff duty. It seems to me strange so vital a matter has been for years neglected.—I am, etc.,

GEORGE J. H. EVATT, M.D.,

Junior United Service Club,
London, S.W., March 15th.

Surgeon-General (retired)

Universities and Colleges.

UNIVERSITY EDUCATION IN WALES.

THE Royal Commission on University Education in Wales has made a unanimous final report. It recommends the continuance of a single national University of Wales, but a remodelling of the existing organization. The university should set the standard of admission for students and the period of residence and study for the initial degrees, but the approval of syllabuses of courses should be a matter entirely between the teacher and his college. The college should be responsible for the intermediate examinations. The Welsh National Medical School should be organized as an independent constituent college of the university, governed by a council and senate of its own.

A committee, of which Sir William Osler is chairman, met in Cardiff last week to prepare a scheme for the Mansel-Talbot Chair of Preventive Medicine endowed by Miss Talbot. When the scheme had been approved the election of a professor will be proceeded with.

UNIVERSITY OF EDINBURGH.

At a meeting of the General Council on March 13th two proposals affecting medical education were confirmed. The first provides for the introduction into the medical curriculum of instruction in tuberculosis, consisting of lectures and practical work, attendance on which will be obligatory for the degrees of M.B., Ch.B. as from October, 1918. The other proposes that when the chair of *materia medica* falls vacant a separate chair of therapeutics bearing the name of the late Dr. Robert Christison shall be established, and a separate course of therapeutics required. Another draft ordinance approved affected regulations for the admission to Scottish universities; it provides that the educational test for admission should be co-ordinated with the national system of leaving certificates from secondary schools on conditions which will fully safeguard the freedom of the universities. All questions as to entrance will be determined by a Scottish Universities Entrance Board.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary Council was held on March 14th.

The Council adopted the following resolution:

That in view of the large reduction in the number of candidates presenting themselves for the first and second professional examinations for the licence in dental surgery, the number of examinations will be reduced to two in the year, namely, May and November.

Diplomas were issued to nine candidates found qualified for the licence in dental surgery at the recent examination.

Election of Council.

There are six candidates for election to the Council of the College on Thursday, July 4th, and four vacancies. Sir Watson Cheyne and Mr. Bilton Pollard will not seek re-election. Sir John Bland-Sutton and Mr. Walter Spencer are again candidates. An analysis of the Council as it now stands appeared in the JOURNAL last week, p. 330. The four new candidates are Mr. J. Lynn Thomas, C.B., C.M.G., of Cardiff, Fellow since 1892; Mr. H. B. Grimsdale, ophthalmic surgeon, St. George's Hospital, Fellow 1894; Mr. F. J. Steward, Guy's Hospital, 1898; and Mr. E. W. Hey Groves of Bristol, Fellow 1905 (Member 1395).

Obituary.

DR. SYBIL LONIE LEWIS, who died at Hull on March 10th after a short illness, was born in 1874. She studied medicine in Edinburgh and Dublin, having previously been trained in nursing and midwifery, and obtained the L.R.C.P., L.R.C.S., and L.R.F.P.S. diplomas in 1905. After serving as assistant resident medical officer at the Larbert Asylum she began practice in Hull, and held the appointment of school medical officer and the honorary medical officerships of the Diocesan Maternity Home, the Hull Sheltering Home for Girls, and the West Hull Crèche. In the spring of 1915 Dr. Lewis volunteered for work in Serbia, and went out there in June under the Scottish Women's Hospitals. She was in Serbia when the country was overrun by the enemy and the hospital staffs taken prisoners in 1915. Although a Red Cross party, they were detained in Hungary for four months, under the roughest conditions, and were not released and sent home until February, 1916. Dr. Lewis went out again in August, 1916, and worked with the Serbian army in Macedonia and among the civilian refugees till December, 1917, when she was recalled by urgent need at home. She received the Serbian decoration of the Order of St. Sava, Fourth Class, in recognition of her devoted work

among the Serbs. Her illness lasted only three days, but, in the opinion of the surgeon attending her, the conditions causing it were contracted abroad, and her name must be added to the growing list of medical women who have given their lives for Serbia.

Medical News.

THE Gill Memorial of the Royal Geographical Society has been awarded to Dr. Cuthbert Christy for his surveys and explorations in Central Africa.

THE Royal Dental Hospital, Leicester Square, has received Canada 3½ per cent. Registered Stock to the value of £500 from the executors of the late Mrs. Gore-Lloyd.

A MILK dealer of Islington was sentenced at the North London Police Court on March 15th to a month's imprisonment with hard labour, and ordered to pay £5 costs, for selling milk adulterated with added water to the extent of 36 per cent.

THE library and offices of the Royal Society of Medicine will be closed from Thursday, March 28th, to Saturday, April 6th, both days inclusive; but officers of the R.A.M.C. and Colonial and allied services will be admitted to the library between the hours of 11 and 6.

A DISCUSSION on industrial alcoholism will be opened by Dr. W. C. Sullivan, medical superintendent of the State Criminal Lunatic Asylum, Rampton, Notts, at a meeting of the Society for the Study of Inebriety, at 11, Chandos Street, W.1., at 4 p.m., on Tuesday, April 9th.

THE graduates of the universities of Durham, Manchester, Liverpool, Leeds, Sheffield, Birmingham, and Bristol form a single parliamentary constituency. Mr. Herbert G. Williams, 130, Ashley Gardens, London, S.W.1. honorary secretary of a Conservative and Unionist Association for the constituency (of which Sir Maurice Abbot Anderson is chairman), desires to obtain the addresses of all graduates in sympathy with the aims of the association.

At a meeting of the Executive Committee of the General Medical Council on February 25th the President was authorized, in consequence of representations from the Food Controller and the Home Office Committee on drug supply regarding the necessity of the discontinuance of the use of certain fats and oils for the official preparations of the *British Pharmacopoeia*, 1917, to announce the alterations and amendments in the *British Pharmacopoeia* rendered necessary by the present emergency.

MR. J. Y. W. MACALISTER was entertained at dinner recently by members of the Library Association, of which he is president. Sir William Osler, who was in the chair, paid a warm tribute to Mr. Macalister's services to the medical profession as what would be called, he said, in America a "merger"—that is, a man who got people together and to work together. He recalled in particular his work in bringing the Royal Society of Medicine into being, by the merging of the many medical societies which used to meet in the house of the Royal Medical and Chirurgical Society.

AT a meeting of supporters of the New Hospital for Women, Euston Road, London, on March 14th, which was attended by H.R.H. Princess Louise, Duchess of Argyll, it was decided to rename the institution the Elizabeth Garrett Anderson Hospital for Women, in memory of its founder. Lady Hall, treasurer of the memorial fund, said that nearly a quarter of the sum of £50,000 for the endowment of fifty beds had already been raised. The Right Hon. H. A. L. Fisher, President of the Board of Education, expressed his deep interest in the medical education of women, especially in relation to the school medical service. The other speakers were the Right Hon. F. D. Acland, Dr. Mary Scharlieb, Dr. Jane Walker, and Dr. Flora Murray.

THE Local Government Board is attempting to obtain a complete register of the blind as a preliminary to drawing up schemes for making suitable provision for the different categories of blind persons. The definition of blindness adopted by the Board is "too blind to perform work for which eyesight is essential." The Board is asking all institutions, societies and agencies for the blind, Poor Law guardians, local education authorities and county nursing associations to give assistance, and has issued a circular letter to county councils and local sanitary authorities, asking them to enlist the help of their health visitors, school nurses and other officers, and also of nursing associations not affiliated with county associations and any other suitable charitable organizations.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Authors desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are:

1. EDITOR of the *BRITISH MEDICAL JOURNAL*, *Aitiology*, *Westrand, London*; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, *Westrand, London*; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra*, *Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin. The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

MOSQUITOS: OILING OF PONDS.

N. B. R.—The following extract from the book by Willoughby and Cassidy, reviewed elsewhere, will supply the information required, but we would recommend the purchase of the book (Lewis, 3s. 6d.):

"In the instances where draining and filling in are not possible, oiling may be done. Crude petroleum or other oil that will make a fairly stable surface film will quickly destroy larvae. Half a pint of petroleum will make a film over about 100 square feet of surface. It should be applied by a sprayer. Failing a sprayer, a sack can be soaked in oil, weighted by a stone, and thrown into the centre of the pond. The oil can also be applied by slow dripping from a tin with a tiny aperture. This method is useful for automatic reapplication in slowly moving water, or at the windward edge of a pond. Theoretically, once a week should be enough for re-oiling, but practically oiling is not a success unless it is done about three times weekly."

INCOME TAX.

W. A. is seeking an adjustment of an assessment based on his predecessor's earnings. Must he return his total fees booked?

*A. The basis of "cash takings" is accepted by the Inland Revenue authorities on the ground that in the long run no difference would arise between the duty paid on that basis as compared with that paid on a basis of total bookings less a proper allowance for irrecoverable debts. But where a fresh start is made with the bookings the assumption no longer holds good, as there are no fees for previous years coming into the cash receipts to swell it out to a normal income, and the requirement to which W. A. refers is in accordance with the usual practice in similar cases. It follows, of course, that when W. A. gives up the practice he will not be liable to assessment on fees paid after the cessation of his connexion with the practice.

LETTERS, NOTES, ETC.

THE following appointments of certifying factory surgeons are vacant: Birstal (Yorks, W. Riding), Clwythout (Carnarvon), Wilton (Wilts.).

SPIRIT DUTY (VOLUNTARY HOSPITALS) GRANT.

THE Local Government Boards for England and Wales and for Scotland are now prepared to receive applications from voluntary hospitals for grants in respect of payments of duty involved by the use during the calendar year 1917, in these hospitals, of duty-paid spirit or drugs containing duty-paid spirits for medical and surgical purposes. Forms of application will be sent only to those hospitals to which a grant was paid last year. Any other hospital which desires to make application should communicate immediately with the Secretary to the Local Government Board for England and Wales or the Secretary to the Local Government Board for Scotland as the case may be.

LUNACY LAW AND EARLY MENTAL DISORDERS.

DR. S. E. WHITE writes to correct an error in the article on this subject published on March 9th, p. 291. The memorial there mentioned was presented in July, 1914, to Mr. Herbert Samuel while he held office as president of the Local Government Board; he did not become Home Secretary until 1916. Dr. White considers this distinction important. The memorial, she writes, supported by the signatures of 330 members of Parliament, expressly stated that the homes or hospitals which it advocated for uncertifiable patients should be free from suspicion of detention and should be "kept wholly outside the jurisdiction of the Lunacy Board." The President took favourable note of this special characteristic, and that the proposal could be carried out administratively

by the Local Government Board without changes in the Lunacy Laws, which are only applicable to cases where restraint has become judicially imperative.

ELECTRIFIED SEEDS.

DR. CHARLES MERCIER (Parkstone) writes: I am obliged to you for placing my assertions with respect to the electrification of seeds on the same level as those of Professor Arrhenius with respect to the electrification of growing children. Perhaps you will allow me to point out that the two assertions are not quite comparable. Professor Arrhenius's assertion with respect to the result of electrifying growing children was based on a single experiment. Mine is based on hundreds of experiments. His one experiment was carried out by an ignorant woman who completely misunderstood her instructions. The many experiments to which I refer were made, some by an experienced scientific experimenter, others by practical men whose living depends on their practice in this matter, and who have, as the result of their experiments, adopted the practice. The result of the one experiment was not checked, even by himself, before Professor Arrhenius published it. The results of the experiments on seeds have been checked by experts of the highest authority and of immaculate integrity. No doubt electricity is a word to conjure with, and as I am not unfamiliar with paranoiacs, I am quite aware that effects are sometimes wrongly attributed to it; but I think my contributions to your pages in the last thirty years or so are evidence that I am not excessively credulous, nor apt to accept assertions at their face value, without scrutiny, and without examination of the evidence on which they rest. My advice to those who doubt, as I did, the efficacy of electrifying seeds is contained in the classical, if somewhat discredited admonition, Wait and see.

PART-TIME MEDICAL OFFICERS OF HEALTH.

DR. A. W. LEMARCHAND (Barnstaple) writes to point out the advantages which a part-time medical officer of health might obtain, through his official position, over other general practitioners in the same area. He maintains that a whole-time public health service should be instituted for all districts, the officers being answerable to a central authority, and not to small local councils. This raises a matter of policy which has frequently been discussed in the past. It is one which might properly be brought to the notice of the Representative Meeting through the Division of which our correspondent is a member.

A SUGGESTION FOR EMPIRE DAY.

WE have received a letter, signed by representative medical practitioners and educationalists in Sheffield, expressing national solidarity and determination to see the war through, and advocating the need for a declaration of policy on schemes for social reform. The signatories suggest that the medical and teaching professions are in an exceptionally good position to initiate a response to Mr. Bonar Law, who in the House of Commons lately said he did not believe the spirit of this country was weakening in the war, and that if the question could be put, "Are you prepared to go on with the war until the results you set out to achieve have been attained, or are you not?" the response would be astonishing alike to our enemies and ourselves. The signatories suggest that the two professions should take steps to arrange for public meetings to be held throughout the country on Empire Day, for the purpose of declaring determination to secure a satisfactory peace and to promote schemes for reconstruction after the war. The medical signatories are: Dr. J. B. Leathes, Dean of the Faculty of Medicine; Mr. R. J. Pye-Smith, Emeritus Professor of Surgery; Dr. H. Scurfield, Professor of Public Health; Dr. Sophia Witts, Honorary Secretary of the Sheffield Branch of the British Medical Association; and Dr. A. W. Forrest, Honorary Secretary, Local Medical War Committee.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending March 18th:

	£	s.	d.		£	s.	d.
Dr. Matilda Hunt ...	3	0	0	Dr. F. R. Mallett ...	1	1	0
Mr. Herbert Tilley ...	5	0	0	Dr. Mark Style ...	2	2	0
Dr. Charles Pollard ...	2	2	0				

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank Limited.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under ...	0	6	0
Each additional line ...	0	0	9
Whole single column ...	4	0	0
Whole page ...	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Harveian Lecture

ON

THE FUNCTIONAL ANATOMY OF
THE HEART.*

BY

ARTHUR KEITH, M.D., F.R.S.,

CONSERVATOR OF THE MUSEUM OF THE ROYAL COLLEGE OF
SURGEONS OF ENGLAND.

ABOUT the middle of last century, when physiologists broke away from anatomists, they stole our patron saint—Harvey. Yet Harvey was an anatomist; from 1615, when he was 37 years of age, until 1656, when he was 78, he was the leading lecturer on anatomy in London. It was the application of a right method to the study of the structure of the human body which led him to see that the heart was a double pump forcing the blood to circulate throughout the body.

To understand how Harvey became an anatomist we must follow him to the University of Padua in the last year of the sixteenth century,¹ when he was in his twenty-second year. It was a fortunate circumstance for Harvey that Fabricius, Professor of Anatomy at Padua, was then reinvestigating the occurrence and use of valves in veins. He explained to his students that valves did not occur in arteries because in them the blood ebbed and flowed; but they were absolutely essential for veins in order that the venous blood, which was designed for the nourishment of the tissues, might be evenly distributed to all parts of the body. Were the veins of the arms and legs destitute of valves, it was quite clear, he maintained, that blood would gravitate to the hands and feet and so rob other parts of the body of their just share. We see, then, that Fabricius was studying the anatomy of the various parts of the human body in order to find out the purpose which they served; he was a functional anatomist. We may smile at his conclusions, but we could not make a greater mistake than to condemn his methods, for it was by following Fabricius's example that Harvey was led to his great discovery.

We have no exact information relating to Harvey's investigations between the time of his return to England in 1602 and his appointment as Lumleian lecturer at the College of Physicians in 1615. During those thirteen years he dissected many kinds of animals,² for Harvey was not only a functional anatomist, but a comparative anatomist and embryologist as well. We have only to turn to his introduction to his book on the motion of the heart and blood in animals to discover the manner in which he proceeded to work. He used anatomy as a touchstone on which to test the physiological theories of his day—the theories which Fabricius could expound so convincingly to his students. It was impossible to gainsay the then dominant theory relating to the use of veins. From an anatomical point of view the theory was apparently sound. The products of digestion certainly passed into the radicles of the portal vein and were "concocted" in the liver before being passed into the systemic venous system. The theory explained the existence of the liver and the distribution of veins to the most distant parts of the body. Fabricius had given the reason for the presence of valves in veins—except those in the jugular veins at the root of the neck. Harvey was quick to note that they pointed the wrong way, if Fabricius's theory were true. His real difficulties began when he sought to explain the parts connected with the right side of the heart. The blood entered that side of the heart, so he had been taught, for two reasons: (1) To supply the lungs with nourishment; (2) to send a supply to the left ventricle through the interventricular septum. "Why, then," asked Harvey, "is the vein which carries the blood from the right ventricle to the lungs given the coats of an artery and made as large as the aorta which has to supply 'vital' blood to the whole body?"

To men of Harvey's time the explanation of air passages to the lungs and of venous passages leading from the lungs to the left chambers of the heart were perfectly satisfying.

They were the means by which air reached the left ventricle of the heart. In that chamber the air mixed with the transuded venous blood, and so vital blood was brewed—the blood which gave life and heat to all parts of the body. That the heart was the centre of life and heat had been proved beyond all dispute. Cut out the heart of an animal, and what happens? It died and turned cold; that was plain proof of the truth of the thesis. That air was necessary for the brewing of vital spirits in the left ventricle was a matter of common knowledge. Occlude the windpipe and an animal died, because the element necessary for the manufacture of "vital spirits" no longer reached the left ventricle. The left ventricle and arteries were clearly designed for the distribution of life-giving blood to all parts of the body. The heart could be felt to expand and suck the blood in, and then in turn the arteries could be felt to swell and suck the blood out. The blood ebbed and flowed in the arterial channels. It was a law of nature to ebb and flow. The sea ebbed and flowed; so did the breath.

To this physiological theory Harvey applied the critical judgement of the anatomist. No theory of the function of an organ could be true that did not explain every detail of its structure. To trace the direction of the blood current he took the valves as his guide. The venous valves pointed in every case towards the heart. The valves in the right side of the heart directed him towards the lungs; the valves on the left side of the heart directed him away from the lungs and towards the arteries. There was only one theory which accounts for all of those facts—namely, that the heart acted as a "water-bellows," a double pump, and in order that it could so act he had to presume that the blood moved in a circle. Such a theory of the heart gave a complete and absolutely satisfying explanation of all points in its structure; Harvey could conceive no other theory that would account for all the details of the heart's structure.

Harvey's theory was originally an anatomical hypothesis, but being a man who knew how deceitful hypotheses may prove to be, he put it to the test of experiment. He examined the movements of the living heart; he tested the flow of blood in arteries; he noted the flow of blood in veins. He found the flow to be such as his anatomical reasonings had led him to expect. But to the day of his death his conception of a blood circulation was still a theory; three years after his death in 1657, Malpighi saw with his eye those passages which lead from arteries to veins—passages which Harvey had pictured only in the eye of his imagination.

It might be said that the anatomical methods applied by Harvey at the commencement of the seventeenth century are not applicable to the conditions which prevail at the beginning of the twentieth century. I will give an example to show that they are—that they will be applicable as a basal principle in biological research for all time. Soon after the introduction of Roentgen rays in 1895 I used the method of transillumination to study the action of the crura of the diaphragm. I could not see how it was possible for the crural parts of the diaphragm to contract without acting directly on the heart and roots of the lungs, because the pericardium links the middle part of the diaphragm to both of these structures. I found that it did act directly on them. In the course of my investigations I was led to study the exact attachment of the musculature of the auricles to the pericardium, and thus indirectly to the diaphragm. That led me on to investigate other points in the musculature of the heart. In the course of these investigations I had noted the fine tendon-like structures in the left and also in the right ventricle. I never investigated them; I supposed them to be, as other anatomists had supposed them to be, means for preventing over-dilatation of the ventricles.

In 1906 Tawara, a Japanese, working in the laboratory of Professor Aschoff, discovered that these tendon-like structures were the arborescences of a muscular trunk which commenced in the region of the auricles and descended on each side of the interventricular septum towards the apex of the heart. Tawara explained the presence of the bundle and its branches by supposing that they formed a system for conducting and distributing impulses from the auricles to the ventricles of the heart. Erlanger and others proved by experiment that his guess was right. Tawara noted that the bundle at its

* Delivered before the Harveian Society of London, March 21st, 1918.

commencement in the auricle was made up of a peculiar muscular (nodal) tissue, in which he supposed the inception of the contractile impulse took place. In the following year Major Martin Flack and I, while investigating hearts on which Sir James Mackenzie had made his classical polygraphic records, discovered tissue of a nodal nature at the junction of the right auricle and superior vena cava. We supposed, because of its position and structure, that this node was the centre at which the heart-beat commenced. In 1910 Dr. Thomas Lewis and Dr. Wybau proved by electrical means, and independently of each other, that our guess was right. You can see that Tawara, Flack and I were applying Harvey's anatomical methods; Erlanger, Lewis, and Wybau applied his experimental methods. Harvey realized more fully than any anatomist that structure is a sure guide to function; that no physiological theory can be true unless it gives a complete and final explanation of all points of structure.

Taking Harvey as our guide, then, let us see how far our modern functional conception of the heart falls short of giving a full and satisfactory explanation of its structural features. We shall take the apical region first. Why are the ventricles of the mammalian and avian heart shaped like a cone? Why is it that the wall of the ventricles in the region of the apex is so thin that even in a cart-horse it is only 2 mm. in thickness, while the rest of the ventricular wall ranges from 10 mm. to 25 mm. in thickness? Why do the spiral fibres of the ventricles form the well known apical vortex? Why do the main arborescences of the A.V. bundle terminate in the apical region so that, as Dr. Thomas Lewis has demonstrated, the contraction wave is first manifested there? The arrangement of the musculature of the heart, both of auricles and of ventricles, is so complex that not any one of us has succeeded in giving a satisfactory explanation, yet we cannot claim to have mastered the mechanism of the human heart until we can give a functional explanation of its architecture.

In searching for an answer to some of the questions I have placed before you, we have to remember that the heart is a pump of a peculiar kind. In all forms of pump invented by man only one part of the wall is movable (the piston), and it is moved by a power which lies outside the pump. In the cardiac pump the whole wall is movable and the power is resident in every part of the pump wall. The expelling energy is manufactured in the wall of the pump—not in an adjacent boiler. Further, we must remember that the human heart is made up of a central or principal pump—the left ventricle, to which is attached three subsidiary pumps—the right ventricle for the maintenance of a pulmonary circulation, and the right and left auricles—loading pumps for the right and left ventricles. I brush aside a theory which is prevalent at the present time, a theory that defines the auricles as mere reservoirs. No one who has given attention to the elaborate architecture of the auricular musculature can countenance such a theory.³

As practical engineers we must look into the manner in which the cardiac pump is fixed. Each chamber of the heart must have its fulcrum—the point from which its musculature obtains a fixed point—before it can exert its power. The auricular pumps are fixed to the dorsal wall of the pericardium, and through extensions of that sac, and by means of the pulmonary vessels and the lungs, they are fixed to the walls of the thoracic cavity—both costal and diaphragmatic. When we open the thorax we at once undo the fixation of the auricles. Professor Berry Hayscraft⁴ was, I believe, the first to recognize that fact. There are two points of fixation—two fulcra—from which the musculature of the ventricular pumps act. There is, in the first place, the ascending aortic stem fixed within the cupular part of the pericardium and the extensions of that membrane to the neck and to the roots of the lungs. There is, in the second place, the apex of the heart itself. By a most cunning mechanism—one of the most marvellous in the body—nature has converted the apical region of the heart into a movable fulcrum from which its ventricular musculature can and does act. In lower vertebrates, such as the tortoise, the mechanism of apical fixation is supplied by a ligament which anchors the blunt curvature of the ventricular chamber to the pericardial sac.

We have been discussing the fixation of the complex four-chambered cardiac pump; we must now look into a

more important matter—the manner in which the ventricular chambers of the heart are fixed. For that purpose we must appeal to comparative anatomy and embryology for help. From these sources we learn that the primitive tubular heart undergoes an extraordinary transformation in the human embryo—a transformation not unlike that which takes place in the stomach. In the stomach one border undergoes a rapid and extensive development to form the greater curvature, while the other is retarded in growth and becomes the lesser curvature. In some animals the lesser curvature is so short, so suppressed, that the oesophageal and pyloric orifices are almost in contact. In the ventricular part of the cardiac tube the lesser curvature undergoes so great a degree of retrograde development that the auricular or proximal orifice comes to be situated side by side with the aortic or distal orifice, with only the anterior cusp of the mitral valve between them. The greater curvature has grown out as evaginations to form the ventricular chambers, leaving an untouched part between them to form a septum. The beginning and end of the ventricular tube have come to rest side by side on the lesser curvature, and form what we call the "base" of the ventricles.

It is quite clear that the anterior cusp of the mitral is a most important landmark on the ventricular base; it separates the auricular commencement from the aortic termination of the ventricular tube. The distinction between auricular and aortic bases is one of the utmost practical importance. When the ventricles contract it is the auricular base, surrounding the mitral and tricuspid valves, which becomes greatly reduced in size; the aortic base is, from a functional point of view, scarcely altered. When the ventricles contract the aortic base becomes a fulcrum from which the expelling musculature acts, while the auricular base descends towards the apex,⁵ drawn by a musculature which acts from the apical fulcrum. The auricular and aortic bases are contrasted in both a morphological and a physiological sense. The descent of the auricular base necessarily enlarges the auricles; the movements of the auricular part of the ventricular base provide a key to the venous pulse. They do more than that, they give us a clue to the muscular architecture of the ventricles.

The complex architecture of the ventricular musculature was, in Harvey's time, a well-worn theme. A century and a half after Harvey, Hunter dismissed the matter by saying: "Much more pains than were necessary have been taken to dissect and describe the course and arrangement of the muscular fibres of the heart." The principle, however, which Hunter steadfastly applied to the elucidation of muscular action does prove of the utmost assistance. For Hunter it was a law that no muscle acted alone; every muscle acted in co-operation with an antagonist. His supreme example was the circular muscular coat of an artery. In the bowel the circular fibres have longitudinal fibres as their antagonists, for the effect of contraction in a circular muscular coat is to diminish the calibre of a tube, and at the same time to increase its length. Hunter saw that arteries were elongated by the contraction of their muscular coat, and regained their normal length by the contraction of their elastic coat, the muscular and elastic coats being antagonistic.

When we apply Hunter's principle to the study of the muscular coats of the left ventricle we see that we have to deal with a co-ordinated antagonism between a very massive circular "expelling" coat set between an outer and inner spiral coat. That principle will not help us unless we also recognize the two fulcra or fixed points of the left ventricle—the aortic fulcrum and the apical fulcrum. The fixed axis of the left ventricle passes from the mouth of the aorta to the apex; all the muscular fibres of the left ventricle are so set that in contraction they approach that axis. Besides the principle of antagonism and of fulcra, there is a third principle involved in the architecture of the ventricular musculature. The principle of the iris diaphragm is utilized. All the muscular coats or fasciculi of the heart are so set that they ultimately end in the internal spiral coat of the left ventricle, just as every segment of an iris diaphragm takes a share in forming the margin of its pupil. Without doubt the left ventricle represents one of nature's greatest mechanical triumphs.⁶

When we apply the principles just enunciated to elucidate the muscular architecture of the heart we are at once

impressed by the functional importance of the region of the apex. The chief terminal arborescences of the A.V. bundle end in the trabecular network of the apical region. Dr. Thomas Lewis¹ has demonstrated that the apical region is the first to pass into contraction with the onset of ventricular systole. When we open the ventricles we see that their internal musculature—columnae carneae and musculi papillares—commence in the apical region and divide into two sets. The larger set terminates in the auricular or movable base, the smaller or septal set in the fixed or aortic base. When we examine the outside of the ventricles we find the same arrangement in the spiral fibres. They commence in the vortex of the apex and divide into two sets—an extensive one which ends in the auricular movable base, and a less extensive, which ends in the fixed aortic base. Between these outer and inner sets is placed the great middle driving muscle of the left ventricle; its spirals are so closely pressed together that they give the appearance of being purely circular; we may speak of them as the circular set. The circular musculature, acting by itself, would diminish the circumference and at the same time lengthen the lumen of the ventricle; the elongation is antagonized by the internal and external apico-basal musculature. We know that, at least in the earlier phase of ventricular systole, the auricular base approaches the apex and therefore the circular fibres are more than antagonized; in the later stages of ventricular systole the opposite is the case; the circular fibres become dominant and press again on the auricle, raising the intra-auricular pressure. The apico-aortic fibres are purely sustaining in function; they neither shorten nor lengthen in systole.

In several respects the structure and mechanism of the right ventricle is peculiar. There is incorporated in the infundibulum of the right ventricle a chamber—the pylorus of the primitive cardiac tube—an element which has completely disappeared in the left ventricle. The pulmonary orifice does not serve as a fixed point for the ventricular musculature; the infundibular septal bands of the right ventricle act from the aortic base. Further, the right ventricle has only one wall—the lateral; its septal wall—the interventricular septum—is part of the left ventricle; it takes only a passive share in expelling blood from the right ventricle. On the other hand, the right ventricle is provided with a highly developed internal musculature passing from its apex to the auricular base. The systolic movement of that base is more marked on the right side than on the left side of the heart. Hence we find in the lateral wall of the right auricle a well-developed opponent set of muscles—the musculi pectinati. In auricular systole the musculi pectinati elongate the apico-basal fibres of the right ventricle; in ventricular systole the opposite occurs.

I noted, when investigating those hearts in which Sir James Mackenzie first observed that the auricles had ceased to functionate—from auricular fibrillation, as was afterwards proved—that a condition was present similar to that which occurs in a limb when a set of muscles undergoes contracture from paralysis of the opponent group. In such cases the lateral wall of the right auricle had become elongated and stretched, while in their opponents—the apico-basal fibres of the right ventricle—an extreme degree of shortening had occurred.

I have merely touched on some of the unsolved problems relating to the structure and mechanism of the heart. I am content if I have succeeded in showing that Harvey's methods of investigating anatomical problems are still the best that we anatomists can adopt.

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² See D'Arcy Power's *William Harvey*, in the *Masters of Medicine* series, 1897. ³ See Proceedings of the Anatomical Society of Great Britain and Ireland, November, 1902 (appended to *Journal of Anatomy and Physiology*). ⁴ *Journal of Physiol.*, 1891, vol. xii, p. 438. ⁵ See Chauveau and Marey, *Mém. de l'Acad. de Médecine*, 1863, vol. xxvi, p. 313; Haycraft, *Journal of Physiol.*, 1891, vol. xii, p. 438. ⁶ The best account of the arrangement of the muscular fibres of the heart is that given by the late Professor Bell Pettigrew (*Phil. Trans.*, 1864, p. 445). The late Dr. John Bruce MacCallum also gave an excellent account in *Johns Hopkins Hospital Reports*, 1900, vol. ix, p. 307. Professor Franklin Mall added very important embryological facts (*American Journal of Anatomy*, 1912, vol. xlii, p. 249). For an introduction to the older literature see the chapter on the heart in Poirier's *Traité d'anatomie humaine*, 1893, and Quain's *Elements of Anatomy*, 1892. My statements are based on dissections carried out between 1901 and 1907, and will be published in full at some future date. ⁷ Croonian Lecture, *Proc. Roy. Soc.*, 1917, B. B, vol. lxxxix, p. 560; *Lectures on the Heart*, 1916.

THE TOLERANCE OF PHYSICAL EXERTION, AS SHOWN BY SOLDIERS SUFFERING FROM SO-CALLED "IRRITABLE HEART."

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It is now two years since we introduced at the Military Heart Hospital, Hampstead, a system of graded drills, arranged from exercises in the army exercise book, and employed these both remedially and as means of grading soldiers returned to us for the condition known as "disorderly action of the heart," "irritable heart," etc. We have repeatedly contended that the surest means of gauging capacity for physical endurance is to test the men upon drill, the highest grades of which should approach in their severity the tasks which will be set to these men when they return to their dépôts. The test of capacity for work should be the observed reaction to work. That this thesis has been justified fully is shown clearly in an article published recently elsewhere,¹ in which the after-histories of 239 graded out to duty categories by this system are compared with the recommended categories of discharge. This comparison is reviewed in the subjoined table:

Recommendations.	Disposition within 11 Months.
Fit for general service 72	Full duty overseas, 79: Known to reach firing line (of whom 26 make good) 35 Not known if in firing line 23 Known not to have been in firing line 21 In provisional units 30
Likely to be fit for general service within 3 months 47	Full duty home service 8 Light duty overseas 7 Labour companies (H.S.) 23
Light duty; unlikely to be fit for overseas within 3 months 20	Light duty (H.S.) 33 Sedentary duty 16
Light duty, but unlikely ever to be fit for service overseas 68	Under treatment 5 Discharged permanently unfit 38
Sedentary work at home ... 32	
239	239

This system and its results have aroused a good deal of interest, and a large number of military hospitals both at home and abroad have adopted it; others are following suit. Since the recent removal of the heart hospital to Colchester we have continued to receive numerous inquiries as to the details of our method. In part these have been described in previous publications.² In the present article the work of the medical officer's examination room is described, his method of prescribing exercises, and his method of judging the toleration of exercises so prescribed.

The drills now in use are termed B 15, C 15, BC 30, C 30, and D 30,* the letter indicating the stiffness of the exercises, the number the duration of the drill in minutes. B 15 consists of simple movements, and calls for no considerable expenditure of energy; D 30 includes many of the stiffest exercises of the army exercise book, and entails thirty minutes' hard work.

Seeing that most of our patients are recently from France, all those cases to whom drills are prescribed start on the easiest drill, and progress from this to those of higher grades, according to tolerance. A few days or a week upon the two 15-minute drills suffices; a week is usually spent on each of the three 30-minute drills. Men who promise well may be kept a week or so longer on the highest grades of drill to harden them. It is a rule of the hospital that patients upon 15-minute drills are to be considered unfit to leave the hospital premises except under escort; those on 30-minute drills are given afternoon passes freely. This rule has the advantage of stimulating the men to accomplish the 30-minute drills. All men on exercise C 15 and BC 30 go regularly for route marches in the early afternoon; these are short marches of one or two miles in the immediate neighbourhood of the hospital, and at slow time. Men in classes C 30 and D 30 are taken for longer marches of four to five miles in the

* Two of our original drills, A 15 and AB 30, have been discarded.

country at a brisk pace. The exercises and marches are supplemented by outdoor games. At suitable intervals all men are examined as they come from drills or marches. It is understood that any man who feels his drill or march to be beyond his power is to report at once to his medical officer. The drill instructors are ordered to report upon men who seem to them to tolerate exercise badly, and, on the other hand, upon any men who fail to make reasonable effort. Co-operation between the medical officers and the instructors is a very essential feature of our system, and much is left to the instructor's discretion. It is the habit of most medical officers to see each man immediately after he has taken the first drill of each grade; other officers prefer to raise the grade more automatically, and to await complaints from such men as feel themselves hard pressed. At the examination, whether it be at the dictation of the medical officer or drill instructor, or at the wish of the man, questions of a general nature only are asked; the rule is to allow the man to tell his own story; it is inadvisable for the officer to introduce any symptom into the conversation. Notes are kept on simple forms provided for the purpose; each symptom complained of is entered, as are corroborative signs and readings of pulse-rate, etc. This sheet forms in the end a summarized history of the work accomplished and the reaction to it. In the average one or two examinations of each man are made weekly directly after exercise. Medical officers are careful to conceal so far as possible the particular symptoms or signs upon which they judge tolerance.

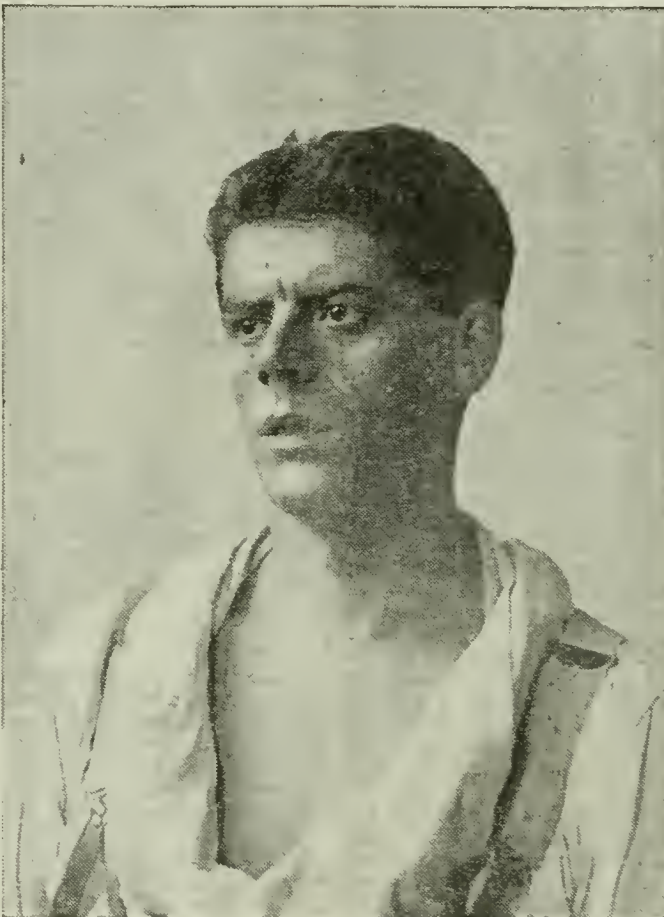
SIGNS AND SYMPTOMS AFTER DRILL.

The chief complaints of the men as they come from drill are of breathlessness, precordial pain, palpitation, giddiness, and fatigue. It is essential that objective evidence of symptoms should in each case be found before a complaint is allowed to weigh. Most patients emphasize a single symptom, and emphasize it constantly; a changing symptomatology can rarely be corroborated by outward signs, and is to be distrusted. Some men complain on all occasions and in equal degree from the lowest to the highest exercise; others complain little. The medical officer has ever to be on his guard against those who exaggerate their sensations, and equally on his guard against those who are reticent. The tolerance of exercise is to be judged by physical signs, and not by symptoms; symptoms are chiefly of value in directing the attention quickly to physical signs. It has happened more than once that a medical officer has laid recognizable emphasis upon a particular symptom, and that it has led to a corresponding epidemic in his service.

Facial Expression and Breathlessness.

The facial expression when it exhibits genuine distress is generally that associated with breathlessness. The accessory muscles begin to be called into play, the alae

nasi are expanded, the tendons of the sterno-mastoid lift, and the lips part a little; where there is greater distress the alae nasi are active, the eyebrows are drawn together, frowning the forehead vertically and yielding an expression of anxiety or actual pain; the mouth opens wider, its angles droop, and the breathing is more audible. If questions are asked, the breathing is ill-regulated during the replies, the flow of words is interrupted by inspiratory movements. Not infrequently, and especially where there is fatigue, a slight but distinct dusiness develops under or around the eyes; pallor or sallowness of the whole face is not unusual. The facial traits deserve careful observation, for they cannot be simulated; rapid breathing is by itself a scarcely sufficient evidence. In a few patients in whom distress has been frequent and has been experienced for long periods, the altered facial expression is maintained at rest.



Photograph of a patient, aged 28, admitted for long-standing and severe "D.A.H." The photograph was taken immediately after fifteen minutes' easy exercises (B 15), and shows the tension of the sterno-mastoid, slightly opened mouth, and dilated nostrils. The eyebrows are depressed, the forehead furrowed (the central furrow is permanent). The face expresses fatigue and the anxiety of early breathlessness.

Precordial Pain.

This is a common complaint after exercise; it is to be checked by physical examination. With the chest stripped, the hands of the examiner are placed outspread symmetrically on the axillary and sub-mammary regions and pressure is exerted as though to steady the chest or to bring the patient to a more convenient position. This simple action may be sufficient to disclose hypersensitiveness; in some patients, indeed, the slightest pressure on the left precordial region and a wide surrounding area is resented. In others it is necessary to slip the hands higher, bringing the thumbs over the borders of the pectoral muscles and pressing again, or to proceed further and while interrogating the patient, to grasp the pectoral folds with increasing firmness between thumbs or fingers. Where the muscles are sensitive on the left side the patient winces, the left shoulder is depressed, the facial expression alters, or the reply is momentarily interrupted or actually broken off by a movement or expression of protest. When no

hypersensitiveness of the left chest wall is detectable after exercise, the plaint of pain may usually be neglected. In extreme cases hyperaesthesia is found beyond the chest area and exists in the skin of the upper arm; not infrequently it also involves the tendons of the sterno-mastoid muscles. Tenderness of the anterior border of the trapezius muscle suggests a closer examination for signs of early tuberculosis. Patients should not be asked, Is this or that region sensitive?

Palpitation.

A complaint of palpitation is to be neglected as such, but is serviceable as a guide to persistent or excessive tachycardia. The usual rate of the heart's action while a patient is up and about, and especially after set test exercises, is of much importance. It may be normal, raised, or very high. To give actual rates might create a false impression. Heart-rate cannot be used by rule of thumb; rates vary too much with circumstances, and in

general it is impracticable to render these uniform. However, the conditions pertaining to a particular service may be maintained sufficiently constant for different patients and at repeated examinations of the same case. It is essential that heart-rates should be regarded broadly, and particular emphasis is to be laid upon consistency of separate readings. Thus, a patient who reports himself as disturbed by a given drill, will usually show uniform high readings after that drill if distress is genuine; and these high readings will be foreshadowed by raised rates after drills of lower grade. Equally important is consistency between these drill rates, the routine ward rates, and the rate obtained by test exercises.*

Giddiness.

This is a common complaint, but one which is given for the most part in the initial stages of treatment. It consists of transient dizziness or dimness of vision, and is often described as a cloud before the eyes. Rotation of surrounding objects is not experienced. Giddiness may be felt after the patient has stood quietly for some while, immediately at the cessation of effort, or on rising to the upright position abruptly. As a prognostic sign it has little value.

Fainting.

Although nearly 3,000 patients sent to us with diagnoses of "D.A.H." or "V.D.H." have now been submitted to graded drills, there has been no single accident of consequence. Where several hundred men are drilled each day, a fainting attack on drill is less than a monthly incident. The chief form of attack, and one which may always be regarded as genuine, is that accompanied by a feeble and slow heart action (30-50). It may be preceded by a short interval of giddiness, by a sense of weakness or unsteadiness. Consciousness is lost, and the fall is sudden, but rarely heavy. Pallor and sweating are present. Involuntary movements are slight, and usually confined to the face and arms; a general rigidity may be developed; the tongue is not bitten, neither is the urine passed. Nausea or vomiting may be present. The attack lasts from a few seconds to a few minutes, and is followed by lassitude and headache. A history of earlier attacks is common; these are associated usually with emotion (sight of blood, etc.), long standing at attention or the cessation of sudden effort; they do not occur in recumbency. Recovery is always complete, and an attack should not break the routine of drill for more than forty-eight hours. Attacks which are inconsistent with this picture are to be viewed with suspicion unless they may be ascribed to epilepsy.

A complaint of *fatigue* or *exhaustion* is rarely unaccompanied by other complaints, and may be disregarded unless often repeated and accompanied by signs, such as pallor, or by uncontrollable tremor of lips or limbs, or by signs of breathlessness, as the grade of exercise is raised. Stiffness of the limbs or trunk muscles, accompanied by tenderness, is experienced by some unpromising cases to an unusual degree as an after-effect of short exercise. Pain in the axillary region, back, or limbs is usually related to a particular action during drill, and as a general rule does not endure.

Simulation.

If it were wise it would be impossible to hide the meaning of the exercises or their use for sorting purposes from the patients, and they come to understand the significance of any deliberate special examination. We believe that complaints of distress, where absolutely no distress exists, are on the whole rare. Such complaints do not deceive; the manner of their presentation awakens doubt; they are unaccompanied by objective signs or the signs are incompatible with the complaint.

The over-emphasis of symptoms actually experienced is somewhat more difficult to recognize and is undoubtedly common; it is recognized by the same careful comparison of the objective and subjective. Medical officers will be well advised to guard against wilful efforts to produce or to exaggerate signs of distress. A man returning from exercise to the medical officer's room will from time to

time sprint on the flat, dash upstairs, or perform vigorous exercises before opening the door and presenting his wrist for examination. But such attempts are not easy to maintain, and repetition is essential to their success. The man must repeatedly risk detection by a member of the staff, or, maybe, fails to find his opportunity; in the last case his observed reaction is out of harmony with former reactions. The genuineness of a sudden increase in the reaction to exercise is to be tested by visiting the man while he is at drill, or by imposing simple exercise tests in the examination room or ward. The constant supervision of drill by medical officers has been abandoned as both unnecessary and inexpedient; the men work better and more uniformly when left to the drill instructor. No doubt the voluntary production of distress is overlooked from time to time in individual cases, but it cannot long be concealed from the man's comrades, and many of these at once resent the deception. If less gross, the deception may be contagious, and comes to be practised by small groups of men; its early discovery is from that time certain. When discovered, it is met at once by placing the man upon a higher grade of drill without comment.

The other and brighter side of the picture is the man or men who steadily refuse to complain; these tax the medical officer's power of discrimination most of all. Medical officers who get to know their men, who can win their confidence, who treat them tactfully and fairly, experience little difficulty. By far the larger part of our patients desire only full examination and consideration, and recognize the justice of the final decision, understanding for themselves that they are judged for grade of service according to their proved tolerance for work.

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¹ *Lancet*, February 2nd, 1918. ² *BRITISH MEDICAL JOURNAL*, September 23rd, 1916; Medical Research Committee, Special Report Series, No. 8.

NOTES ON RHEUMATOID ARTHRITIS.*

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I FIRST had the opportunity of making a special study of rheumatoid arthritis and allied conditions when working at Buxton several years ago. Much has recently been done in investigating its nature, and means for its relief or cure. It is in reference to these sides, and to the differential diagnosis, rather than to the clinical types, that I wish now to allude.

Rheumatoid arthritis has been defined as a progressive degeneration of joints of a special kind, accompanied by atrophy of some structures and hypertrophy of others, but it is really no more than a name given to a number of conditions the exact cause of which is unknown. It is probable that there is more than one disease to account for the different types. The course is variable, but is usually towards irrevocable damage to structures involved. It is a disease of great antiquity, and although it has long received much attention, there is perhaps no other disease in which such confusion exists as to its pathology and place in medicine.

During the last few years bacteriological researches have to a great extent modified former ideas and given light from a new direction. Joints have been aspirated and the fluids so obtained examined microscopically and by cultivation, and it is stated by some observers that a specific organism has been isolated.

Crowe considers that in the majority of cases one particular organism, which he calls the *Staphylococcus deformans*, is concerned; he states that he is able to cultivate it from the urine in about 90 per cent. of all cases of the disease, and that the same organism is recoverable from the urine in many cases of obscure neuritic trouble; he holds that there is a close connexion between neuritis and acute rheumatoid arthritis. Fuller believes that many cases are due to a streptococcus, and that in a very large number of male cases this streptococcus is derived from post-gonorrhoeal infection of the

* The test exercise is employed in all patients on admission as part of the routine examination, and consists of waking briskly up forty steps. The pulse-rate is taken before, immediately after, and two minutes after this test. As an alternative test, we have suggested hopping twenty times on each foot, raising the shoulders approximately nine inches at each hop. In health the pulse will rise to 110 or 120 per minute, but will fall to normal usually within one minute.

* An extract from the Presidential Address on "Some of the affections connected with the war ('shell shock,' 'trench fever,' and 'rheumatoid arthritis')," delivered before the Gloucestershire Branch of the British Medical Association at Cheltenham.

genito-urinary tract; he has operated upon a great many cases of chronic arthritis deformans by opening up and draining the infected seminal vesicles, and although improvement after the operation may be delayed for several months, he says that the ultimate benefit has been, without exception, considerable. Symes considers that it is a disease derived from an intestinal cause, an auto-intoxication of unknown origin.

The general idea seems to be that several micro-organisms have the power of producing the characteristics of the disease; it is extremely probable that in many cases rheumatoid arthritis is an infective disease, and that it is due to micro-organisms settling in the joints or dwelling elsewhere, and elaborating toxins, which cause a progressive inflammatory condition.

Owing to the symmetrical nature of the affection, it was at one time believed to be of nervous origin, and it is likely that some cases are so.

DIAGNOSIS.

The affections for which this disease is most liable to be mistaken are rheumatism, gout, and sciatica. It is in the early and slowly progressive chronic cases in which there is not any very marked enlargement of bone apparent, and in subacute attacks, that the chief difficulty arises in distinguishing rheumatoid arthritis from rheumatism. The points which may serve as a guide to diagnosis are:

1. From Rheumatism.

(a) In the chronic form, invasion of the small joints first (notably the proximal phalangeal joints of the first and second fingers and the metacarpo-phalangeal joint of the first finger and thumb), fusiform swelling, symmetry of the affection, prevalence in women, affections of the temporo-maxillary articulation and those of the cervical spine, pain along the clavicle, crepitation or grating felt in the joints on movement, muscular atrophy (especially interossei), clamminess of extremities, tendency to spread from small to large joints, anaemia always present, family history of phthisis. Sometimes the first indications to the patient are numbness and tingling in the limbs.

(b) In subacute attacks it may be for the first few days impossible to decide. The small joints are attacked first, without any tendency to rapid migration; the swelling is circumscribed; the symptoms persist, although under treatment; there is little tendency to high temperature curve; there is very little (if any) tendency to endocarditis and pericarditis. Garrod went so far as to consider the absence of cardiac inflammation as one of the most important diagnostic features of rheumatoid arthritis, and said he had never traced either endocarditis or pericarditis in this disease.

2. From Acute Gout.

In gout there is a tendency to commence by sudden pain and swelling, especially of the great toes, with oedema and redness. Rheumatoid arthritis has an insidious onset; it is more common among the poor and ill nourished. Gout is comparatively rare in women: it may be more difficult

to distinguish from chronic gout, but the history will help. The deformities of chronic gout may resemble to some extent those of advanced rheumatoid arthritis, but in gout definite attacks occur from time to time, and usually deposits of sodium urate will be found near the articulation or in other parts, such as the ears or hands. It occurs more frequently in men, and there is little or no tendency to emaciation. In rheumatoid arthritis the temporo-maxillary joint is often affected, and also the joints of the cervical vertebrae, as evidenced by pain and stiffness, and there is symmetrical involvement of the small joints of the hand. In gout these conditions are not present. It is of great importance to distinguish between the two conditions because the treatment is essentially different. A case of rheumatoid arthritis must not be subjected to a régime so necessary in certain forms of gout. There are some cases in which, I believe, the diseases coexist.

3. From Sciatica.

Where the hip-joint alone is affected there is often a resemblance in the symptoms to those of sciatica. A diagnosis can usually be made by careful examination of the part. In rheumatoid arthritis the affected leg cannot be crossed over the other without causing great pain. If the foot is jarred pain is felt in the joint. There may be considerable thickening, due to bony outgrowths, and grating may be felt on rotation. The general pain is referred more to the joint than to the region of the sciatic nerve and down the limb. Charcot's joint disease is thought by some to have the same pathology as rheumatoid arthritis, the suggestion being that the affection is rheumatoid arthritis occurring in a patient debilitated by the cord disease. There is in Charcot's disease no pain in the joint, although there is so much degenerative change that the functions are in abeyance. Monarticular rheumatoid arthritis, usually in one of the larger joints, may simulate a tuberculous affection, and the distinction is at times extremely difficult. The vertebral column is sometimes involved to such a degree that the pain and rigidity may lead to the belief that spinal caries is present, and great care is needed in distinguishing these affections.

Still's disease in children, which occurs mostly in young girls, closely resembles rheumatoid arthritis, and is, possibly, a modified form of the disease; its nature is uncertain. It differs from rheumatoid arthritis, however, in that the spleen is enlarged and also the liver. The lymphatic glands are increased in size, at first near the joints, and later throughout the body. There is defective development, the eyes may be prominent. It is usually a fatal disease, although it may last for years.

TREATMENT.

Although rheumatoid arthritis is a progressive disease, and by some considered incurable, much can be done in the early stages to arrest, and in the more advanced cases



FIG. 1.—Acute case in a boy aged 14. During the first two weeks of treatment the temperature in the evening was usually between 101° and 103°, with morning falls to normal. All the joints more or less affected, and muscular wasting pronounced.



FIG. 2.—Subacute case; boy aged 8. Seven and a half months' duration.

to relieve. It is a disease which seems to attack a constitution debilitated from some cause, and it is of great importance, therefore, to refrain from any kind of lowering treatment, either in the acute or chronic forms. In acute

and subacute cases the patient should be in bed, and an endeavour made to relieve pain by soothing applications, such as lint wrung out of lead and opium lotion. The joints should be kept at rest while acute symptoms last, but as soon as they subside gentle movement should be begun, as there is great tendency in this affection for the joints to become stiff. Splints, if used, should not be kept on continuously. The pain may sometimes be lessened by painting the joints with guaiacol and tincture of iodine in the proportion of 1 of guaiacol to 6 of iodine. Mesotan with olive oil, or a 25 to 50 per cent. ointment with lano-

the swelling. Sometimes extension with weights is soothing and helps to counteract the tendency to flexion so often present; it is specially useful when the pain is severe, as is often the case in the knees, apparently from

rubbing of the ulcerated cartilages one upon another; the weights should not be heavy and should be applied continuously. Fingers which are becoming flexed can be rendered considerably straighter by a suitable splint on the palmar aspect; this should be applied at night and taken off in the morning, so that the fingers

may be moved during the day. Patients should be told to use their joints as much as they can short of giving rise to pain afterwards, also to take exercise in the open air. If the affection is in the joints of the lower limbs, walking is rendered less painful and difficult by the use

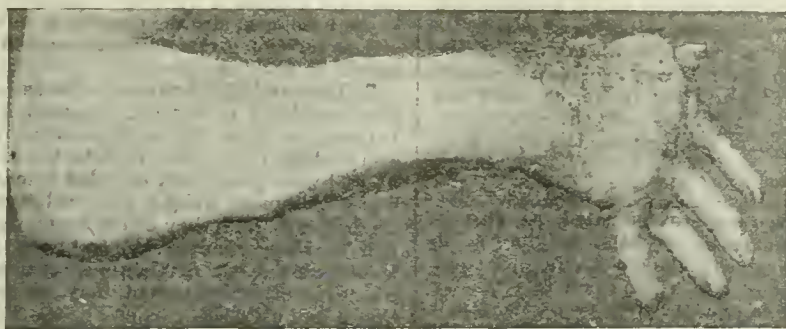


FIG. 3.—Chronic case; male. Dislocation, pigmentation, wasting, and deposits.

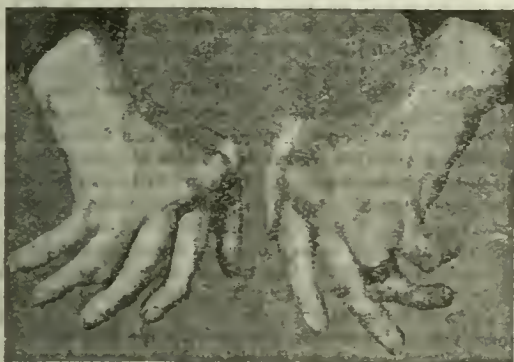


FIG. 4.—Chronic case: female, aged 45. Marked ulnar deviation, dislocation at metacarpophalangeal joints. Twenty-five years' duration.



FIG. 5.—Chronic case: male, aged 19. Seven years' duration.

line, may be used. Methyl salicylate with three parts of olive oil, or with six parts of tincture of iodine, may be thickly painted over the painful articulation, which should then be covered with lint and oilsilk and lightly bandaged. I have known an icebag give relief when other methods had failed. In chronic cases there is perhaps no more generally useful application to affected joints than blisters, which seldom fail to relieve pain and stiffness so often complained of, and in no joint more successfully than the temporo-maxillary; they should be small, and may be repeated. Sometimes bathing with hot water does good. Midelton advocates the use of continuous counter irritation over the spinal cord, even in the most advanced cases where all treatment may appear to be hopeless, believing that nervous changes are an important factor. The principal methods he uses are (1) blisters followed by savin ointment; (2) acupuncture with counter-irritant drugs such as cantharides, croton oil, or oil of mustard; and (3) the galvano-cautery. When joints are more stiff than painful olive oil may be used for rubbing instead of liniments, especially in children, where weakness of joints is a symptom; or if there are soft swellings, adhesive strapping gives support and comfort and tends to reduce

of an apparatus so constructed with adjustable crutches on wheels that part of the weight of the patient can be transferred from the lower limbs to the axillae and arms. Adhesions are occasionally broken down under an anaesthetic, but the results I have seen have not been

encouraging as most of the joints again became stiff (possibly in some cases owing to neglect by the patients themselves in after-treatment).

Excision, scraping of joint tissues, or merely washing out the joint, in the acute stages, have been tried with a view to arrest the spread of the disease; it is stated that by the removal of the diseased cartilage and synovial membrane of one joint, not only is that joint improved (if not cured) but the other affected joints are also improved.

Diet.

In acute cases the diet should be light, easily assimilated, and nonriching—milk, raw meat juice, broth, eggs, etc.—

and increased to more solid food as the febrile symptoms subside; stimulants may be required. Chronic cases should not be on low diet; this, like phthisis, is a disease in which good feeding is essential. Attempts have been made to discover whether the nature of the food has any bearing upon the severity of the joint symptoms.



FIG. 6.—Chronic case: female, aged 49. Interosseal much wasted, and knuckles thickened. Five years' duration.

The conclusion is that diet has little relationship to the disease; no advantage is to be gained by excluding red meats from the diet; fruits and salads may be taken. Meals should be arranged at regular intervals and should be varied. No hard and fast rule can be laid down, and probably the most generally successful diet is a mixed one. Fats are needed, cod-liver oil, and also milk and cream.

Woollen clothes should be worn at all seasons of the year, and any exposure to cold and wet avoided; the most suitable climate is one which is dry, warm, equable, and sunny. Residence at the seaside is not generally recommended and sometimes seems to aggravate the symptoms of the disease.

Drugs.

In febrile cases antiseptics are indicated, as also in many chronic cases. Guaiacol, creosote, quinine, salol, or salicylates, should be given; they often relieve pain. Sodium salicylate is of most use when there is a history of rheumatism, and if combined with twice as much bicarbonate can be given freely. Aspirin and phenacetin often relieve the pain. Anaemia is always a symptom of the disease and requires treatment. Iron and arsenic are probably the most useful of all drugs for improving the general health. They are best given in combination; the syrup of the iodide of iron is one of the most suitable forms. Potassium iodide is often given for pain at night. For cramps, hyoscyanus or cimicifuga is worth trying. Morphine and opium should be avoided if possible. I have not found it necessary to prescribe either, and their routine use is to be deprecated.

Constipation, which is common, and other digestive troubles require attention. Sulphocarbolate of soda and the antiseptics already mentioned are serviceable. If the stomach is dilated it should be washed out. It is important to remedy any oral sepsis; the teeth must be attended to, but I strongly deprecate indiscriminate extraction. Antiseptic washes should be used freely. Paraldehyde, phenacetin, and bromide may be given for sleeplessness. Where gout is present colchicum and alkalis should be prescribed; an alkaline mixture of quinine is also of service.

The chief advantages claimed for treatment by passive congestion appear to be relief of pain, which is often very marked, and the prevention of stiffness. Pain gives rise to muscular spasm, and this causes stiffness. The relief of the pain by congestion enables the joint to be moved, and this counteracts the tendency to the formation of adhesions. It is also said to promote the resolution of thickening in joints and tendons.

Massage is of value for the relief of pain and in keeping up the nutrition of muscles; it also relieves or prevents stiffness and fixation of joints.

Electricity, in the chronic conditions where there is atrophy and debility and the disease is not in an active state, in the form of a weak continuous current, may be of service. I have used galvanism with some benefit to nutrition and lessening of pain. Electric baths are also useful in certain stages.

Heat almost always relieves pain, and the most efficacious form appears to be the dry radiant heat; the diaphoretic effects of the combination are greatly superior to those of the same degree of non-luminous heat, and the body can bear with this form much higher temperatures than by any other application; a whole body bath can be used at a temperature as high as 300° or 400° F.; with a local bath it may be raised to 500° F. Besides relief to pain, other important changes are effected. Free perspiration is induced over the whole body even although the rays are applied locally, local arterial pressure is diminished, and metabolic processes are increased. Light has the effect of tending to increase the haemoglobin and in this way the anaemia is benefited; the appetite is also improved. The effects of the baths are enhanced if they are followed by massage and the free use of iodex or some other ointment or application of the same kind; adhesions and muscular contractions around joints are softened and relaxed and can be more easily broken down, and in this way some of the most chronic forms can be relieved.

Vaccines have been used, and acute infective cases have been treated by hypodermic injections of antistreptococcal serum. Crowe has found much benefit from the use of vaccine prepared from the *Staphylococcus deformans* in acute rheumatoid arthritis, and in obscure neuritis where

the micro-organism has been shown to be present in the patient's urine. It is at times very difficult to distinguish true rheumatoid arthritis from septic arthritis (gonorrhoea, pyorrhoea, etc.).

If a local suppurative active centre, such as endometritis, erosion of cervix, or possibly a similar condition in the nose or mouth, be present, a culture should be made and a vaccine given. Stock so-called rheumatic vaccines should be avoided.

Wallace and Child advocate the use of an extract of the pituitary body of the ox, prepared in a particular way; 1 c.cm. is given by intramuscular injection, generally every other day. The reports were that the patients so treated were practically crippled before the treatment was begun, all put on weight, the swellings around the joints disappeared, and they could be moved without pain after two or three months of treatment. Roberts also is in favour of the use of glandular extracts in chronic cases, whatever other treatment may be adopted at the same time; he uses, in particular, the thyroid, thymus, and pituitary. The thymus, it is said, acts very slowly, and should be continued for six months before it is given up; it is unsuitable if there has been a rapid increase of weight, because it sometimes stimulates nutrition to an unusual extent.

Baths have long been held in repute; they are chiefly indicated when the disease is in an early stage and the patient in fair general health; they are not advisable in the old or debilitated. The chemical properties of the water used is not a matter of vital importance, the chief point is the mode of application. The objects aimed at are: decrease of pain and stiffness in the joints, a general improvement in the patient's strength and nutrition, increased elimination by the skin, and absorption of the swelling around the joints. My experience convinces me that bathing, with its accompaniments, is a form of treatment which in suitable cases is of the utmost value, and there is not a doubt that, even in some of the most chronic and advanced cases, great relief or permanent benefit is a frequent result. The good effect is greatly enhanced by the internal administration of a mineral water properly prescribed, and although the use of any pure water may be of advantage, it is well known that if a water prepared according to the formula made out from the analysis of a mineral water be drunk, the effects are not at all the same as those obtained by drinking the original water in its natural state.

The advantages of a course at a mineral water spa do not consist only in the special medicinal virtues of the waters used but in the fact that the treatment is carried out with care and skill. The change of air, the modification of diet, and freedom from home cares and worries, are all important adjuncts, and patients should be recommended to visit year after year some health resort where such a régime can be provided. We have in Cheltenham the facilities necessary to carry out such treatment. Especially are we well off in regard to the mineral waters for internal administration, which have been shown by analysis to be superior to most and surpassed by none of their kind at any health resort either in England or abroad. Now is the time, when the foreign spas which have hitherto been so greatly in demand are closed, to make known in every legitimate way the many special advantages offered by our own town.

A great deal has already been accomplished, and efforts are still being made, to advertise the place and render it attractive and wholly efficient for the comfort and entertainment of patients and visitors. Much depends on the medical profession generally to help the undertaking by sending patients here to drink the waters and to undergo the usual courses of treatment which are expected at a spa, and which they can obtain in Cheltenham quite as well as they can at some of the health resorts which are much farther away.

THE Carnegie Foundation has given £200,000 to McGill University, Montreal, in recognition of that institution's "devoted service and sacrifice towards Canada's part in the war." The gift is intended as an expression of the appreciation and sympathy with the people of the Dominion felt by their allies in the United States. A part of the work which has earned this tribute is the maintenance of a general hospital in France with more than 2,000 beds.

AN ESSENTIAL PRINCIPLE IN THE TREATMENT OF GAS GANGRENE.

BY TEMPORARY COLONEL H. M. W. GRAY, C.B.,
M.B.ABERD., F.R.C.S. EDIN.,
CONSULTANT SURGEON, BRITISH EXPEDITIONARY FORCE.

I wish to urge the wide recognition and application of a principle which I believe is essential for the successful prevention and eradication of gas gangrene in war wounds met with in France. My reason for doing so is that I have not seen it definitely mentioned in any writings in the public press. I have recommended it for the past two and a half years, and it becomes daily more evident that the principle is correct.

The causative bacilli of gas gangrene will not develop in tissues which are provided with a vigorous circulation of healthy blood. They thrive best when the circulation is entirely stopped—for example, in a person dead of gas gangrene or in a limb of a living person where the main vessels have been severed. Long application of a tourniquet often allows the infection to obtain a firm hold. Feebleness of circulation in the wounded part, whether from a general cause, such as shock, or from a local cause, such as tension from effused material or pressure of foreign bodies, favours its development. As Major-General Cuthbert Wallace and others have pointed out, these bacilli grow most luxuriantly in devitalized muscle. The injured muscle or group of muscles is deprived, in part or in whole, of its normal blood supply according to whether the missile severs the main nutrient vessels or merely causes isolation of lacerated portions. Pressure in the neighbouring parts, whether caused by effused material in the wound, by inflammatory reaction, or by external constriction, interferes still further with the circulation, and forms a most important arc of the ever-widening vicious circle of spreading inflammation.

From purely clinical observations, then, the principle has been evolved, and it is this: Whether one undertakes preventive, pre-inflammatory operation, or curative operation after the gangrene has developed, success and safety are assured only when the wounded parts are excised until definite bleeding of the cut surface is seen. The bleeding must be definite; it need not be free. In pre-inflammatory operations the use of a tourniquet during operation may be permissible; it is not advisable unless the patient is exsanguinate. In cases where gangrene is already well marked it should not be used. Care must be taken that in excising parts at the later stages of the operation the blood supply of tissues left behind at an earlier part of the operation is not interfered with; therefore, as a rule, proximal parts should be excised before distal parts. It is usually easy to decide, when this principle is kept in view, how much should be excised—whether only part of a muscle, the whole muscle, a group of muscles, or the limb.

Surgeons who base their work on this principle have more success, and have to perform fewer secondary operations than those who do not follow it.

On the successful application of the principle I have enunciated depends the justification of the practice of excision and primary suture of wounds—a procedure which I carried out with gratifying results as far back as November, 1914.¹

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, August 28th, 1915.

A CASE OF PYAEMIA TREATED WITH INTRAVENOUS INJECTIONS OF EUSOL.

BY ROBERT AITKEN, M.D., M.R.C.P.E.,
TEMPORARY SURGEON R.N.

In my opinion there can be no doubt that the intravenous use of eusol saved the life of the patient whose case is here recorded. He was exceedingly ill on the Wednesday when he was admitted, and I did not expect that he would see the end of that week. It was very noticeable how he improved after each injection of eusol, and I have pleasure in adding my testimony as to the value of that remedy.

William C., aged 20, a gunner in the R.G.A., was admitted to the R.N. hospital ship *Plassy* on October 18th, 1916. Ten days earlier he had had tonsillitis which soon cleared up. Four

days before admission he had become feverish again, and marked deafness was present in both ears.

His temperature was 103°, and he complained of pain in the left sterno-clavicular, left shoulder, left wrist, and right ankle joints; all of these were swollen and tender. He was very deaf. There was no pain or tenderness about the ears or mastoid region. The tonsils were slightly congested and enlarged, but he had no pain on swallowing. No other physical signs were made out.

The day after admission the joints were still very painful, and the patient was seriously ill. He was put on tincture of strophanthus and brandy, alternating every two hours. As he seemed to be suffering from a pyaemia he was given that evening an intravenous injection of eusol as recommended by Lorrain Smith¹ (80 c.cm.). The following morning his hearing had slightly improved, and he said that the pain in his joints was easier. Towards evening the pain got worse again, and I gave him another intravenous injection of 100 c.cm. of eusol. He had a fairly comfortable night, his temperature falling steadily for six hours after the injection to 100°, which was the lowest reached since admission. He complained, however, of pain over the right foot.

For the next three days he improved, requiring less assistance, and taking more notice of what was going on in the ward. As the right foot had become more painful and oedematous, an incision was made and the pus present evacuated, the wound being dressed with eusol. Staphylococci and a few streptococci were cultivated from the pus.

The temperature continued high, frequently being 103°, and on the evening of October 24th I gave him another 100 c.cm. of eusol intravenously. Half an hour later he had a rigor; the temperature rose to 105.8° and the pulse to 156. In two hours the temperature had fallen to 98.2° and the patient was feeling comfortable. The following morning there was a marked improvement. He could hear almost ordinary conversational tones from the other end of the bed. The temperature was 97°. The joints were no longer swollen and there was practically no pain or tenderness.

For the next few days he improved and was able to move himself without pain, but he was still very ill. The temperature had been remittent, but now became intermittent. In spite of the tendency of the temperature to fall, dullness began to be noticed on the left side of the chest, and its area increased. On October 30th his chest was aspirated and 105 fluid ounces of thin peapop-like fluid drawn off; this contained both staphylococci and streptococci. He was so ill, however, that I did not consider it advisable that he should be operated on to establish free drainage.

From this time he improved more rapidly, but a few days later his temperature began to rise again and the fluid showed signs of reaccumulating. Accordingly, on November 8th he was again aspirated and 64 fluid ounces of thick creamy pus withdrawn. It contained numerous short chains of streptococci. In view of the more definitely purulent nature of the fluid, it was decided to open the pleural cavity that evening; 25 fluid ounces of pus containing large flakes of lymph, came away. The operation, under local anaesthesia, was well borne. Though there was a copious discharge each time the wound was dressed, the patient's general condition continued to improve, his temperature becoming normal.

On November 10th he was discharged to a shore hospital, where convalescence was soon established, and his further progress was uneventful.

It was my opinion that the original infection came from the tonsils, and I advised him to have them removed. This was done later, and in July he wrote to me saying that his condition was quite satisfactory. Since then he has been passed as fit for general service.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, November 13th, 1915.

TREATMENT OF PSORIASIS IN THE ARMY.

BY

H. W. BARBER, M.A., M.D., M.R.C.P.,
CAPTAIN R.A.M.C.(T.C.).

The importance of psoriasis as a cause of disability among troops is not great, but men with an extensive eruption require treatment. At the time of writing, out of 1,100 patients admitted to hospital for skin disease, 56 (that is, about 5 per cent.) are being treated for this complaint. In order to return these cases to duty as quickly as possible I have recently adopted the following method, which has afforded more rapid and uniform results than any other that I have yet tried.

1. Treatment of a Generalized Eruption on the Body and Limbs.

The patient attends for treatment twice daily. Every morning he is given a bath, to which on the first two days cresol (1 oz. to an ordinary sized bath) and an alkali

(a handful of sodium or potassium carbonate) are added; on subsequent mornings the cresol is omitted. After the morning bath, and again in the evening, the following ointment is applied to all affected parts from the neck downwards, excepting the genitals;

R Chrysarobin.	...	...	...	...	gr. 10
Acid. salicylic.	...	...	...	...	gr. 15
Acid. carbolic.	...	...	...	...	gr. 10
Zinc oxide	...	...	...	...	dr. 1½
Lanoline }	...	...	...	...	...
Vaseline }	...	...	...	...	...
				℞ ad	oz. 1

Throughout the period of treatment a suit of pyjamas is worn next the skin night and day, and thus becomes thoroughly impregnated with the ointment. The patient is inspected by the medical officer at least every second day.

As a rule the ointment is well tolerated, but, should any area of skin become acutely inflamed and tender, the application of the ointment to that part is at once discontinued, and, instead, some soothing preparation, such as Lassar's paste* (to which a little ichthyol may well be added), is kept thickly applied to the affected region. The genitals are throughout protected by Lassar's paste.

At the end of a week, sometimes earlier, the eruption in most cases is to a large extent cleared, whereupon Lassar's paste, containing 10 grains of salicylic acid to the ounce, is applied to the treated parts, to allay irritation and assist desquamation. A clean suit of pyjamas is at the same time issued to the patient, and at this stage a bath on alternate days only is given.

2. Treatment of Resistant Patches.

It will usually be found that a few active patches remain after the greater part of the eruption has disappeared. Such areas are commonly seen on the elbows and knees, wrists and hands, in the hollows just behind the great trochanters, and sometimes elsewhere. In the treatment of these a stronger ointment is employed as follows:

R Chrysarobin.	...	...	...	...	gr. 20
Acid. salicylic.	...	...	...	...	gr. 25
Acid. carbolic.	...	...	...	...	gr. 10
Zinc oxide	...	...	...	...	dr. 1½
Lanoline }	...	...	...	...	...
Vaseline }	...	...	...	...	...
				℞ ad	oz. 1

This is rubbed well into the patches twice daily, and is also kept applied to them on lint during the night, providing that the healthy skin immediately surrounding them is not actively inflamed.

3. Treatment of the Scalp and Forehead.

In order to prevent the occurrence of conjunctivitis the chrysarobin ointment is not used for these parts. The hair is cut very short, and the scalp shampooed three times a week. An ointment of the following composition is kept applied by means of lint, or, better, a closely-fitting linen cap:

R Acid. pyrogall.	...	...	...	...	gr. 10
Acid. salicylic.	...	...	...	...	gr. 15
Acid. carbolic.	...	...	...	...	gr. 10
Ung. hyd. ox. flav.	...	...	...	...	oz. 1

4. Treatment of the Face and Front of the Neck.

As a rule, psoriasis of these regions will yield to zinc ointment containing 10 grains of ammoniated mercury and 20 to 30 grains of salicylic acid. In more resistant cases the pyrogallac acid ointment, as recommended for the scalp, has proved effectual.

5. Internal Treatment.

The external treatment described has up to the present been uniformly successful in clearing even the most extensive eruptions in a comparatively short time. Its object is to render a man fit for duty as quickly as possible; it will not, of course, prevent relapses.

Internal treatment is only adopted in certain cases. As regards diet, probably the most important factor to be considered in the prevention of relapses, it would in most instances seem hardly worth while to attempt to control it, seeing that the patients will return to active service conditions after their discharge from hospital. Florid individuals, however, with an inflamed eruption are kept for

a time on a milk diet, with plenty of fluids, and freely purged, and a mixture containing vinum antimoniale and potassium citrate is prescribed thrice daily. In another class of patient there is evidence of intoxication from some septic focus—frequently, apparently, the mouth. In these cases a thymol mouth-wash is directed to be used several times a day, the sockets of the teeth are cleansed with hydrogen peroxide, the bowels are kept well opened, and a mixture containing dilute hydrochloric acid and nuxvomica is given after meals. After their discharge they are recommended for dental treatment.

Contraindications and Modifications.

Very acute cases, and those in which the eruption is inflamed and angry-looking, should not be treated at once with the chrysarobin ointment. Free purgation and diuresis, a milk diet, and the administration of vinum antimoniale, together with the local application of Lassar's paste containing salicylic acid and ichthyol, form the lines along which treatment should first be directed. When the acuteness of the eruption has subsided the method of treatment already described may be cautiously begun.

No patient who is suffering from boils or other forms of pyoderma should begin the treatment until these have been cured; otherwise very acute dermatitis is apt to be provoked.

Psoriasis is not uncommonly seen in persons of the seborrhoeic diathesis, and impetiginized seborrhoeic eczema of the face, scalp, ears, and neck sometimes coexists with psoriasis of the trunk and limbs. In seborrhoeic subjects not only does the character of the psoriatic eruption differ from that usually seen, but the distribution is apt to be that of a seborrhoeic eczema—that is, the flexures and midline of the back and chest tend to be involved. As seborrhoeic subjects are peculiarly susceptible to all forms of external irritation the treatment of psoriasis in them must be carried out under very careful supervision in order to avoid chrysarobin dermatitis. The following alkaline citrate mixture is very useful in these cases: Sodium citrate gr. 30, potassium carbonate gr. 15, and sodium bicarbonate gr. 15, thrice daily one hour before meals.

CONCLUSIONS.

Although this method of treatment may not appear to differ materially from those usually employed, the fact remains that no other preparation I have ever used has given me nearly such rapid results. This, too, is the experience of my colleagues, all of whom are dermatologists. We are agreed that the carbolic acid, incorporated in the ointment, must have some specific effect. Whether its action is local, or whether it depends on absorption cannot be proved, but it is interesting to note that Kaposi considered that carbolic acid given internally was as effective as arsenic in the treatment of psoriasis. No ill effects have as yet been noted, but, of course, the possibility of renal irritation and carboloria must be considered. For this reason application of the ointment over a wide area must never be continued for longer than a week without a break; fortunately the eruption over the greater part of the body is usually cleared at the end of this period.

Apart from any special virtue of the applications used, I would lay great stress on the thorough supervision of the treatment as a factor in its success.

I wish to express my gratitude to Major MacCormac, R.A.M.C., who has kindly given me every facility for the carrying out of the treatment, and to my colleagues, Captains Semon, Small, Stewart-Smith, and Pellier, for providing me with cases.

ELECTRICAL TREATMENT OF MUSCLES IN "TRENCH FEET."

BY

FLEET SURGEON G. MURRAY LEVICK, R.N.(RET.).

A NUMBER of cases of trench feet have been treated very successfully in the Electrical Department at Tooting Military Orthopaedic Hospital.

At first nearly all the patients were sent from the wards with a request for radiant heat treatment. After a short trial this was abandoned completely. Not only was it no use, but in nearly all cases the patients complained that it increased their pain instead of relieving it. As already

* The formula for compound zinc paste (B.P.C.) for which "Lassar's paste" is a synonym, is as follows: Zinc oxide finely sifted and starch in powder, of each 24 parts; salicylic acid in powder, 2 parts; soft paraffin (white) 50 parts. The salicylic acid may be omitted, but the name "Lassar's paste" is retained.

pointed out by Mr. Jocelyn Swan and others, the application of heat in any form in the more acute stages is contra-indicated, and relief is more likely to be found in cooling applications than in hot baths or radiant heat.

In the later stages, with which we are here concerned, there is functional loss of movement in the intrinsic muscles of the foot, with or without pain and swelling. The muscles have been completely inactive for some time and are wasted. Tissue changes have taken, and are taking, place. In addition to the blood extravasation through the walls of the damaged blood vessels, there has been inflammatory invasion of the surrounding tissues, and the products of this are not removed owing to stagnation in the veins and lymphatics. Massage and passive movements of the foot give much relief and do a great deal of good, and I think that, apart from electrical means, there is no better treatment to adopt, especially if it is carried out after immersion in hot water. In addition to this, however, some means of getting rhythmical contraction of the muscles is urgently called for, as it is the best method for re-establishing lymphatic and blood efflux; if this be left until too late, permanent tissue change will take place, with loss of muscular function, commonly leading to flat-foot.

Method of Application.

The patient sits with his feet in a warm foot-bath, deep enough to rise above his ankles. If it does not cause pain the temperature of the water may be 110° F. If this is painful, lower temperatures may be used.

After a quarter of an hour, water is removed from the bath until only the soles of the feet are covered as they rest flat on the bottom of the bath, the water rising between the toes, but not into the dorsum of the foot.

An indifferent electrode of a faradic circuit is connected to a piece of wet lint which encircles the ankle of the foot to be treated; it is better to do one foot at a time. The active electrode, a carbon plate, is first immersed in the water in front of the toes.

A metronome is in the circuit, making not more than fifty interruptions a minute, and the current is gradually introduced. It will be seen now that rhythmical contraction is taking place in the foot. The action of the interossei and flexors and extensors of the toes can be seen in a remarkably satisfactory manner. The simultaneous action of the opposing sets of muscles is unavoidable, and matters little, because the object in view is attained—namely, a rhythmical contraction and relaxation, with the certainty of increased blood supply, and efflux of blood and lymph from the part.

The stimulus should be weak at first, but it will be found as a rule that a good contraction of the muscles can be borne from the start if the whole of the above technique is followed exactly. The position of the electrode in the water can be adjusted in its relation to the foot, thus allowing a diffusion of the stimulus before it enters the tissues, and a more even application to different parts. Careful watch should be kept on the muscle contractions the whole time, and the treatment should be discontinued as soon as the muscles show signs of fatigue. This point will take longer to reach as the treatment progresses.

Results.

So satisfactory is this method, and so pleasing the appearance of the part, with the parting and closing of the toes by the action of the interossei, that it at once suggests itself as the best method of applying any form of electrical stimulus to the muscles of the feet, for whatever reason. It is highly probable, though hard to prove, that the deeper layers of muscles are all stimulated in some degree. On moving the electrode to the outer side of the foot, the abductor minimi digiti is seen to start rhythmical contraction, and on the inner side the abductor hallucis may be stimulated, and so on.

After this treatment voluntary movement will soon return in most cases, and care should be taken to elicit this as soon as possible. When it is established, regular and carefully selected exercises should be given until the muscles have regained their tone and ready response. Above all things, until tenderness has disappeared from beneath the feet on pressing them to the ground, the patient should not be allowed to walk about the hospital. His first essays in walking should all be carried out under

instruction, as otherwise he will probably develop a bad style, and I have seen cases of flat-foot which I believe to have been acquired in this way.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MALIGNANT DISEASE AFTER INJURY.

UNDER present war conditions injuries to bone, accompanied or unaccompanied by suppuration, are of relatively great frequency. In addition to bone lesion, such injuries may be associated with extensive cicatrization. In view of the common belief that squamous cell carcinoma is liable to occur in an ulcer or scar of long standing and that sarcoma is liable to supervene on injury to bone, I have examined the records of the Middlesex Hospital in order to obtain some idea of the future chances of the wounded soldier in these two respects.

Out of over 10,000 records of malignant disease less than 1 per cent. are examples of cancer affecting the skin of trunk or limbs. Amongst these, cases of carcinoma arising on scars form a very small proportion and have chiefly been associated with cicatrices from extensive burns. Somewhat allied to this class are rare cases affecting the face where lupus has been treated with x rays, and the less uncommon cases where cancer has developed on the scalp at the seat of a sebaceous cyst of long standing.

Histological diagnosis indicates that sarcoma constitutes about 9 per cent. of all malignant disease, affects practically all regions of the body, and occurs at all ages with fairly uniform distribution. Direct association of sarcoma with injury is not often recorded; when it is stated to have occurred the sarcoma most frequently affected a long bone.

So far as concerns date of onset of the malignant disease after the trauma carcinoma and sarcoma are in marked contrast; "one year since injury" is an average period when sarcoma is said to have followed on injury of a long bone; "twenty years since injury" is an average period when carcinoma develops in a scar.

It will be seen, therefore, that past experience is reassuring; the probability that a given soldier will suffer from malignant disease at the site of his wound is so small that it may be neglected. Nevertheless, the total number of wounds, injuries to bone, and cicatrices will be very considerable, and there can be no doubt that examples of the type of malignant disease under consideration will not be infrequent in coming years.

W. S. LAZARUS-BARLOW,
Director.

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The Middlesex Hospital.

GUNSHOT WOUND OF ABDOMEN IN A BOY.

A BOY, aged 6, was admitted to the Royal Devon and Exeter Hospital on the evening of November 19th, having been brought from Chagford in a motor car. With other children he had been playing with a loaded rook rifle when it went off; the bullet entered his abdomen on the right side of the umbilicus, and was evidently directed upwards. On admission the child was very collapsed and his clothing saturated with blood.

He was taken to the theatre and anaesthetized; the abdomen was washed with methylated ether and painted with tincture of iodine. An incision about 4 in. long was made to include the entry wound, from which blood was flowing freely. On opening the abdomen the lower part was found full of blood, which was wiped out and the pelvis packed with gauze; the coils of small intestine were then in turn taken out of the abdomen on to hot Cripps pads and the wounds in the small intestine sought for and in turn sutured; there were sixteen wounds, and from some of them portions of food and blood clot were protruding; the last hole was in the left mesocolon. The operation wound was sutured in layers and closed and the child put back to bed. A normal saline enema with glucose was ordered every six hours. As the last coil of the ileum was being returned a very long and slightly inflamed appendix made its appearance; to avoid possible future trouble this was removed in the usual way.

The temperature was 100.8°; it rose on the next day to 101.6°, and on the evening of the third day to 103°, but the next morning it fell to 100°, and did not afterwards rise above 99° except on the seventh day, when all external stitches were removed. On this day the child was observed to have some irritation posteriorly in the left loin; a hard point which could be felt under the skin was cut down upon and a small rifle bullet easily extracted.

The child made a good recovery, and was discharged cured on January 12th no whit the worse for his experience.

EDWARD J. DONVILLE,
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Royal Devon and Exeter Hospital.

AN ERRANT RABBIT BONE.

The report on February 2nd, 1918, p. 166, of an errant fish-bone by Dr. I. David of Colombo brings to mind a similar incident in which a rabbit bone was concerned. I attended a gentleman, aged about 50, in March, 1882, on account of a swelling in the left iliac fossa, with symptoms of colic. A week later I found him still in bed with a temperature of 104°, when he was suddenly seized in my presence with vomiting and purging. Although enjoined by me to stay in bed he went to business next day and considered himself well.

Some months after, the late Mr. Reginald Harrison read at the Liverpool Medical Institution¹ a case in which a rabbit bone had passed by the urethra. On asking Mr. Harrison for particulars I found we had both had to do with the same person. It seems that in April, 1882, this gentleman was seen by Mr. Harrison on account of a large swelling at the base of the bladder, irritability of that organ, pus in the urine, and the escape of gas bubbles at the end of micturition. Later, in the urinary deposit striped muscular fibres were found. Early in June, 1882, he reported himself greatly better after the passage by the urethra of a bean-like body $\frac{3}{4}$ in. long, which he brought to Mr. Harrison and had taken for a stone. This on being cleaned proved to be part of a rabbit's femur. Gas bubbles continued to issue for a few months, but during the following year he became quite well.

It is evident that during my attendance the bowel was undergoing perforation and adhesion to the bladder, with a toxic "crisis" evinced by the vomiting and diarrhoea. Later the perforation of bladder and the formation of a vesico-intestinal fistula were proved by the presence in the urine of striped muscular fibres derived from food. No particular date was given on which the patient had eaten rabbit, which, however, he often did.

Mr. Harrison in his report also quoted two similar cases: (1) a swallowed hair pin passed by the urethra as a calculus, of which it formed the nucleus;² and (2) a swallowed piece of slate pencil removed from the bladder by lithotomy.³

Liverpool.

RUSHTON PARKER.

Reports of Societies.

PURPURA AND HAEMOPHILIA.

At a meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine on March 22nd, Dr. ROBERT HUTCHISON being in the chair, Major W. PALMER LUCAS, Professor of Pediatrics at the University of California, spoke of clinical experiments he had carried out according to the methods described by Dr. W. H. Howell, Professor of Physiology at the Johns Hopkins Hospital. Three factors were essential to clotting: (1) Prothrombin, (2) thrombin elements, and (3) the substance known as antithrombin, which held the blood in solution. If the coagulability of the blood were decreased there was either an increase of antithrombin (as in cases of purpura due to streptococcal infection and in some cases of jaundice), or a decrease of prothrombin. This occurred in most cases of purpura and in haemophilia. In Henoch's purpura, for instance, prothrombin was decreased during an attack; the decrease was very marked, and the amount of prothrombin

present was always below normal. In blood transfusion for purpura he preferred whole blood to serum, as in some serums there was an excess of antithrombin. Good results had been obtained from blood transfusion in purpura, but in haemophilia he had not been able to raise the prothrombin factor enough to obtain success. He usually depended upon rest and local treatment. Haemophiliacs usually bled up to a certain point and then stopped. If the blood were examined at once (and it was very difficult to get a sample at this time) the factors were practically in the normal condition. The whole factor in coagulation was the balance between prothrombin and antithrombin. Replying to questions, Major Lucas said it was not advisable to employ the method in private homes. A hospital laboratory was required. Kephalin was not by any means a panacea. He had used it on haemophiliacs, but it had not had much effect. There were, he said, two types of the haemorrhagic disease of the newly born: (1) in which the antithrombin factor was increased—the septic cases belonged to this type, and the mortality was very high on this account; (2) in which there was diminution in the amount of prothrombin. In one case recovery followed whole blood transfusion. So far he had done no work on syphilitic cases. The reason for the want of balance between prothrombin and antithrombin was at present being worked at, but, so far, analyses had given no results. The investigation was difficult on account of the number of tissues that had to be analysed. In rheumatic purpura prothrombin was usually deficient. He had noticed that haemophilic patients were often able to predict the moment of recovery. This was especially so in the case of children, who often announced that they were "now going to get quite all right," even though there appeared to be no change in the condition. It was often possible to tell the moment of recovery even from the facial expression.

VALUE OF X-RAY TREATMENT.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, on February 15th, Dr. W. G. HARVEY, Major R.A.M.C.(T.C.), assistant physician and in charge of X-ray Department, Adelaide Hospital, Dublin, gave an estimate of the value of x-ray treatment in various conditions, founded upon an experience of over 500 cases. His observations were summarized as follows:

1. Ringworm. In this the rays were used as an epilating agent. A fortnight after a proper dose of x rays the irradiated area shed all its hair, healthy and parasitic, while some three months later a new growth of hair, free from the parasite, occurred. This treatment was the best for the cure of ringworm. It was certain, painless and rapid, and left the child free from infection within a month of starting. There were, however, many technical points which required attention, or accidents—for example, alopecia—might occur.
2. The results in favus theoretically should be equally good, but such cases often became reinfect.
3. Rodent ulcers in general did well, unless the periosteum or cartilage were involved. True epithelioma were more variable, but many responded well to x rays.
4. Epithelioma on a lupus site should never be treated with x rays—the results were very bad.
5. Warts—senile and juvenile—were amenable to x-ray treatment. Four cases of warty growths on the feet did well.
6. Keloid was satisfactory in its response to x rays.
7. Lupus did well, but the cosmetic results of Finsen light were probably better. Tuberculin injections appeared to favour the treatment.
8. Lupus erythematosus was not benefited.
9. The results with tuberculous glands had not been all that was to be desired.
10. Actinomycosis (one case) was not affected. In the treatment of neoplasms and deep-lying tissues much improvement had been obtained since the methods of "filtration" and "cross fire" were introduced.
11. The symptoms of Graves's disease subsided under x rays. No considerable benefit was derived in simple goitre.
12. Malignant tumours, whenever possible, should be surgically removed. When that was impossible x rays might occasionally bring about a cure, and frequently relieved pain and diminished the tumour.
13. Uterine myomata and enlarged prostates required massive doses of x rays, but with them appeared to do well.

In the discussion which followed Dr. MOORHEAD said that he looked on x rays as a specific in the treatment of Graves's disease, but Dr. CROFTON raised the question whether there might not be danger of thyroid insufficiency following the treatment.

¹ *Liverpool Medical-Chirurgical Journal*, 1883, p. 185.

² Mr. Brownhill, *London Medical Gazette*, October, 1845.

³ Mr. Alfred Roberts, Sydney, N.S.W., *Med. Times and Gazette* July 30th, 1859.

TREATMENT OF TUBAL STERILITY.

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on February 22nd, Dr. HASTINGS TWEEDY read a paper on the cure of sterility by means of catgut strands passed through the Fallopian tube into the uterus, and showed a specimen of ectopic gestation removed from a tube which had been resected on two previous occasions. On the second occasion catgut was placed in position; the specimen showed a free passage to spermatozoa. He attributed the tubal pregnancy to the irritative effect of chromicized catgut, and held that some less harmful material must be employed in future. He described a method which would make it possible to pass silkworm gut through the tube, and to remove this gut in three or four days by the extraction from the uterus of a plug of iodoform gauze. He maintained that the first three days constituted the critical period for the keeping open of the tube after resection, and said that in 50 per cent. of women, sterile in spite of curettage and other local treatment, the sterility resulted from occlusion of the tubes.

Dr. BETHEL SOLOMONS read notes of a case of extra-uterine pregnancy resulting after resection of the tube and insertion of catgut to keep it open. The patient had had five children, and sought advice because she had not become pregnant for four years. A retroverted uterus with salpingitis was found. The left tube was resected and chromic catgut No. 4 inserted in the lumen. The right tube was dilated with air, and a Gillian operation was performed. Two months later a left tubal pregnancy of five weeks' duration was removed. Dr. Solomons considered the insertion of catgut in the tube to keep it open after resection to be a rational procedure. He doubted if chromic catgut made tubal pregnancy more likely; he was of opinion that when this occurred it was due to an uncured salpingitis.

The PRESIDENT of the Academy said that it was probable that some peristalsis occurred in a healthy tube, having regard to its structure, but it had not yet been demonstrated. He was inclined to question the soundness of the view that a piece of gut placed in the lumen of the tube had any irritant action.

Dr. FITZGIBBON said the idea of passing something down the Fallopian tubes to act as a bougie and maintain their patency was an advance in the treatment of tubal sterility. It was impossible at present to judge the efficacy of the method, and even the methods of clearing the tube of adhesions and kinks gave a certain number of good results. He thought the clearing of the fimbriated end the main thing in the operation, and if this were feasible and the fimbriae in good condition, satisfactory results might be expected in a fair number of cases, without the resection of any part of the isthmus of the tube, except where there was marked disease.

The President of the Section (Dr. ALFRED SMITH) considered that a hydrosalpinx where there was little interstitial hypertrophy gave best results in salpingostomy. Where there was much interstitial hypertrophy it seemed hopeless to operate. He recalled cases where healthy children were born after salpingostomy. He was not quite satisfied with insufflation as a test of the permeability of the tube, and preferred the injection of warm saline through the uterus by the Bozeman catheter. In this method the return flow was blocked by the finger; this raised the tension within the uterus and, if the tube were permeable, forced the saline through the tube in droplets. The catgut bougie was not convincing; it might, however, make a useful splint to ensure accurate adaptation in the end-to-end anastomosis.

WE have received the first number of the *Revista del Instituto Bacteriológico del Departamento Nacional de Higiene* of Buenos Aires, in which work done in the laboratories of the institute is to be published. It will also serve as a central organ for the work of researchers on microbiology, hygiene, and experimental medicine, published in Spanish America. The new review is a handsome volume, and the first number contains, among other papers, communications on the specific precipitating properties of anti-snake-venom serums by B. A. Houssay and J. Negrete; studies on experimental poliomyelitis by R. Kraus and L. Kantor, and on the antigen of the mistagmine reaction in malignant tumours by A. H. Roffo.

Rebichus.

WOUNDS OF PLEURA AND LUNG.

ONE of the most recent additions to the Collection Horizon is a well balanced work on wounds of the pleura and lung by a surgeon, Professor GRÉGOIRE, and a physician, M. COURCOUX, both members of the staff of the Paris hospitals.¹ The book is of special interest in connexion with the burning question, referred to in the review of Pierre Duval's book on war wounds of the lung (vide *BRITISH MEDICAL JOURNAL*, 1917, ii, 420), of the advisability of early surgical interference to prevent rapid death from intrapleural haemorrhage. In their full discussion of this problem the authors point out the danger of moving such patients, and the practical difficulties of operating in such cases near the front. One of the questions that have to be answered is whether or no haemorrhage has stopped. On this fact they maintain that coagulation of blood withdrawn from the chest by an exploring syringe is evidence that bleeding is going on, and that operation should be undertaken; on the other hand, if the blood does not clot it may be concluded that the haemorrhage has ceased and that operation is unnecessary. While generally in favour of tapping a sterile haemothorax, the authors recommend waiting a week, as a rule, and do not advise the introduction of air or oxygen to prevent too rapid expansion of the injured lung. A raised temperature associated with an increased number of leucocytes in the blood withdrawn from the pleura does not, in the absence of obvious pus, justify the opinion that the haemothorax has been infected. These conclusions depend on the interesting account given of the changes undergone by the blood in the pleural cavity. The blood, which is usually derived from the lung rather than from the chest wall, does not coagulate unless the pleura is infected or its endothelium damaged, and further, after about five hours it does not coagulate outside the body. There appears to be some anticoagulating agent present, as this blood prevents coagulation in blood added to it. At first the intrapleural blood contains an excess of polymorphonuclear leucocytes, but about the sixth day 60 per cent. of the leucocytes are eosinophils, and macrophages are present. Haemolysis occurs and bilirubin appears, thus confirming the extrahepatic formation of bile pigment.

The work is divided into sections on (a) uninfected wounds, (b) infected wounds, and (c) their sequels. Analysis of over 50,000 war wounds shows that 5 per cent. are of the chest, and that, in contrast to others, those of the chest are relatively seldom infected—in about 15 per cent. The lung is not a favourable site for the growth of the anaërobic *Bacillus welchii*, but this infection, when it does occur, is almost always fatal. Infection on or soon after the fourth day leading to empyema proves fatal in about half the cases. Pneumonia and bronchopneumonia, very rare indeed in association with sterile haemothorax, occur in some of the infected cases and render the outlook extremely grave. The fear that pulmonary tuberculosis may be induced by these chest wounds is shown to be unfounded.

MINOR MALADIES.

THE fourth edition of Dr. LEONARD WILLIAMS's arresting little book on *Minor Maladies*,² revised, enlarged, and brought up to date in medical outlook, is a volume of interest to all practitioners of medicine. Combining as it does both nutritive and irritant properties in a high degree, it forces the reader to think; and, whether he agrees with all he finds in it or not, he will arise from its perusal stimulated, informed, and amused. In the present edition the author lays stress on the study of the internal secretions, and of their influence on the course and causation of health and disease. The future of medicine lies with the endocrine glands, just as its immediate past was ruled by bacteriology. So the author; and he makes out an excellent case for his views in the ten chapters into which his book is divided. The longest of these is that devoted to "goutiness," a term used as the equivalent of "insufficient

¹ *Plaies de la plèvre et du poumon*. By R. Grégoire, Professeur agrégé à la Faculté de Paris, and A. Courcoux, Médecin des Hôpitaux de Paris. Collection Horizon. Précis de Médecine et de Chirurgie de Guerre. Paris: Masson et Cie. 1917. (Cr. 8vo, pp. 212; 44 figures. Fr. 4.)

² *Minor Maladies and Their Treatment*. By Leonard Williams, M.D. Fourth edition. London: Baillière, Tindall, and Cox. 1918. (Cr. 8vo, pp. xii + 402. 7s. 6d. net.)

or perverted metabolism." Lack of space unfortunately prevents us from following the author into the ramifications of this protean disorder. We wish this interesting and well-written little book the wide popularity it deserves.

THE JEWISH CHILD.

DR. FELDMAN'S book, *The Jewish Child*,³ is the work of one well skilled in the ancient learning and familiar with the traditional beliefs and customs of the Jews, but equally at home in the sphere of rational medicine. He traces the teaching of the Jews as to heredity and eugenics, marriage, pregnancy, embryology, birth, childhood, and adolescence through the Bible and the Talmud, and compares it with the results of modern research. Bacon speaks contemptuously of the fables of the Talmud, and Lightfoot, who gave his life to its study, was disgusted by the *stupenda inanitas* of its contents. In that strange medley of legend and mystical lore, however, there is not a little practical wisdom besides some shadowy anticipations of doctrines now established on a scientific basis. If Dr. Feldman has not altogether escaped the danger that besets such inquiries of reading deeper meanings into old texts than can fairly be found in them, his interpretations are always ingenious and plausible.

The importance attached by the Jews to everything that concerns the begetting and rearing of offspring is thought to have played a part in conserving and increasing the vitality of the race. It was the ideal of the Jews to produce and perpetuate healthy, beautiful, and capable men and women. The influence of injurious conditions in the parent was recognized. The Talmud says that children begotten in drunkenness are mentally deficient; marked difference in age between persons wishing to marry was regarded with disfavour, and the union of imbeciles was discouraged as likely to result in the propagation of imbecility. Midwives are often mentioned in the Talmud, and some of them seem to have been possessed of considerable skill. Caesarean section was performed on the dead mother, and sometimes on the living. Men were forbidden to use measures to prevent procreation, but women were allowed to do so when pregnancy involved danger to the mother or the child. Recourse could even be had to ovariectomy or hysterectomy to produce sterility. Breast feeding was regarded as imperative unless the mother was in bad health. In Talmudic times a child was sent to school at the age of 6. The buildings were lofty and well ventilated, and there is mention of open-air schools. The higher education does not seem to have been open to girls; according to the Talmud the only accomplishment suitable for them was spinning. The child was carefully studied in order to discover what teaching was best suited to its individual powers. It was held that in elementary classes too many subjects should not be taught at once. The strap might be lightly used for the punishment of stubbornness and inattention. Great stress has always been laid on cleanliness of the body, and the public baths were regarded as second in importance only to synagogues and schools. Contrary to popular belief the birth-rate among Jews is lower than that of the general population; they bring fewer children into the world but rear more to maturity. Jewish mothers are more careful than the average Christian of the health of their children. Infant mortality among Jews is at all ages considerably lower than among Gentiles, and the chances of surviving the first critical year are much greater. Illegitimate births are much fewer. Statistics from various sources show that, age for age, Jewish children are as a rule shorter and lighter than the non-Jewish, and have a smaller chest measurement.

Dr. Feldman's book is full of interesting matter, and his use of the facts which he has gathered from the most varied sources is suggestive if not always convincing. He has made a valuable contribution to the study of a people which, under many disadvantages, has written its mark deep on human history. Were military predominance the vital principle of an enduring national prosperity the Jewish race would have perished long ago. One of the secrets of their preservation is the loving care lavished on their children, and this regard for the welfare of the future

citizens affords the best hope for the success of the interesting experiment which is now, thanks to British statesmanship and British arms, about to be tried in Palestine.

NOTES ON BOOKS.

DR. LACHLAN GRANT of Ballachulish has reprinted from the *Caledonian Medical Journal* an address on *Keeping Fit*, delivered to the guard of the German prisoners of war while he was acting as medical officer to the prisoners of war camp, Kinlochleven.⁴ It is a summary in simple language of the laws of bodily and mental hygiene. There is much sound advice as to food. The Roman soldier conquered the world on a diet of ground corn boiled in water, and on campaign Caesar shared the fare of his men. Mark Antony had been daintily brought up, yet, when the occasion called for self-denial, he drank "puddle water," and ate the barks of trees and "such beasts as never man tasted of their flesh before"; and this "was borne so like a soldier that (his) cheek so much as lank'd not"; but all men are not cast in this heroic mould. Dr. Lachlan Grant rightly insists that, in order to keep fit, mental control and moral discipline are necessary in addition to physical culture. The will may be strengthened by practice in right thinking—that is, resolutely looking at things in their true perspective and not suffering oneself to be disturbed by every rumour or scared by any of the inevitable reverses that occur in every war. Hannibal, Caesar, Napoleon, Nelson, Wellington, and other great commanders had their full share of such misadventures, and were denounced as incompetent by the pessimists of their day. We should, in Dr. Grant's words, "guard our thoughts against what may be termed the deleterious microbes of the mind which tend to maim our mental control." Moral discipline, which means the adjustment of one's conduct and emotions to the promotion of the highest interests of the community, is a vital factor in the maintenance of fitness in the individual as in the nation as a whole. In the recognition and application of this truth lies the hope of restoring civilization and building a new and better world on the ruins left by the devastating hand of war.

⁴ Glasgow: Printed by Alexander Macdougall.

FOODSTUFFS FOR PATHOLOGICAL LABORATORIES.

THE Medical Research Committee has recently brought to the notice of Lord Rhondda the special difficulties confronting the directors of pathological and other scientific laboratories in the regulations relating to food supply. Many instances have been brought to the notice of the Committee in which scientific work of the highest national importance has been endangered by difficulties, under existing conditions, in obtaining necessary foodstuffs in sufficient amount or variety, though the total amount required is quite negligible in relation to the general food supply.

The Ministry of Food has now issued the following memorandum for the guidance of Food Control Committees:

Food Office Instruction No. 15.

MINISTRY OF FOOD.

MEMORANDUM FOR THE GUIDANCE OF FOOD CONTROL COMMITTEES.

Supplies of Foodstuffs to Pathological Laboratories.

1. Lord Rhondda's attention has been called to the difficulties experienced by scientific laboratories in obtaining the small quantities of foodstuffs required by them for the purposes of their scientific work.

2. These laboratories throughout the country are engaged on work of the greatest importance both for civilian medical practice and for the maintenance of the health of the Navy and Army.

3. The Food Controller is authorizing laboratories duly licensed by the Home Office under Act 39 and 40 Victoria, cap. 77, to obtain supplies of any rationed article on production to the supplier of a certificate signed on behalf of a laboratory to the effect that they are necessary for the purposes described above. In due course special Order Forms will be issued to such laboratories for this purpose. Committees should also assist such laboratories in obtaining necessary supplies of unrationed foodstuffs in case they experience difficulty in securing them.

4. A statutory order will shortly be issued by the Ministry of Food exempting from the provisions of the Food Controller's Orders the use of grain and other foodstuffs in any such licensed laboratories for the maintenance of animals or for the preparation of laboratory materials.

LOCAL AUTHORITIES DIVISION,
MINISTRY OF FOOD.

March 23rd, 1918.

³ *The Jewish Child: Its History, Folklore, Biology, and Sociology.* By V. M. Feldman, M.B., B.S. Lond. With an Introduction by Sir James Orlinon-Browne, M.D., D.Sc., J.L.D., F.R.S. London: Baillière, Tindall, and Cox. 1917. (Demy 8vo, pp. xvi + 453; 2 plates, 13 figures. 10s. 6d. net.)

British Medical Journal.

SATURDAY, MARCH 30TH, 1918.

MEDICAL REINFORCEMENTS FOR THE WESTERN FRONT.

AN APPEAL BY THE MINISTRY OF NATIONAL
SERVICE.

THE result of the concentrated German attack on the southern part of the Western Front from a point south of Arras to La Fère may have disappointed the enemy's hopes, but it has disappointed also the expectation of the British Command that it would be possible to hold a line considerably to the east of the Somme.

The country fully understands the position, particularly the threat to Amiens by the approach to Albert. The enemy claim that during the first five days (March 21st to March 25th) they took 45,000 prisoners, besides guns and great stores of supplies. This claim has not been denied by the War Office; in that total must be included many medical officers not only of the battalions, but also of field ambulances and probably some casualty clearing stations. The fighting throughout the area, both where most and least ground has been yielded, is officially described as very severe, and it is certain that the number of casualties to be treated by the British Army Medical Service, even allowing that many wounded fell in areas overrun by the enemy, and are now prisoners, must be very large.

The emergency is so great that the Ministry of National Service makes an urgent appeal to members of the medical profession to come forward with offers of voluntary service to meet the existing pressure. The appeal is made—

First, to medical men now in this country who have relinquished their commissions and have not rejoined. Their services are immediately and urgently required with the armies in France.

Secondly, an appeal is made to medical men under the age of 55 who are physically fit to offer their services either at home or abroad.

The statutory Professional Committees have the practical aspects of the matter under close consideration, and are working in immediate touch with the Ministry of National Service. We understand that a letter conveying this appeal and stating the conditions of service proposed will be sent to all medical men who are believed to be in a position to respond.

We are aware that the number of men in these categories who can be available is small, and we know that in many areas the number of civilian practitioners has been reduced to a level which has caused anxiety to civilian authorities; but the situation which has to be faced is serious, and we are confident that the volutary spirit of medical men will face it. Every one of them who responds immediately will be performing an act of practical patriotism as well as of individual fortitude.

THE DEMAND FOR AN INCREASED CAPITATION FEE.

THE main business of the special conference of representatives of Local Medical and Panel Committees, to be held on April 11th at the Connaught Rooms, will be to consider the position with regard to the demand for an increased capitation fee put forward by the last annual conference, and the unfavourable reply thereto of the Chairman of the National Health Insurance Joint Committee. The Insurance Acts Committee was instructed to press for an increase in the capitation fee from 7s. to 10s., this sum to cover the increased liabilities in respect of discharged disabled soldiers and sailors and all services now rendered to tuberculous patients by panel practitioners. The decision of the conference was conveyed by letter to the Insurance Commissioners early in November; a deputation waited on the Commissioners ten days later, and on December 8th a memorandum* setting out the reasons for the demand was forwarded to Sir Edwin Cornwall. On February 19th the Insurance Acts Committee had an interview with the Insurance Commissioners, when Sir Edwin Cornwall, in his capacity as chairman of the Joint Committee, read a long statement, which in substance amounted to a refusal to grant any general increase in the capitation rate to insurance practitioners. Sir Edwin Cornwall had spoken of receiving a deputation to discuss the whole subject with him personally, but, in fact, his reply had already been printed; the interview, for all practical purposes, was merely an occasion for hearing this White Paper read. Every insurance practitioner has now had an opportunity of studying the correspondence which has passed between the Insurance Acts Committee and the Commissioners, including the full text of Sir Edwin Cornwall's statement and of the reply the Insurance Acts Committee had since prepared. The gist of the Government's decision is conveyed in certain passages which may be lifted from Sir Edwin Cornwall's statement without injury to the context. In choosing them we have passed over the debating points and irrelevances with which the refusal is padded out.

Dealing with the effect of war conditions on the doctor's liability for attendance, the conclusion is that "it is difficult in the absence of positive evidence to accept the view that there has been such an actual increase in the amount of medical attendance required per head of the insured as to justify the sanction of the Government being sought for any increase in the capitation rate based upon this ground." Dealing next with the contention that the rise in the cost of living and of the expenses of practice has lowered the effective remuneration of insurance practitioners: "the Minister can only treat the application as one put forward, on war grounds solely, for a general and uniform increase of remuneration to the extent of 3s. per insured person per annum—that is, an increase of over 42 per cent. on the present remuneration—to all doctors engaged in National Health Insurance work, without discrimination of any kind between the circumstances of one insurance practitioner and those of another. He is compelled to say that he considers that the application if so presented is not one which the Government could entertain or which it is likely that Parliament would be willing to concede."

This decision is defended on two grounds: First, that expenses of practice admittedly vary widely in different practices, and that the increase in such

* SUPPLEMENT, December 22nd, 1917, p. 123.

expenses due to war conditions is also variable; hence, "no uniform increase of remuneration to *all* insurance practitioners would be a proper method of compensating practitioners affected so diversely." Secondly, such an application must be examined "not as one specially affecting insurance administration, but as related to similar applications from other sections of the community, and therefore to be decided in accordance with the general policy of the Government in dealing with applications of the kind. . . . Such grants as have been made in consideration of hardships produced by the rise in prices have taken careful account of the incomes of the persons in question, and the principle underlying them has been that of mitigating hardship in the case of those persons whose incomes are small. . . . In view of all these considerations, the Government would not be justified in asking Parliament to make, in respect of the increased cost of living, a grant which should apply *uniformly to all insurance practitioners without discrimination*, as proposed by the conference." While, however, Sir Edwin Cornwall could not entertain the application as submitted to him, he professed himself willing to examine a detailed case, if put forward with adequate confirmatory evidence, dealing with hardships due to the increased cost of practice expenses and the increased cost of living. Concerning practice expenses—especially travelling—any case put forward for a suitable grant to meet hardships in this respect was to be supported by the necessary evidence as to the actual amount of hardship thus entailed upon practitioners of different types, and accompanied by suggestions for the equitable distribution of such grants.

The Insurance Acts Committee, believing that this answer if it stood alone would not satisfy the medical profession, asked the Chancellor of the Exchequer to make some authoritative pronouncement as to the general Government policy in regard to applications for increased remuneration. Mr. Bonar Law accordingly received a deputation upon this matter on March 15th, and an agreed report of the proceedings has been issued to insurance practitioners. The Chancellor discussed the claim for an increased capitation fee for insurance practitioners under two heads: (1) in respect of increased out-of-pocket expenses; and (2) on the ground of the higher cost of living. He thought the first point reasonable, but difficult to meet, because the extra cost to doctors must vary very much according to the nature of their practices; he added, however, that if the profession could submit an equitable scheme for meeting these increased expenses the Treasury would be prepared to consider it. He would not accept the second contention. In giving war bonuses to many of the wage-earning classes the Government had made no distinction in respect of income, because this distinction was impracticable; otherwise it would have been right to discriminate between high wage earners and the others. In the case of medical practitioners he could not approve a uniform increase, since the cost of the necessities of life had risen just as much for the man with a low income as for the man with a high income. He was sure Parliament would not agree to an increase for all doctors irrespective of their incomes, but he promised that the Treasury would consider sympathetically a scheme based on the principle that doctors with small incomes should get some increase on the ground of the higher cost of living. He explained that in dealing with any such claim an income limit of £500 would apply to insurance practitioners, the net professional income being taken as the basis, and it would not be necessary to deal with each case

individually, but to take classes of practitioners and different kinds of areas. He was not, he said, prepared to consider any general increase—even a small one—on account of the changed conditions and consequent alterations in the liabilities of insurance practitioners due to the war. He declined also to undertake any partial revision of the general conditions in order to meet the special claims of rural doctors; that, he said, must wait until the general revision. But the Treasury was willing to meet fairly any actual increase in out-of-pocket expenses, claims for which would probably come mainly from rural practitioners.

All the documents are now in the hands, not only of Local Medical and Panel Committees, but of their constituents. The case for an increased general capitation fee has been argued by the Insurance Acts Committee, and the Government has given its reply through the mouths of the Chairman of the National Health Insurance Joint Committee and the Chancellor of the Exchequer. The forthcoming conference will decide what is to be done next. In giving their decision the representatives will, no doubt, bear in mind the circumstances of the present moment.

"PANCREATIC INSUFFICIENCY": COELIAC DISEASE.

ACCORDING to the general regulations permitting invalids to have food in excess of the compulsory rations, reproduced on page 290 of our issue of March 9th, extra meat and fat may be allowed to patients suffering from diabetes, tuberculosis, coeliac disease, and pancreatic insufficiency. The two last conditions were added at the instance of the Scientific Adviser (Sir H. Thompson) after consultation with one of the medical referees to the Ministry of Food, and were not among those recommended by the Committee of Reference of the Royal Colleges of Physicians and Surgeons and the Central Medical War Committee. As is not unnatural, some difficulty has been experienced in connexion with these two additional justifications for a mere liberal diet, and especially with regard to pancreatic insufficiency. As diabetes is separately mentioned, it appears that carbohydrate inadequacy of the pancreas is not referred to, and we are therefore left with pancreatic failure to deal with fats and proteins. For the detection of failure to digest proteins laboratory methods, such as Schmidt's nuclein test or Sahli's iodoform capsules, would be necessary, and it seems fair to assume that in ordinary practice "pancreatic insufficiency" would be confined to and based on the presence of large quantities of undigested fat in the stools without jaundice, for the occurrence of pancreatic infantilism, as described by Dr. Byrom Bramwell, is a curiosity too rare to be taken into account. Steatorrhoea, though long known to be associated with pancreatic disease, may occur in other conditions, such as intestinal catarrh and sprue, and to determine both a real excess of fats in the faeces and the cause of the steatorrhoea laboratory tests, quantitative and qualitative, such as those devised by Cammidge, are strictly speaking desirable, but obviously are not practicable in the majority of cases. In ordinary practice "pancreatic insufficiency" will therefore probably be based on the naked eye diagnosis of fatty stools; this leaves a not inconsiderable loophole for error, and it is perhaps a pity that the term "pancreatic insufficiency," which does not appear in the last edition of the *Nomenclature of Disease* (1906) and from a clinical point of view is wanting in clearness and definition, should have been introduced. It might, indeed, have been better to have been content with "excess of fat in the stools"; and, as at present ordained, some statement of the grounds on which this diagnosis is made should be required before the permit is granted. The coeliac disease, described by the late Samuel Gee

in *St. Bartholomew's Hospital Reports* for 1888, is better recognized; Dr. R. Hutchison contributed the article on it to Garrod, Batten, and Thursfield's *Diseases of Children* (1913), Sir W. Osler has given it his imprimatur, and Professor Still has taken it as his subject for the current Lumsden lectures before the Royal College of Physicians; but it did not appear in the *Nomenclature of Disease* (1906). Clinically it is a diarrhoea, mainly of children, characterized by bulky pale stools with the consistency of porridge; etiologically it has been variously connected with disease of the pancreas, of the liver (Cheadle's "acholia"), or with a special intestinal infection (C. A. Herter). From the point of view of treatment, raw or underdone meat, as much as 6 oz. daily for a child of 4 years, is recommended; and this practical consideration, taken in conjunction with its fairly definite clinical features, makes its inclusion less open to question than that of pancreatic insufficiency.

POST-OPERATIVE PNEUMONITIS.

By pneumonia Whipple¹ means not necessarily pneumonia, but a condition of the lung recognized in 1848, and called, after its describer, Woillez's disease by the French. The lung shows engorgement of the capillaries and exudation into the alveoli of mucus, red blood, epithelial, eosinophil, and mononuclear cells, but no fibrin. As a post-operative event this change is much commoner than is generally thought, and is often dismissed under the casual term "post-operative reaction." Among 3,719 operations at the Presbyterian Hospital, New York, during 1915-16, when this subject was being specially investigated, it was detected in 97 cases, 88 being laparotomies. The most important disposing factors are recent or concurrent inflammation of some part of the respiratory tract, pulmonary congestion, inhibition of the normal respiratory movements by the pain of the abdominal incision, by distension or tight bandaging, debility, sepsis, and cachexia, and increased numbers and virulence of the pneumococcus during the winter and early spring. Five of the cases were regarded as embolic pneumonia, but in no instance was this proved by examination after death, and the widespread belief that post-operative pneumonia is generally embolic is not accepted. Neither can the anaesthesia be regarded as solely responsible, for the cases of pneumonia may show a higher percentage incidence among cases under local than among those under general anaesthesia. Ether, however, is especially irritating to the oropharynx, and so should never be given to a patient with "a cold." The infective agent is in most of the cases—in 46 out of 69 examined—pneumococcus Type IV,² a saprophyte in 60 per cent. of throats, responsible for a short, atypical, and mild form of pneumonia. Fourteen cases showed pneumococci of other (I, II, III) types, and five the influenza bacillus. As a rule there is no initial rigor, no rusty sputum, no sustained high temperature for five to seven days, no severe toxæmia, or alarming symptoms terminating by crisis. The symptoms come on within forty-eight hours of the operation with a sharp rise of temperature to 102° or 104° F., cough, increased respirations, pain, though rarely severe, in the side, more often the right, and usually dullness over the base of one lung; but bronchial breathing does not appear for another two days, and then after another day the fever goes by lysis. Skiagraphy is a valuable means of diagnosis in the early stages, and usually shows a shadow before there are physical signs of frank consolidation. In cases infected with pneumococcus Type IV agglutinins appear during the second week after the onset. Prophylaxis, it is said, consists in avoiding operation, when possible, on a patient with inflammation of the respiratory tract, in care in the anaesthetic, in protection against chills, and in anticipating pulmonary congestion by digitalis four-hourly for thirty-six hours before the operation.

SEROTHERAPY OF SPIROCHAETOSIS ICTERO-HAEMORRHAGICA.

WHEN originally introduced the immunizing serum for icterohaemorrhagic spirochaetosis was injected hypodermically, but since May, 1916, Inada, Ido, Heki, Ito, and Wani¹ have given it intravenously, and have found this method much more potent. Immune bodies could be demonstrated as complete in the patient's blood five minutes after intravenous injection of 0.5 c.cm. of serum per kilo of the body weight, whereas after hypodermic injection the immune bodies could not be detected until after an interval of eight hours, and were then not completely absorbed. As a rule 60 c.cm. of serum from an immunized horse were given intravenously, irrespectively of the degree of illness; sometimes the whole amount was injected in a single day, sometimes 40 c.cm. on one day and 20 c.cm. the next, or sometimes 20 c.cm. for three successive days. It has not yet been settled which plan is the best. In mild cases a total of 20 to 40 c.cm. is sufficient. The best results follow early injection, and from consideration of the infectivity of the patient's blood, the distribution of spirochaetes in the body, and clinical results it appears that intravenous injection is effective up to the fifth day of the disease. The serum is spirochaetolytic and spirochaeticidal; in two cases its injection gave rise to rigors and a rise of temperature, a serum rash occurred in 3 out of 41 cases treated, but no anaphylactic symptoms were seen. Out of the 41 patients treated, 12, or 29 per cent., died, but after eliminating 3 cases the mortality worked out at 23.7 per cent., or considerably lower than cases not treated with serum. The mortality of patients treated by subcutaneous injection was lower—17 per cent.—but this is correlated with their comparative youth. The serum shortens the duration of jaundice, and it is probable, though not proved, that if given in a pre-icteric stage it may prevent the onset of jaundice. The haemorrhagic tendency is somewhat lessened, particularly from mucous surfaces, and the incidence of suppurative complications greatly reduced. But the fever is not influenced, and the percentage of after-fever is somewhat higher, probably because more patients severely ill recover. From examination of 8 fatal cases Kaneko and Okuda² find that the spirochaetes are markedly degenerated and fewer than in cases not treated by serum, and that their disappearance from the organs and tissues is not so well marked after subcutaneous as after intravenous injection, though the manner of their disappearance is the same.

SACCHARIN.

OWING to the very widespread use of saccharin or allied synthetic substances for sweetening beverages in place of sugar, which is now unobtainable in restaurants and tea-shops, many inquiries have reached us as to whether these coal-tar derivatives, taken continuously though in very small quantities, have any injurious effect. Some quite unfounded statements have been made to the effect that saccharin disturbs the digestion, injures the kidneys, or is even responsible for gastric carcinoma. These appear to have been evolved from *a priori* reasoning when they were not the product of the uncontrolled imagination pure and simple. There is no evidence that saccharin or its allies has any effect whatever on the economy, even when it is used in quantities larger than are required to sweeten foods and beverages to suit ordinary tastes. And this in spite of the fact that saccharin has been in use for more than a quarter of a century. The mere fact that it is an artificial substance remotely derived from coal-tar does not necessarily render it poisonous, as some seem to suspect. At the same time, it is of course valueless as a food in the sense in which sugar is a food, and, even as a flavour, is to most tastes inferior to the natural substance.

¹ A. O. Whipple, *Surgery, Gynecology, and Obstetrics*, 1918, xxvi, 29-47.

² Compare BRITISH MEDICAL JOURNAL, January 12th, 1918, p. 57.

¹ R. Inada, Y. Ido, R. Iloki, H. Ito, and H. Wani, *Journ. Exper. Med.*, 1918, xxvii, 285-305.

² R. Kaneko and K. Okuda, *ibid.*, 1918, xxvii, 305-303.

Glusidum, benzosulphinide, or saccharin, whose empirical formula is $C_7H_5NSO_3$, is an imide prepared from the coal-tar product toluene. When chemically pure it is some 500 times sweeter than sugar, but commercial saccharin is neither a pure nor a uniform product, and often contains less than 50 per cent. of actual glusidum. Besides being a sweetening agent it has antiseptic properties, but these are negligible. In the United States the use of both saccharin and its sodium salt (which is more soluble but less sweet) is prohibited in food or beverages by the Food and Drugs Act. It may be noted that "saxin" is a proprietary preparation said to be considerably sweeter than saccharin, but allied to it in chemical constitution.

FEMININE EQUINISM.

M. QUÉNU, one of the most eminent of French orthopaedic surgeons, has been making investigations, with the help of Dr. Ménard, into the effect of the high-heeled shoe or boot on standing and walking. As M. Kermisson observed in the discussion at the Académie de Médecine, the subject has been forced on male attention recently by the very short skirts that women have taken to wearing. M. Quénu says that the three reasons which induce women to wear the very high heel are that it makes the foot look shorter, that it accentuates the curve of the back, and that it increases the standing height. He admits that the foot looks shorter, because the eye judges its length from the distance between the tip of the toe and the heel of the boot. In one instance, in which the natural length of the foot was 23.5 cm., the distance between the toe and the high heel was only 17.5 cm.; the heel in this case was 9 cm. ($3\frac{1}{2}$ in.) high. The gain in height was only 5 cm. (2 in.). Quénu will not admit any advantage in appearance in throwing the abdomen out and the shoulders back; it entails an ugly hollow in the back and an ungainly balance and gait in walking. Quénu and Ménard regard the arch of the foot as resting on two pillars, the heel behind and the broad anterior end of the metatarsal bone of the great toe in front; they look on the other metatarsals as flying buttresses. In an experiment on a man they found that with the foot bare 70 per cent. of the weight was carried by the posterior pillar, 30 per cent. by the anterior, and that the centre of gravity of the body passed through the external malleolus, or slightly in front of it. When a wedge 5 cm. high was placed under the heel the centre of gravity was thrown 1.5 cm. in front of the heel; the proportion of the weight carried by the anterior pillar was increased to 44 per cent. and that carried by the posterior pillar diminished to 56. In another subject, a woman, with the bare foot the distribution of the weight was the same—30 per cent. in front, and 70 per cent. at the heel; but when a wedge was put under the heel, raising it 6 cm., the amount of weight thrown on the two pillars, front and back, was exactly equal. The centre of gravity was thrown far forward, in fact almost to the centre of the total length of the foot as so raised. This extreme alteration in the distribution of the weight on the foot is corrected in a high-heeled boot by putting the heel far forward. In one young woman, whose bare foot was 19 cm. long, the length was reduced to 15 cm., measured from the artificial heel. The centre of gravity passed much less far in front of the heel and the distribution of the weight became normal—namely, 30 per cent. on the anterior pillar and 70 per cent. on the posterior. In another young woman, in whom the length of foot when bare was 23.9 cm., the wearing of a boot with a heel 9 cm. high reduced it to 19.5 cm. Further, the breadth of the heel in contact with the ground instead of being 5.3 cm. wide was only 2 cm. wide. Quénu and Ménard calculated the total area of contact between the foot and the ground in this subject when standing on one foot: with the bare foot it was 105 sq. cm., with the 9 cm. heels it was 50 sq. cm. This diminution was due to bringing forward the heel, so that the normal distribution of the

weight between the posterior and anterior pillars was obtained by a very great diminution in the surface of contact. This is what they call, ungallantly, equinism, the horse foot, or hoof foot. So far the arch of the foot has been considered as though it were a single bone; when its actual anatomical structure is considered, it is seen that with a high heel the axis of the calcaneum instead of passing upwards passes downwards, the astragalus, which is nearly horizontal, becomes oblique, and the weight is transmitted through it to the scaphoid. In order to maintain the balance the knee is slightly flexed, and the upper part of the trunk is thrown backwards, the flexion taking place at the second or third lumbar articulation. With very high heels the gait is stiff and each pace is short and hurried, the high heel and the toe coming down to the ground practically at the same moment. Eventually the Academy passed a resolution declaring that the fashion of very high heels was injurious and absurd.

THE PRESIDENCY OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE President of the Royal College of Physicians of London is elected annually on the Monday following Palm Sunday. It has long been the custom to re-elect the president for several years, and Sir Frederick Taylor had held office for three years, the term for which it was held by Sir Russell Reynolds and Sir Samuel Wilks. He had intimated his wish, on the ground of health, not to be re-elected, and we regret to learn that he was not able to be present at the meeting last Monday. Dr. Norman Moore was elected president in his place and duly inducted by the senior censor, Dr. Samuel West, who had been in the chair. The new president, who is a graduate of Cambridge in arts and medicine, and consulting physician, St. Bartholomew's Hospital, London, became a Fellow of the College in 1877 and has always shown the deepest interest in its work and welfare. He was Bradshaw lecturer in 1889 and Harveian orator in 1901; he gave the FitzPatrick lectures in 1905 and the Lumleian lectures in 1909. He was censor in 1904-5 and 1908, and has been Harveian librarian since 1910. He has been representative of the College upon the General Medical Council since 1901.

ANATOMICAL NOMENCLATURE.

THE Anatomical Society of Great Britain and Ireland, at a meeting on March 1st at King's College, London, received and unanimously adopted a report by its Committee on Nomenclature. It resolved, without a dissentient vote, that the following paragraph of the report should be circulated among the several corporations and other bodies interested in the progress of medical education: "The Committee, after consideration of the matter, unanimously reports that it sees no reason for departing from the use of the old nomenclature as the recognized medium of description for employment in anatomical textbooks and departments, or by medical men in general; on the other hand, it thinks that there are very good reasons to be urged against the adoption of any other nomenclature for this purpose."

A MINISTRY OF HEALTH.

At a conference of delegates from the principal Insurance Committees and Approved Societies on March 22nd at the Central Hall, Westminster, Mr. P. Rockliff, President of the Faculty of Insurance, etc., anticipated that the Government bill for a Ministry of Health, of which Dr. Addison is in charge, would be found, when laid upon the table of the House of Commons, to go far to provide a separate ministry, with National Insurance as an integral part, and including the medical side of the Poor Law. Lord Rhondda assured the meeting that the Prime Minister was deeply interested in the proposal, and quoted Dr. Addison to the effect that his negotiations were

virtually completed, and that the bill would probably be introduced soon after Easter. Everybody, said Lord Rhondda, was agreed that, the difficulties having been surmounted, the bill should be introduced as quickly as possible. In the discussion which followed Major Waldorf Astor, Sir Robert Morant, and Dr. Alfred Cox took part. The general opinion was in favour of the bill so far as its terms had been revealed. The allied topic of reconstruction and the Poor Law was discussed by Sir Donald Maclean, chairman of the Local Government Board Committee which recently reported, and by Lord George Hamilton, a member of the same Committee. The indications at the present time would suggest that the Minister of Reconstruction has found a sufficient basis of agreement between the main parties affected to warrant the introduction of a Government bill for England and Wales, to amalgamate the Insurance Commission with the whole of the Local Government Board, leaving the non-medical functions of the latter department to be shed at a later date. It is not our desire "to pry into the secrets of the State," but this much seems to be common property.

Medical Notes in Parliament.

Tuberculous Soldiers.—In answer to Major Davies Sir A. Griffith-Boscawen said that colonies for tuberculous discharged soldiers were being established at various places in England, Scotland, and Wales, and arrangements were well in hand in connexion with colonies in Dorset (in which case application forms for admission had already been sent out), Cambridgeshire, Cheshire, and North Wales. The occupations in which training would be provided number about twelve, and included market gardening, pig keeping, poultry keeping, bee keeping, fruit culture, horticulture, forestry and rough carpentry, and smith work. Further proposals were under consideration for the establishment of colonies in Edinburgh, Northumberland, Durham, Norfolk, Suffolk, Worcestershire, and South Wales. As the need arose in other areas similar schemes would be considered. In reply to further questions, Sir A. Griffith-Boscawen said that the Ministry of Pensions had contributed in some cases a considerable sum towards the establishment of these farm colonies.

Training Centres for Discharged Soldiers and Sailors.—In reply to Sir W. Havelock-Allan, who called attention to a resolution of criticism passed by the Northern Counties Joint Disablement Committee, Sir A. Griffith-Boscawen said that in providing facilities for training disabled soldiers it was proper, as the need would probably exist for a few years only, to make use of existing institutions, and to arrange when necessary for their extension. If adequate provision could not be arranged otherwise, the creation of additional centres would be considered on their merits.

Poor Law Infirmaries.—In answer to Mr. Needham, Mr. Hayes Fisher said that every board of guardians either had at least one institution wherein the sick poor were medically treated, or had a settled arrangement for their treatment in an institution belonging to another board. There are ninety-five Poor Law infirmaries which had ordinarily one or more resident officers.

Glass for Eye Protection.—Sir J. T. Rees asked whether Mr. Charles Higgins, F.R.C.S., had by experiment established the fact that triplex glass, properly ground and treated, was a valuable protection to the eye from projectiles, splinters, stones, and such substances as were scattered broadcast by shell bursts, and did not itself splinter. Mr. Macpherson replied that some two years ago the question of substituting triplex glass for ordinary glass in spectacles for soldiers was considered, but it was decided not to adopt it in view of the expense involved, and of certain optical objections and difficulties in producing the enormous quantities of lenses required. Trials had also been made of visors fitted with these glasses, but they had not been recommended for adoption.

ON August 13th, 1917, the Cuban Junta Nacional de Sanidad passed a resolution in favour of legalizing cremation in all the cemeteries of the Republic, and the proposal has now received the sanction of Dr. Mendez Capote, Health Secretary.

M. J. GODART, until recently Under Secretary of State for Medical Services in the French War Office, has become the president of a French National Cancer League for the purpose of giving information to the public as to what is known with regard to the etiology of cancer and prosecuting further inquiries and research.

THE WAR.

LESIONS OF PERIPHERAL NERVES RESULTING FROM WAR INJURIES: PATHOLOGY AND TREATMENT.

A MEETING was held at the Alder Hey Orthopaedic Hospital on December 8th, 1917, to discuss this subject. The meeting was opened by Sir ROBERT JONES.

PATHOLOGY OF PERIPHERAL NERVE LESIONS.

Captain SYDNEY M. CONE gave a demonstration of the surgical pathology of peripheral nerve lesions, illustrated by lantern slides. The technique used was chiefly that described by him in the BRITISH MEDICAL JOURNAL, November 10th, 1917. In examining material removed during operations he had cut a very large number of sections from the central and distal ends and from surrounding tissue. Nerve fibres were demonstrated in the proximal end in 100 per cent., in the distal end in 95 per cent., between the two ends in 78 per cent., and in the surrounding adhesions in 80 per cent. In his view the hard tissue about the injured nerves and in the bulbous ends consisted of young nerves more than of fibrous tissue. In several cases he had found young nerves surrounding foreign materials, such as cloth; he had also found nerves growing in the meshes of a sheath of fascia lata which had been wrapped round a nerve junction.

THE DIAGNOSIS AND PROGNOSIS OF NERVE LESIONS.

Professor R. KENNEDY, after referring to the difficulty of diagnosis as to the exact nature of a nerve lesion from the clinical signs, emphasized the importance of obtaining an accurate history from the patient himself. He expressed the opinion that the determination of the nature of the lesion was more important from the point of view of prognosis than from that of treatment, for whether a nerve was anatomically divided or functionally interrupted by compression, the treatment in both cases was operative, although the possibility of doing good by the operation might be greater in the one than in the other. He quoted an interesting case of an unusual lesion which could scarcely have been diagnosed except by operation.

The patient presented a healed wound crossing the arm more or less transversely at the level of the insertion of the pectoralis major and extending over the anterior and inner aspects of the arm. The clinical diagnosis had been total paralysis of the ulnar nerve and partial paralysis of the median. At the operation what was taken to be the ulnar was readily exposed, and it was seen to be united by an extensive scar. The median, however, could not be found so easily, and it was soon apparent that what appeared to be the ulnar was in reality a composite nerve composed of the proximal end of the ulnar and the distal end of the median, while the proximal end of the median was found higher up ending in a large bulbous neuroma. At a lower level in the arm the distal end of the ulnar was found. It was, therefore, through the proximal end of the ulnar that the partial median function was being carried on.

Professor Kennedy called attention to certain circumstances which might have a considerable influence upon prognosis after operation: the existence, for example, of contractures in tendons and muscles and the amount of handling which the nature of the injury might have necessitated at the time of operation. The time which elapsed between injury and operation had an important bearing on prognosis. Investigation of this point had led him to take the view that if operation were performed at any time up to the third month from the date of the nerve section, recovery of movement would, everything being favourable, commence in about three months or a little more; but should five or six months pass before any operation was undertaken, then seven or eight months would probably elapse before there was any sign of recovery of motion. As the time between injury and operation increased, so the date of commencing recovery was advanced, so that when about a year or eighteen months had elapsed no motor recovery was likely to be shown for well over a year, or even two years. In his experience voluntary function was restored soon after contractions were obtainable to faradic stimulation. Nerve injuries met with in this war caused by lacerated wounds which had been infected and had healed after a considerable time, were found to give

results inferior to those of operations for nerve injuries caused by cuts with glass or knives which had not been seriously infected, for such nerve injuries as the latter were dealt with earlier and with less handling. Some years ago he had followed up and published a series of cases he had dealt with up to that date. He classified the results into three groups—as complete success, partial success, and failure. By complete success he meant recovery of sensation and motion with no interference by contractures sufficient to prevent a practically normal function of the limb. By failure he meant cases where no useful result had been attained; and by partial success cases where there had been useful recovery. Of 21 cases where the nerve had been completely severed, there were 10 complete successes, 7 partial successes, and 4 failures. In 14 cases where the nerve had been merely compressed 7 were complete successes and 7 partial successes.

OPERATIVE TREATMENT OF PERIPHERAL NERVE LESIONS.

Sir HAROLD STILES pointed out the great importance of a thoroughly practical knowledge of anatomy. He drew attention to many important points in the operative technique. Speaking of the disadvantages of the tourniquet, he said that the vessels often furnished a good guide to the nerve and its branches, whilst the tendency to oozing after the removal of the tourniquet made it necessary to spend much time over haemostasis. The necessity for using suitable instruments, for an adequately long incision for exposing a nerve above and below the lesion in the first instance, and for clean decisive cutting in place of scratching with the point of the knife, were insisted upon. He deprecated the protection of the wound from the adjacent skin, by clamping gauze to its cut edges, as unnecessarily encumbering the field of operation.

Treatment of the Nerve Lesion.

In dealing with the nerve lesion itself, attention was directed to the following points: if the lesion were complete, the bulbous or cicatricial extremities should be amputated with a very sharp knife, the nerve being meanwhile supported, and enough should be removed to expose the nerve bundles throughout the entire face of both stumps. If the nerve had not been completely divided, all cicatricial tissue should be removed from the sheath, after which the nerve should be carefully palpated to ascertain its degree of induration, and whether or not there were any cicatricial or gliomatous nodules in its substance. Next, the degree of excitability of the nerve to the faradic current should be ascertained, and while this was being done the limb should be carefully exposed distal to the lesion; the disinfection of the skin should, therefore, be continued down to its extremity.

If the nerve had been completely divided, the cicatricial or neuromatous stumps should not be amputated until all was ready for suture. If on stimulating, the thickened or bulbous nerve it was found that the muscular response was fairly good, it was often advisable to incise the involved portion longitudinally in one or two places. If, on the other hand, the faradic response was feeble, an excision should be done, and enough removed to expose nerve fibres free from all scar or neuromatous tissue. In partial lesions of nerves no hard and fast rules could be laid down; each case must be judged on its merits. If in doubt excision should be performed provided that the operator was satisfied that the two stumps could be brought into apposition without tension after the whole of the damaged segment had been removed.

In suturing a nerve the finest linen thread was used. After suture a nerve should not be ensheathed either with a vein, fascia lata, or Cargile membrane, as these materials only served to promote the formation of cicatricial tissue. The best bed for the nerve was one consisting of fatty cellular tissue or healthy muscle.

Date of Operation.

Increased experience had convinced him that often the delay before operating was too long. Delay was justified if there were definite evidence that improvement was taking place; this was more likely to happen if the nerve had been contused as a result of a fracture, or if the symptoms were due to the pressure of callus. In such cases the improvement was progressive, and often ended in complete recovery. In cases, however, where the nerve

had been directly injured by a missile, it was a mistake to wait, although the lesion might be only partial. Many of these partial lesions were attended with severe pain, with aggravated trophic disturbances, and cicatricial or reflex contractures. In such cases valuable time was wasted in waiting for a recovery which in the end was only very partial. If the wound had been healed for a few weeks, there was little fear of trouble arising from the lighting up of latent mischief. The operation could do no harm; the wound was healed in a fortnight, and the exploration enabled the surgeon to ascertain the exact nature of the lesion; the pain, the trophic changes, the reflex spasms, and the contractures often rapidly disappeared. In short, the operation would not only expedite the recovery, but at the same time render it more nearly complete.

The rest of the paper was devoted to injuries of individual nerves, and many important points in their anatomy and the technique of the operation were described.

INDICATIONS FOR OPERATION.

Captain T. P. McMURRAY spoke of his experience of over 300 cases. He had been led to make certain deductions regarding the indications for operation. The absence of faradic response several months after the injury was held to be a definite indication that there was serious impairment of function of a nerve following an injury in its neighbourhood. An exploratory operation, which in competent hands was entirely free from danger, should then be performed, and even if the nerve was merely freed from scar, marked improvement often followed. In his view a month should elapse between the healing of the wound and the operation.

Method of Operation.

Captain McMurray said that his operative technique approximated very closely to that of Sir Harold Stiles. The suture of nerves which had had to be approximated by flexion of joints led to the very interesting question as to the mode of subsequent lengthening which occurred when the limb was straightened. The slight amount of possible lengthening due to the slightly wavy position of the normal nerve had been taken up, and anatomists said that nerve tissue was quite unstretchable when weights were applied even for lengthy periods. It would seem, therefore, that the possible site for the stretching of a nerve was the line of suture, and that the elongation took place in the stretching out of the scar tissue between the two ends. Two facts, however, proved that this supposition was not true—first, the fact that these nerves recovered function even after having been let down from a position of extreme relaxation; and, secondly, a fact which he had noticed personally in six cases in which he had exposed the nerve for inspection several months after suture in flexion. In all these cases a narrow ring indicating where the suture had taken place was seen, and in no case was there an elongated scar which might have been due to the supposed stretching. All workers had found that the chances of recovery of a nerve after suture varied with the particular nerve divided. The best nerve of the upper limb was undoubtedly the musculo-spiral, while the median and ulnar nerves recovered with much less certainty, and their relative recovery was much slower. The reason assigned for this by many observers was the greater proportion of motor to sensory fibres in the musculo-spiral as compared with the median and ulnar nerves.

Blood Supply of Nerves.

In this connexion Captain McMurray expressed the opinion that the relation of the blood supply to the recovery of the nerves was a point of considerable importance. In regard to the blood channels of a nerve very little was known. When a large nerve such as the internal popliteal was found divided and sections were removed from each end down to normal healthy nerve tissue, it was found on arriving at this point that there was a central artery pumping blood from each end, and the deduction seemed to be that from the accompanying artery of the nerve which lay in its sheath, and from small blood vessels in the neighbourhood, tiny branches passed into the nerve between the fibres to a central vessel which coursed along the whole nerve and supplied it in its entirety. This artery he had demonstrated in the internal popliteal, external popliteal, and musculo-spiral nerves, but never in the median or ulnar, and it would seem that although

the blood system in these two nerves was similar to that in the other three, it was much smaller and therefore less likely to nourish young growing nerve tissue.

Captain McMurray preferred chromic catgut for suture material. He had found that after six months the line of suture made with chromic gut showed no sign of a foreign body and no roughness.

Injury without Division.

With regard to cases in which the nerve was injured and not divided, the question as to whether the site of injury should be excised or not arose. In his experience, if a hard fibrous mass were present, functional recovery would not be obtained by simple freeing of the nerve. If, on the other hand, as so often happened, the bulbous enlargement was of the soft fibrous type, freeing the nerve and longitudinally splitting its sheath would be followed by restoration of function.

ACCESSORY AND SPECIAL TREATMENT IN RELATION TO PERIPHERAL NERVE LESIONS.

Captain W. ROWLEY BRISTOW began by saying that no kind of after-treatment could make up for operative imperfections. His belief was that neither the time taken for regeneration of the nerve fibres, nor the completeness of the progress, could be affected to any appreciable extent, and questioned the statement of Tinel that the regeneration of a nerve appeared to be hastened by the simple passing of the electric current. The value of accessory treatment was to prepare the parts against the time when regeneration would take place, and the nerve reacquire its power of conduction.

Accessory treatment was (1) postural, and (2) treatment directed towards assisting nutrition. The former consisted in efficient splintage so as to secure the relaxed position for paralysed muscles. The second embraced heat, massage, electrical treatment, gymnasium and workshop.

Heat must be the preliminary to either massage or electrical stimulation, as muscle contracted better when the part was warm. Moist heat was better than dry before electrical treatment was used, because the moisture lessened the resistance of the skin to the current. Apart from the matter of moisture, no one form of heat was better than any other. In irritative nerve lesions heat usually increased the pain, and was contraindicated.

Massage was useful mainly to increase nutrition in the paralysed part, but it was also of great value if oedema was present. In such cases massage should precede electrical stimulation of the muscles, because, if there were much oedema, the resistance to the passage of the current was so great as to prevent penetration. This point must also be remembered in testing electrical reactions for diagnostic purposes.

The electrical treatment for the paralysed muscles consisted in stimulation with the interrupted galvanic current, this being the only form of electrical stimulus which would promote contraction in the presence of a lesion of a nerve. He did not consider that there was any value in electricity except as a stimulus. In his practice each muscle was made to contract some six or eight times, the treatment being carried out daily. In the early stages it was better to do too little than too much, as fatigue was easily induced. In cases in which there was no oedema, massage could be dispensed with. With return of faradic excitability both currents were employed; the muscle did not regenerate all at once, and if only the faradic current were used some fibres only would be exercised. With full return of faradic excitability the galvanic stimulation was given up, because the graduated contraction method of employing the faradic current simulated physiological contraction more closely and was to be preferred for this reason. The relative time for recovery of faradic response and voluntary power varied. In his experience faradic response was usually the first to recover, but this was not constant. It was only a question of skin resistance, for in all cases in which the exposed nerve was stimulated at operation, if the lesion were incomplete or if regeneration were well advanced, faradic response occurred before any voluntary power could be obtained.

Re-education was a most important part of after-treatment. He endeavoured to initiate and encourage voluntary movement from the earliest stages. The masseuse

spent some time immediately following the electrical stimulation in trying to induce the patient to reproduce voluntarily the action which she had provoked electrically. When a weak and newly recovered muscle was being asked to do voluntary work it should be put into the most advantageous position, and not asked to overcome the force of gravity in addition to moving the part. The value of the gymnasium and of the curative workshop lay in the general effect upon the patient rather than in their local effect upon the injured part. Great harm might be done to recovering muscles by overwork. In hospitals with several departments for after-treatment there was a risk of patients getting too much rather than too little in the way of physiotherapy.

In *causalgia* none of the remedial measures were of any value, and the same might be said for the less severe irritative lesions. Nerves involved in scar tissue, and tender from this cause, were not relieved either by diathermy or ionization.

STATISTICS.

Captain C. B. ALEXANDER gave some statistics regarding cases treated at the Alder Hey Military Orthopaedic Hospital between January, 1915, and December, 1917. During this period 876 cases had been treated—644 were complete lesions and 232 partial.

Relative Frequency of Involvement of Individual Nerves.

Ulnar...	...	265 or approximately	30 per cent.
Median...	...	179	20 "
Musculo-spiral...	...	122	15 "
External popliteal...	...	90	10 "
Sciatic...	...	48	6 "
Brachial plexus...	...	36	4 "
Internal popliteal...	...	26	3 "
Radial...	...	23	25 "
Posterior interosseous...	...	22	25 "
Anterior tibial...	...	18	2 "
Posterior tibial...	...	17	2 "
Circumflex...	...	11	1 "
Musculo-cutaneous...	...	12	1 "
Anterior crural...	...	7	1 "

Of the 36 cases of injury to the brachial plexus the whole plexus was involved in 11, and of the remainder the outer and posterior cords were injured more frequently than the inner—the proportion of 4 to 1. Of the 265 cases of injury to the ulnar the median was also involved in 58, the musculo-spiral in 8, and posterior interosseous in 2. The site of injury to the ulnar nerve was in forearm and wrist 44 per cent., in the upper arm 31 per cent., and about the elbow 24 per cent. Of the 179 cases of median nerve injury 58 were associated with lesions of the ulnar, 7 with musculo-spiral, and 2 with the musculo-cutaneous. The musculo-spiral nerve came third on the list with 122 cases. In 45.7 per cent. the nerve was damaged in the lower third of the arm, in 31.1 per cent. in the middle third, and in 9.8 per cent. in the upper third; 59 per cent. of all injuries of the musculo-spiral were associated with damage to the humerus. Of the large nerves of the upper limb, the musculo-spiral was least frequently associated with lesions of other nerves and most frequently with fracture. This led to the conclusion that the fracture and not the projectile was, in the majority of cases, responsible for the injury.

In the lower limb the trunk of the great sciatic nerve was involved 48 times, and of this number 25 were lesions of both its constituent parts. In 18 the external half only was concerned, and in 5 the internal half. Of the branches of the great sciatic, the external popliteal was involved in 90 cases and the internal in 26. The exposed position of the external popliteal, as it winds round the fibula, no doubt helped to account for the high relative frequency of its injury, but in wounds of the upper part of the thigh it was difficult to explain why the external half of the sciatic was so much more often damaged than the internal half. Makins had written:

The most striking observation with regard to injuries of the great sciatic nerve was the comparatively frequent escape of the popliteal element and the severe lesion of the peroneal. This was so pronounced as to amount to as high a proportion of peroneal symptoms as 90 per cent., and often when the whole nerve was implicated the popliteal signs were of the irritative (or partial) and the peroneal of the paralytic type.

During the period under review 474 operations upon peripheral nerves had been performed, of which 298 were sutures and 176 neurolyses.

Captain Alexander pointed out the difficulties of examining and estimating the results of these operations, and indicated the methods adopted by him in following up the cases for as long as possible. He had been able to trace for a sufficiently long period 260 cases, and the results were analysed as follows:

A. Those which were sutured.

B. Those in which neurolysis was performed.

C. Those in which operative interference was not thought necessary, or operation was not performed for some other reason, for example, sepsis, and which received only electrical treatment, corrective splinting and massage.

Class A (sutures), forming 40 per cent. of the total, shows 14 per cent. of complete recoveries over periods varying from six months to two years, partial recoveries 21 per cent., and no change 64 per cent.

Class B (neurolysis), forming 27 per cent. of the total, shows 14 per cent. of complete recoveries, partial recoveries 40 per cent., and no change 46 per cent.

Class C (no operation), forming 32 per cent. of the total, shows 18 per cent. of complete recoveries, partial recoveries 43 per cent., and no change 38 per cent.

By complete recovery was meant complete return of voluntary power; by partial recovery some return of voluntary power, with or without reaction to faradism, and with return of protopathic sensation.

Of the nerves of the upper limb which had been sutured the ulnar showed 13 per cent. partial recoveries and 3 per cent. complete recoveries, the median 23 per cent. partial recoveries and 38 per cent. complete recoveries, and the musculo-spiral 25 per cent. partial recoveries and 16 per cent. complete recoveries.

When neurolysis had been performed the ulnar showed partial recovery in 28 per cent. of cases, the median 31 per cent. partial recoveries and 15 per cent. complete recoveries, and the musculo-spiral 22 per cent. partial and 44 per cent. complete recoveries. In the lower limb the sciatic and its branches showed partial recovery after suture in 28 per cent. of cases and complete recovery in 7 per cent. Of the cases of neurolysis 62 per cent. showed partial recovery and 14 per cent. total recovery. Of the cases which had not been operated upon 44 per cent. showed partial recovery and 5 per cent. total recovery.

(To be continued.)

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Accidentally Killed.

CAPTAIN P. LEVICK, R.A.M.C.

Captain Percy Levick, R.A.M.C., was accidentally killed in France recently, owing to his horse slipping and falling, and throwing him beneath a motor lorry. He was educated at King's College Hospital, and at Cambridge, where he graduated B.A. in 1895, and M.B. and B.C. in 1898. After filling the posts of house-surgeon and of clinical aural assistant at King's College Hospital, he went into practice at Guildford, where he was honorary medical officer of the Royal Surrey County Hospital. He had served as medical examiner of recruits at Guildford prior to taking a temporary commission in the R.A.M.C.

Killed in Action.

Captain StC. Dunn, C.A.M.C.

Died on Service.

LIEUTENANT G. G. C. ADAMS.

Lieutenant George Gordon Crymble Adams, R.A.M.C., was reported as having died on service in the casualty list published on March 25th. He took the diplomas of I. R.C.P. and S.I. in 1917, and joined the army soon after.

DR. A. K. BAXTER.

Dr. Alexander Kidd Baxter died of typhus at Wei-hai-wei on March 14th, aged 50. He was the fifth son of the late David Baxter, of Leith, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1902. After acting as house-surgeon of Tiverton Infirmary, he went out to China as a medical missionary of the United Methodist Mission, and was for long stationed at Chn Chia Chai, Shantung, North China, in charge of the Yung Ping Fu Mission Hospital. For the past year he had been

serving under the War Office as medical officer of the coolie labour camp at Wei-hai-wei.

Wounded.

Captain H. C. Colver, R.A.M.C. (temporary).

Captain W. J. Phillips, M.C., Australian A.M.C.

Captain F. W. White, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Emmett, Cyril William, Flight Sub-Lieutenant R.N., youngest son of Dr. Richard Emmett, of Winton, Portsmouth, killed March 15th, aged 19. He was educated at Repton, entered the Royal Naval Air Service in May, 1917, and went overseas on January 16th last.

Knowling, Francis John Dobrée, M.C., Captain Argyll and Sutherland Highlanders, younger son of Dr. E. M. Knowling, of Tenby, South Wales, killed March 8th, aged 26. He was educated at Cheltenham College, and was an agricultural student when, at the beginning of the war, he enlisted in the Shropshire Light Infantry. He got a commission in the Argyll and Sutherland Highlanders on September 22nd, 1914, became lieutenant on May 7th, 1915, and captain in September, 1915. He went to France in May, 1915, served at Loos, received the Military Cross in June, 1916, was subsequently wounded, and returned to the front last January.

Mnspratt, Keith Knox, M.C., Second Lieutenant Dorsetshire Regiment, attached Royal Flying Corps, youngest son of Dr. Charles D. Mnspratt, of Bournemouth, killed in a flying accident in East Anglia on March 16th, aged 20. He was educated at Sherborne, got his commission in August, 1916, joined the Royal Flying Corps in November, 1916, and gained the Military Cross in September, 1917.

Stephenson, John, Lieutenant Royal Naval Reserve, younger son of the late Dr. Leader H. Stephenson, reported missing August 13th, 1917, now presumed killed on that date by enemy action, aged 34.

Veraguth, Guy Frank, Lieutenant Royal Field Artillery, only son of the late Dr. C. Veraguth, of Cannes, died in the military hospital at Bristol, of pneumonia following malaria, on March 18th, aged 20. He entered the Royal Military Academy, Woolwich, in February, 1916, passed out first in the same year, and joined the R.F.A. in November, 1916. He had been serving with the Salonica Force in the operations on the Strama river.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SUPPLEMENT to the *London Gazette*, published on March 22nd, gave statements of the services for which the decorations announced in the *London Gazette* of November 19th, 1917 (*BRITISH MEDICAL JOURNAL*, November 24th, 1917, p. 702), were conferred. The following officers of the medical services received the awards indicated "for conspicuous gallantry and devotion to duty":

Distinguished Service Order.

Major Sydney Vere Appleyard, A.A.M.C.

He established a forward dressing station immediately in rear of the front line during an attack, and attended continuously to the wounded, frequently going out and dressing cases in the open under heavy shell fire. His dressing station was hit by a shell, and, though he was badly shaken, he continued his work with great determination and devotion to duty. His fearlessness was an inspiration to all, and was the means of saving many lives.

Major William Wallace Stewart Johnston, M.C., A.A.M.C.

While the enemy were shelling very heavily the positions where assaulting troops were assembled he went out into the open with an absolute disregard of personal safety and attended to the wounded where they lay. After the attack was launched he continued to work for several hours under a very heavy enemy barrage until severely wounded. On many previous occasions his fearlessness and devotion to duty while acting as regimental medical officer have been most conspicuous.

Temporary Captain Gordon Wilson Armstrong, R.A.M.C.

He worked in the open under continuous and heavy shell fire, and dressed and evacuated 117 stretcher cases from his aid post in twenty-seven hours. Later on, while the shelling was very severe, he volunteered to go in aid of an officer and an orderly, carrying them to the aid post one after another on his back. Though wounded during the second journey, he refused to leave his post, remaining with his battalion until it was relieved.

Bar to the Military Cross.

Captain William McMeekin Chesney, M.C., R.A.M.C. (S.R.)

When in charge of stretcher-bearers he continually visited the forward aid posts throughout the day, and supervised the evacuation of the wounded under very heavy shell and machine-gun fire. Though wounded he refused to quit his post until he had rendered a valuable report on the evacuation of the wounded. He worked with indefatigable energy and great courage throughout.

Temporary Captain Robert Welton Hogg, M.C., R.A.M.C.

While in charge of the forward bearer post he worked indefatigably for three days, evacuating the wounded from the regimental aid posts in the line, moving about continuously under heavy enemy barrages. It was entirely due to his fine example and untiring energy that over 200 stretcher cases were safely got away from the front during the first six hours of the attack.

Temporary Captain Maurice Bertram Lawrie, M.C., S.A.M.C.

He established a collecting post in an advanced position, and when his post was filled with wounded he continued to dress cases in the open, though fully exposed to shell fire. In order to satisfy himself that all the wounded had been brought in, he personally searched the whole of the brigade front.

Temporary Captain Hubert Francis Wilson, M.C., R.A.M.C.

He established his regimental aid post in a shell hole close to the firing line, and maintained it in spite of heavy shell fire. During an attack he went forward under heavy fire and attended to the wounded who could not be brought in by the stretcher-bearers. His devotion to duty and unceasing energy is deserving of the highest praise.

Military Cross.**Captain Bernard Gordon Beveridge, R.A.M.C.**

He was in charge of a divisional collecting post and relay bearer posts during an action, and organized and carried out the evacuation of the wounded over the open under continuous fire. It was only by his unflinching courage and energy that the work was successfully accomplished.

Captain Vernon Carlisle Brown, A.A.M.C.

When the officer in charge of an advanced post and a stretcher-bearer were wounded he attended to them under a heavy bombardment and assisted in carrying them to a place of safety. He showed great courage and coolness.

Temporary Captain Dimock Stanley Cassidy, R.A.M.C.

When a party of men were gassed in a mine shaft he went down and remained there all night preparing to render first aid. He did not leave his post even when seriously affected by gas.

Captain George Eustace, R.A.M.C.

He was going forward with a party which came under a very heavy barrage. He remained out in the barrage attending to the wounded regardless of danger, and carried one wounded man several hundred yards through the barrage to safety.

Captain Frederick George Harper, R.A.M.C.

He worked incessantly, attending to the wounded under heavy shell fire. He set a magnificent example to all, and undoubtedly saved many lives.

Temporary Captain James Jack, R.A.M.C.

He established forward collecting posts and dressed and removed the wounded with great coolness and disregard of danger during a period of four days and nights. Most of the time he was under heavy shell fire, and set a fine example of courage to his men.

Captain Charles Hallily Kellaway, A.A.M.C.

For twenty-four hours following the attack he worked without a moment's respite, dealing with the wounded of five battalions in addition to his own, and at the same time controlling the work of his stretcher-bearers.

Captain Harold Howard Leeson, R.A.M.C.

He showed the utmost courage and total disregard for personal safety when commanding stretcher-bearer squads. His splendid example under heavy shell fire inspired those working under him.

Captain James Stewart McConnachie, R.A.M.C.

He was in charge of a divisional collecting post during an attack, and organized and carried out the evacuation of the wounded under heavy fire, in the course of which his post was several times hit. He carried on his work during several counter-attacks by the enemy, and set a splendid example of coolness and courage.

Temporary Captain Charles Fellowes MacLachlan, R.A.M.C.

He worked continuously for forty-eight hours under heavy shell fire, attending to the wounded, much of his work being done in the open. His services were of the greatest value, and he set a magnificent example to all.

Temporary Captain Peter Malcolm MacLachlan, R.A.M.C.

During an attack, as soon as the battalion captured its objective, he went to the front line under heavy shell fire to bring back the wounded. He did excellent work under heavy fire throughout the operations, and showed great gallantry and disregard of danger.

Captain Patrick Joseph Francis O'Shea, A.A.M.C.

While in charge of stretcher-bearers he displayed the utmost courage and devotion under heavy shell fire. His fine example was largely responsible for the maintaining of the lines of evacuation from the front line to the head quarters.

Temporary Captain Alexander Waugh Young, R.A.M.C.

He worked untiringly in attending to the wounded, continually going out into the most forward area under heavy machine-gun fire with his men, encouraging and directing them in their work. It was due to him that nearly 200 cases were evacuated from the line.

Quartermaster and honorary Lieutenant Francis Poole, R.A.M.C.

He remained at the advanced collecting station for several days organizing the rationing of the wounded, and daily visited the relay posts and regimental aid posts with supplies of medical comforts and dressings. During heavy shelling he helped to withdraw the wounded, and lives were saved by his action and example. He has continuously done excellent work.

The King of Italy has conferred the decoration of Cavalier of the Order of the Crown of Italy upon acting Lieut.-Colonel E. F. Eliot, R.A.M.C., and temporary Captain R. H. Lucas, M.C., R.A.M.C.

NOTES.**CANADIAN MILITARY LABORATORY.**

A NOTE in the *Bulletin of the Canadian Army Medical Corps* (No. 1, March, 1918) states that steps were taken at the end of last year to improve the organization of Canadian military laboratories, by subdividing the work and making special arrangements for the training of reinforcing personnel. The laboratories have been divided into four classes: Class A (central laboratories), to deal with all kinds of pathological and public health work,

Class B, Hospital laboratories dealing with general clinical pathological work, including Wassermann tests and tissue sections. They will not deal with sewage or water examination, or other strictly public health laboratory work. Class C, Hospital laboratories dealing with such clinical pathological work as analysis and examination of blood, sputum, stomach contents, urine and faeces, throat cultures and other simple culture work. Class D, Hospital laboratories dealing with haematological and urinary examination and analysis.

It has been decided to use No. 1 Canadian General Laboratory at Folkestone for the training of officers in routine pathological work. Officers and other ranks selected to reinforce personnel for laboratory work, after finishing their regular course of training at the C.A.M.C. dépôt, will be sent to the Folkestone laboratory. The officer commanding it has been given a supervising position in regard to the other laboratories. Each laboratory is equipped for its particular work and he will be responsible for its upkeep. He will also make suggestions regarding standardization of methods of collection and dispatch of specimens, methods of tests and analysis, and methods of recording and reporting. One result of the new arrangements will be that it will no longer be necessary to have fully equipped laboratories attached to all the smaller hospitals. Work sent to a particular laboratory which does not fall within its scope will be transferred to another laboratory authorized for such work. Care has been taken that the organization shall not limit the pathologist as regards research, and any special materials he may need for such work will be granted.

VENEREAL DISEASES.**Defence of the Realm Regulation.**

The following new regulation under the Defence of the Realm Act has been issued: No woman who is suffering from venereal disease in a communicable form shall have sexual intercourse with any member of His Majesty's forces or solicit or invite any member of His Majesty's forces to have sexual intercourse with her. If any woman acts in contravention of this regulation she shall be guilty of a summary offence against these regulations. A woman charged with an offence under this regulation shall, if she so requires, be remanded for a period (not less than a week) for the purpose of such medical examination as may be requisite for ascertaining whether she is suffering from such a disease as aforesaid. The defendant shall be informed of her right to be remanded as aforesaid and that she may be examined by her own doctor or by the medical officer of the prison.

MEDICAL ARRANGEMENTS IN THE ITALIAN ARMY.

Dr. Victor G. Heiser, a member of the American Red Cross Commission to Italy, in a paper read before the Philadelphia College of Physicians on January 2nd (*New York Medical Record*, January 19th), said that the Italians had provided approximately 1,000,000 hospital beds for an army of 4,000,000. There were seven principal units: advanced dressing stations; dispensaries, one or two kilometres behind the front; mountain ambulances from two to five kilometres behind the front, and somewhat larger and better equipped stations further back; mobile hospitals of 100 beds, the whole equipment of which could be transported on five motor trucks and three touring cars; field hospitals with 500 beds, used as distributing centres; base hospitals, providing 20,000 to 40,000 beds, several hundred kilometres behind the lines; and reserve hospitals, in various cities. Each army had a number of large quarantine stations provided with steam disinfecting apparatus or sulphur dioxide chambers; every patient before admission to a general hospital and all prisoners were passed through one of these stations. Hospitals were being located increasingly nearer the front and in very unusual places. Thirty or forty feet underground and directly under a point where a battle was raging, it was a novel experience, said Heiser, to see the hospital routine in good operating rooms and wards provided with artificial ventilation and modern equipment. In another place there was a hospital with 30 beds hewn out of the side of a cliff at an elevation of 6,000 feet in the Dolomites. Practically every hospital had one or more x-ray machines, all manufactured in Italy. The hospital train service worked smoothly. Great progress has been made in methods for the re-education of lost functions. Quarantine stations have been established for malarious soldiers invalided from Salonica and Albania, who, it is estimated, already number 100,000. A comparatively small amount of tuberculosis has been met with in the Italian army, but 30,000 tuberculous Italian prisoners have been returned from Austria. No official records of venereal diseases were available, but these scourges are said to have been reduced to almost negligible proportions.

X-RAY ORGANIZATION IN THE UNITED STATES ARMY.

As soon as America entered the war the matter of x-ray facilities and personnel engaged the attention of the Surgeon-General, and steps were taken to provide the necessary men and equipment. A committee on preparedness was appointed by Dr. Cole, president of the American Roentgen Ray Society, and this committee, together with representatives of other Roentgen societies, in consultation with officers of the United

States army, undertook the work of organizing proper instruction, making a canvass of suitable men, assisting in the design of standard apparatus, and securing a suitable manual for army work. A teaching staff was appointed, with the approval and co-operation of the army medical chiefs, to teach practical roentgenology to officers of the army medical reserve corps. This staff (*American Journal of Roentgenology*, vol. iv, No. 11) consists of roentgenologists in nine large cities in various parts of the States, from New York to Los Angeles. Up to the end of 1917 about 200 had been instructed; but it is estimated that between 600 and 800 will be needed, all of whom will be given a course of ten weeks. The hospital schools and clinics have freely given facilities for clinical work in the various cities where instruction is carried on; although the members of the staff of instruction are widely separated geographically, they are kept in touch with each other so as to secure some degree of unity in training. Provision is also made at the New York centre of instruction, Cornell Medical College, for medical officers of the navy; and an effort is being made to standardize roentgenological equipment in all naval hospitals and ships. The committee has also assisted in the development of the portable field outfit previously mentioned.

Scotland.

THE SYMPATHETIC AND PARASYMPATHETIC SYSTEMS.*

The Parasympathetic System.

In continuing his course of Morison Lectures, Dr. J. J. Graham Brown said that, like the sympathetic, the parasympathetic system was influenced by impulses reaching it from higher centres. The anatomical course and functions of the efferents originating in mid-brain, medulla, and sacral cord were described in detail. Throughout both systems there were many beautiful examples of reciprocal innervation, as where parasympathetic fibres running with the third nerve were motor to the sphincter of the iris, and at the same time inhibited the dilator. Fibres passed in the pars intermedia of Wrisberg to the palate and lacrymal glands, and thus tears might flow not only from emotion (sympathetic) but as a local protective mechanism (parasympathetic). The nerve supply to the salivary glands and other parasympathetic neurones from the medulla were also described. Individuals with high parasympathetic tone had rather copious saliva. Anything which stimulated the system would cause salivation. Other exciting causes were local pain and the psychic or sensory appreciation of food; the flow was arrested by paralyses affecting the neurones, by atropine, distaste for food offered, and by strong emotion (sympathetic dominant).

It was characteristic of the parasympathetic system that the medullated nerve ran straight to its destination, and the synapse was with cells of the local plexus. The vagus sent fibres to such plexuses in the heart, arteries, bronchial musculature, oesophagus, stomach, small intestine, pancreas, gall bladder, and bile duct; its action in relation to each of these was described. Fibres from the sacral cord came from the second and third segments, and were motor to the colon, rectum, and bladder, except the trigone (sympathetic). They inhibited the vesical, urethral, and internal anal sphincters, and dilated the vessels of the erectile tissue.

The parasympathetic protected the individual organs from overstrain and influenced the nutrition of the body and the sexual activities. For the eye it was protective against light, eyestrain, and dust. Through the vagus it saved the heart by inhibiting its rate and strength and diminishing excitability, and by its vaso-dilator action lowering blood pressure. Similarly the lungs were guarded against overdistension by the inhibition of inspiration, against foreign substances by coughing, and against noxious gases by bronchial contraction. An example of this last action carried too far was seen in "gassed" cases, and in such the fear of sleep (parasympathetic dominant) and a resulting spasm of dyspnoea were similarly explained. Again, many parasympathetic symptoms were evidenced during violent coughing. In the alimentary canal the parasympathetic was motor to the muscle wall, inhibitor to the sphincters, and also secretory to the stomach. Thus it provided against overdistension, and ridded the intestine of irritating material, while distension of the rectum and bladder was the reflex for defaecation and micturition.

The system subserved the nutrition of the body in three ways—by promoting digestion and assimilation, by removal of excretory products, and by certain general effects on metabolism. The immediate cause of hunger was a contraction of the stomach wall by parasympathetic neurones and the production of saliva and gastric juice; pancreatic juice, bile, and probably intestinal juice were to some extent secreted under its influence. It removed excreta by its tendency to cause emptying of the intestine and bladder. There was an increased carbohydrate tolerance, no alimentary glycosuria being obtained even with 300 grams of glucose, the effects of pilocarpine administration were marked, and the blood showed a tendency to eosinophilia. As the sympathetic was stimulated by adrenalin it was natural to ask if a corresponding hormone existed for the maintenance of parasympathetic tone, and certain homocholenes derived from the choline of the tissues appeared to act in this way. Special adequate stimuli were certain emotions, such as hunger, anxiety, sexual excitement; irritation either local or reflexly from a distance (for example, gastric hyperacidity from appendicular catarrh or gall bladder irritation), and distension of organs.

Parasympathetic hypertonus was seen not only in individuals with an inborn peculiarity of constitution, but whenever the sympathetic was unduly depressed, or the parasympathetic stimulated by drugs or toxins.

Men showed a constitutional hypertonus oftener than women, and these tended to exhibit a masculine type. A typical picture was of an individual, thick-set, stout (unless emaciated from dyspepsia), eyes, hair, and complexion dark, pupils small, palpebral fissure narrow, features strongly marked and coarse, and nose and lips full. The brow was broad, the face often tapering towards the chin; the skin sallow, thick, greasy. Acne was often present, and dermatographia. The palms and soles were often moist, the fingers cold and livid, and there was a tendency to mental depression. Saliva was copious, the palatal reflex might be absent. There were gastric and intestinal symptoms, and sexual hyperexcitability. Sugar tolerance was high. There was a tendency to eosinophilia, and the individual reacted strongly to pilocarpine.

Hypertonus from depression of the sympathetic was seen during sleep, and then contractions of the bronchial, intestinal, and uterine muscle were most likely to occur from the dominance of parasympathetic innervation. It was seen also in Addison's disease and in myxoedema.

Of the drugs which produce hypertonus the muscarine group formed the chief, while pilocarpine was the most important clinically. The lecturer here put forward the view that the sweat glands, like the lacrymal and salivary, have a double innervation—the sympathetic action associated with fear, the parasympathetic with the protection of the body; probably the sweating of fever was an example of this. Physostigmine, like pilocarpine, was useful where there was diminished tone, and was also laxative by stimulating peristalsis. The parasympathetic was stimulated by the bile salts, also by alcohol in small doses, while long-continued excess paralysed the system.

The serious symptoms from hypertonus were due to intestinal toxins, especially seen in ileal stasis; these toxins belonged to the diamines, the best known being histamine (3-iminazoly-ethylamine) formed by bacteria of the typhoid-coli group. Dr. Graham Brown referred to the likeness which had been noted between this condition and anaphylactic shock, and suggested that this latter should be specially guarded against in individuals showing parasympathetic overtone.

Given the constitutional tendency and toxic action many circulatory and alimentary troubles might follow—bradycardia, chilblains, asthma; gastric hyperacidity and pain returning even after gastro-enterostomy; there might be diarrhoea of anxiety, but more usually there was intestinal stasis, or mucous colitis caused by a spasm of the colon, analogous to asthma (in both Charcot-Leyden crystals are found and there is eosinophilia). Treatment should be directed to limiting intestinal putrefaction, to stimulating the sympathetic by thyroid and the iodides as adrenalin was so evanescent, and by camphor for the heart, and to paralysing the parasympathetic by drugs such as belladonna, hyoscyamus, stramonium. Atropine had the most complete effect, but its action in intestinal spasm depended on the cause; if due to hypertonus it reduced, if the tone was low it augmented, the

* Concluded from p. 357

local reflex; hence it might help some forms of constipation, and was useful in diagnosis. Opium and its alkaloids were also used. The phenanthrene group, morphine and codeine, in small doses, stimulated the sympathetic; for example, the stomach wall was relaxed, and that was pyloric spasm. Similarly the isoquinoline group paralysed the parasympathetic. Of this group papaverine was useful; it had no noticeable narcotic effect, and could be given in doses of $\frac{1}{2}$ to 1 grain.

Examples of treatment were given, as asthma by hypodermic adrenalin or by atropine, stramonium, papaverine, and, in chronic cases, the iodides; "gassed cases" by atropine, adrenalin, iodides, and oxygen; and mucous colitis by papaverine, and adrenalin by the bowel. At various points the lecturer gave details of many interesting cases with the treatment applicable, and throughout the course his remarks were finely illustrated by lantern slide and diagram.

Ireland.

PARLIAMENTARY REPRESENTATION OF QUEEN'S UNIVERSITY, BELFAST.

Candidature of Sir William Whitla.

At a meeting of the medical graduates of Queen's University, held in the Medical Institute, Belfast, on March 19th, when Dr. William Donnan, President of the Ulster Medical Society, was in the chair, the following resolution was unanimously adopted:

That the importance of the Medical School of Queen's University, Belfast, and the number of graduates in the Medical Faculty give the Medical School a very strong claim to provide the representative of the University in Parliament, and that at a time like the present, when matters of public health and of medical attendance on the working classes are claiming and are likely to receive a large amount of attention in Parliament, it is most important that the medical profession should be adequately represented in the House of Commons, an end which may most suitably be attained by the sending forward of medical representatives from this and other universities—representatives who will be untrammelled by the ordinary ties of party, and who will consequently be able to give expert and unprejudiced advice on such matters to the benefit alike of the country, of the profession, and of this university.

In moving this resolution, Mr. R. J. Johnstone, F.R.C.S. Eng., said that the medical profession was handicapped by the limited number of medical men, all of them party men, who were members of the House of Commons. A university representative would not be bound by the party caucus and would be able to speak with special knowledge as to the many medical matters that would arise in the future. In seconding the resolution, Dr. R. W. Leslie said that the medical faculty was the largest in the university, the total fees being more than double those of the other faculties combined. He hoped his colleagues on the senate would look upon the proposal to choose a medical representative with sympathy, for the interests of the medical faculty were not antagonistic to those of the other faculties. The question of primary education, for example, was of great importance to the medical profession, and in fact medical interests were those of the community at large. The resolution was supported by Surgeon T. S. Kirk, also a member of the senate, who observed that the university did not receive sufficient financial support from the city.

This resolution having been carried unanimously, Dr. John Campbell proposed that Sir William Whitla should be adopted as the candidate. He referred to Sir William Whitla's long and honourable connexion with the university, which he represented on the General Medical Council, to his world-wide reputation, to his interest in general politics and the local politics of Ulster, to his diligence as a member of the Irish Convention, to his popularity, not only with the Irish, but with the English and Scottish electors, and to his active interest in education in all branches. The most important reason, he said, for adopting Sir William Whitla was that he was in a position to devote his whole time to his parliamentary duties, and was ready even to give up his professorial chair, if necessary. In seconding the resolution, Dr. Gardner Robb observed that health problems would be most pressing in the immediate future. The ideal was to have a representative in the House of Commons who understood the

teaching side, had a knowledge of medical work from the experience of general practice, and a sympathetic understanding of industrial problems. The resolution was supported by Lieut.-Colonel A. B. Mitchell, and passed unanimously. Professor James A. Lindsay then read a memorial asking Sir William Whitla to permit himself to be nominated, and proposed that the signatories to it should be members of a joint committee for the promotion of his election. The proposal was seconded by Dr. F. C. Maun (Dungannon) and unanimously approved.

Our correspondent in Belfast states that the feeling in that city in favour of returning a medical man to represent the Queen's University in Ireland is very strong. The large and flourishing medical school has been for over sixty years the mainstay and backbone first of the old Queen's College from its foundation, and later of the Queen's University. But for the success of the medical faculty it is doubtful whether the university would have come into existence. It is particularly desired that the representative shall be a man of science, preferably a medical man, able to join in the forward movement of educational reform and to appreciate the great medical changes of all kinds that are imminent.

Correspondence.

THROMBOSIS AND EMBOLISM.

SIR,—The very interesting article by Mr. Charters Symonds in your issue of March 23rd, in which he draws attention to the positions of the patient in favouring thrombosis after operation, encourages me to offer, in support of his inference, my own opinion on a like subject; namely, in patients recovering from long illnesses, such especially as typhoid fever. My pupils will remember that for many years I have taught, and incidentally have published, the opinion that in such cases we meet with two kinds of thrombosis: first, that directly due to the septic element of the disease, and this may occur early in its course, as in pneumonia; secondly, that described by Mr. Symonds as occurring during convalescence. This latter kind I have attributed to the recovering strength of the patient, who finds at last he can throw one leg over the other, and even turn to sleep on his side. For many years I have impressed upon nurses and patients the duty, as the strength is restored, of avoiding all positions of pressure on a limb.—I am, etc.,

Cambridge, March 25th.

CLIFFORD ALLBUTT.

PARALYSIS FOLLOWING ARTERIAL INJURIES.

SIR,—It is remarkable that a kind of intermittent claudication of extremities (as described by Charcot and others) should be such a frequent and striking symptom in limbs (usually one or both lower limbs) affected by "thrombo-angiitis obliterans," whereas in cases of paralysis of traumatic vascular origin, such as the ischaemic cases of traumatic "angiotic" paralysis of extremities, recently described in the *BRITISH MEDICAL JOURNAL* (1918, i, p. 199) by Captain Harold Burrows, the symptom in question should be absent, or only present in the clinical background.

Another well-marked difference in the symptomatology of the two groups of cases is the absence in thrombo-angiitis obliterans of the typical anaesthesia or hypoaesthesia of stocking-like or glove-like distribution, which constitutes so noticeable a feature in the traumatic (ischaemic) cases described by Captain Burrows. I believe that after more or less complete recovery in traumatic cases one curious symptom may sometimes be observed—namely, a greater tendency to muscular cramp in the limb that has been injured than in its fellow. This was so in the case of a man, aged 41 years, whose case I described in an article on "Muscular Cramp" (*American Journal of the Medical Sciences*, May, 1894). The patient, in 1889, had apparently had his left common iliac artery obliterated by a traumatism, and was an in-patient, under Sir William Savory, at St. Bartholomew's Hospital, when I was house-surgeon. Cutaneous anaesthesia of "stocking" distribution was well marked, but there was no intermittent claudication, though when the patient was seen three years later there was still considerable impairment

of sensation in the limb. When lying in bed and asleep he was then sometimes awakened by cramp in the left leg. This was only when he went to sleep with his legs drawn up, but, although both legs might be drawn up, the cramp occurred only in the leg that had been injured.—I am, etc.,

London, W., March 16th.

F. PARKES WEBER, M.D.

EUROPEAN v. AMERICAN ETHER.

SIR,—I send you part of an interesting communication on anaesthesia at the front by a well-known American anaesthetist.¹ He voices the difficulty in producing anaesthesia by the open method which I have heard many American *confrères* in this country express. They find that they cannot produce anaesthesia with the ether prepared from methylated spirit, which we use, within a reasonable time and without a good deal of excitement even in patients who have recently had a preliminary dose of morphine and atropine. On the other hand, the late Sir Frederic Hewitt, who was a great advocate of open ether by much the same method as is in use in America, did not, I believe, find any special difficulty, although he used of late years ether produced from methylated spirit. Personally, although I never administer open ether *ab initio*, I have not noticed any difference between British methylated ether and American ether (Squibbs), which is pure ethyl oxide.

Professor Crile, writing on his experiences in an American hospital in Paris before America joined the allies, said that the American anaesthetists found that French soldiers did not take gas and oxygen or ether as well as did patients in the United States. (I presume that in his hospital American ether was used.) He suggested that the difficulty arose because French soldiers were accustomed to take a little alcohol.

These variations in the production of anaesthesia are probably not due to any difference in the method, which is much the same everywhere. They can only be accounted for by the difference (1) in the drug used, (2) in climate, (3) in racial characteristics or mode of life.

I cannot think that European or British methylated ether is so much inferior to the American ether as Lieutenant Guedel believes, and am inclined to attribute his difficulties to the last two factors mentioned. It is impossible to obtain American ether in this country, otherwise it would be of great value if British anaesthetists could administer it and compare results with those of their American *confrères*.—I am, etc.,

Birmingham, March 12th.

W. J. MCCARDIE.

PHARYNGEAL HAEMORRHAGE DUE TO LEECHES.

SIR,—This accident was very common in Napoleon's army when retreating from Syria into Egypt. Larrey (*Mémoires*) describes many cases.—I am, etc.,

March 22nd.

W. P. HERRINGHAM.

Obituary.

R. S. TREVOR, M.B., B.C.CANTAB.,

LECTURER IN PATHOLOGY, ST. GEORGE'S HOSPITAL.

ROBERT SALUSBURY TREVOR, a member of a family much connected with Indian military history, was the son of the late Colonel S. T. Trevor, and was born in India on January 22nd, 1872. Together with his twin brother (now Lieut.-Colonel W. H. Trevor, D.S.O.) he spent two years (1885-7) at Marlborough, and then was at "Wren's" with a view to the Indian Civil Service. This course, however, he abandoned, and subsequently went to Clare College, Cambridge, graduating in the Mathematical Tripos in 1894 and proceeding to the M.A. degree in 1898. In the meantime he had joined the medical school of St. George's Hospital, where his life's work was destined to be done. After taking the M.B., B.C. degrees he became curator of the museum and demonstrator of morbid anatomy. The high character of his work ensured his election as lecturer on pathology in the medical school and pathologist to the

¹First Lieutenant A. E. Guedel, *American Journal of Surgery*, January, 1918.

hospital in 1906, and he thus became entirely responsible for all the routine work entailed by these posts. In addition he was soon appointed pathologist to the Belgrave, Samaritan, General Lying-in, and Grosvenor Hospitals, lecturer on forensic medicine and toxicology in the medical school, and became increasingly in request as an expert in medico-legal work among the coroners of London. He was also for a time warden of the medical school and, from 1911 until his death, dean of the medical school. These multifarious activities may to some extent explain why his literary output was comparatively small, for he had collected much material, especially on the causes of sudden death, such as intracranial aneurysms and the status lymphaticus, and on congenital abnormalities. But the main reason was characteristic of the man—namely, genuine and unobtrusive modesty. Scattered papers on splenic anaemia, the morbid anatomy of the pancreas and other abdominal organs, and on medico-legal subjects, appeared under his name from time to time, but most of them saw the light only because they were conjoint efforts or specially called for, and any suggestion of self-assertion was entirely foreign to his mental attitude. His work was most thorough and methodical, and his wide experience, well enforced by a knowledge of foreign literature, rendered him an authority to whom frequent appeals were made, always met as a matter of course by most unselfish help. His hospital records will long serve as a model to his successors, and to his colleagues in the school and hospital his sad death is an irreparable loss.

Apart from his engrossing professional career, Trevor had other sides: he was a fine singer, a good speaker, was interested in old books, archaeology, and photography, held high rank as a Freemason, and entered fully into the life of the medical school, where he exerted a powerful though unostentatious influence for unity and right living. Charming as a companion, conciliatory as a colleague, and transparently honest, he was firm in what he considered right, and yet it is doubtful if he had any enemies. Of a sensitive nature, though few signs of this were allowed to appear on the surface, he was further handicapped by indifferent health, much aggravated by chronic overwork. Latterly the increased strain due to hospital shortage, and the disturbed nights entailed by his duties as a special constable, no doubt accentuated his long-standing tendency to depression, and thus led to the premature loss of a life characterized by self-sacrifice and devotion to duty.

The funeral took place at Kensal Green Cemetery on March 25th.

We have recently learnt with great regret of the death of Dr. E. J. EDWARDES, who was well known to the profession as an authority on the history of vaccination. He was the sixth son of Mr. Thomas Edwardes, F.R.C.S., of Llansantffraid, Montgomeryshire. His mother was an Englishwoman. He received his medical education at St. Mary's Hospital medical school, at which he held a scholarship in natural science in 1871, and in pathology in 1876; before winning the latter he took the diploma of L.S.A. in 1875; he became L.R.C.S. Edin. in 1887, and graduated M.B. Lond. in 1876. After holding the office of house-surgeon to the Western Ophthalmic Hospital, Marylebone Road, he joined his father for a time, but later settled in practice at Llanfyllin, Montgomeryshire, where his practice covered a very large area, and he held many appointments. After a few years he married and settled in London, taking the M.D. Lond. and the M.R.C.P. in 1882. He was at one time assistant physician to the North-West London Hospital, and physician to the Farringdon and to the St. Pancras Dispensaries. He was a man of many interests, a good linguist, and widely read in many subjects. In 1892 he published a remarkable little book entitled *Vaccination and Small-pox*, and ten years later *A Concise History of Small-pox and Vaccination*. In the same year he contributed an article entitled "A Century of Vaccination" to the Jenner Number of the BRITISH MEDICAL JOURNAL. He assisted Mrs. Garrett Anderson in the foundation of the Imperial Vaccination League, formed to appeal (which it did with much success) to the general public, and especially to those conducting large retail businesses; after Mrs. Anderson's retirement he became its honorary secretary. Among other subjects with which he occupied himself was the preparation of a book on mathematics, but the chief interest of his later

years, after his retirement from practice, was the preparation of a translation of Dante's poems; a translation of Hell was published about two years ago, and those on Purgatory and Paradise were in course of preparation. His health began to fail early in 1917; he became seriously ill in August, and died on December 11th. He is survived by his widow, by a daughter, and by a son who holds a Government appointment in Burma.

DR. BROOKS H. WELLS of New York, professor of gynaecology for many years at the New York Polyclinic Medical School and Hospital, and editor since 1892 of the *American Journal of Obstetrics and Diseases of Women and Children*, died recently at the age of 58.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE degree of Doctor of Medicine has been conferred on Eric A. Pearce-Gould, and the degree of M.A. *honoris causa* upon R. H. Anglin Whitelocke, M.D. Edin.

UNIVERSITY OF CAMBRIDGE.

PARLIAMENTARY REGISTER.

THE Registry of the University desires to make it known to graduates who are not already on the register as members of the senate, including Bachelors (who became full Bachelors in the December of the year in which they were admitted to their degrees), that they are entitled to be placed on the register of parliamentary electors of the university under the provisions of the Franchise Act of 1918. Forms for making the necessary claim will be sent on application to the Registry.

UNIVERSITY OF MANCHESTER.

THE following gentlemen have obtained the Diploma of Public Health: G. M. Coope, Isaac Flack, T. E. Flitcroft, J. E. Lezama, H. E. R. Stephens.

UNIVERSITY OF ABERDEEN.

At the graduation ceremony on March 22nd the following degrees were conferred:

M.D.—F. L. Keith, W. B. Livermore, Major J. Macpherson, A.A.M.C., *W. L. Miller.
M.B., Ch.B.—† J. D. Brown, I. G. Innes, Winifred M. A. Kindness, Mary J. M. MacLaren, A. Ritchie.

* Commended for thesis. † With second class honours.
‡ Passed fourth professional examination with distinction.

UNIVERSITY OF GLASGOW.

RESEARCH FELLOWSHIPS IN MEDICINE AND APPLIED CHEMISTRY.

UNDER the bequest of the late William Brechin Failla, Writer in Glasgow, a Research Fellowship in Medicine, of the annual value of about £200, tenable for three years, has been founded in the university. The Fellowship will be awarded, on the recommendation of the Faculty, by the *Senatus Academicus* to a recent graduate in medicine who has shown capacity for independent inquiry or research. He will devote himself to some branch of work approved by the *Senatus*, and will not engage in professional practice. He may be authorized or required to pursue his inquiry for one year elsewhere than in the University of Glasgow. The Ferguson Trustees have announced their intention of founding a Research Fellowship in Applied Chemistry, also of the annual value of £200, tenable by a Bachelor of Science of the University. He will be expected to carry out his investigations either at the university or at the affiliated Royal Technical College.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AT the meeting of the Royal College of Physicians of London on March 25th, when Dr. Norman Moore, as is noted elsewhere, was elected President, it was resolved, on the recommendation of the Committee of Management, that, inasmuch as the South African College, Capetown, is to become the university of Capetown on or about April 4th, the courses of instruction in chemistry, physics and biology, anatomy and physiology, hitherto recognized by the Conjoint Board in England when given at the South African College, shall be recognized under the constitution of the new university, and that the examination in chemistry, physics, and biology for the degree of bachelor of science of the university of Capetown shall be accepted in lieu of the first professional examination of the Conjoint Board in England in those subjects. The Western University, London, Ontario, was restored to the list of universities recognized by the Examining Board of England. At the same meeting a gift from Mrs. John Abercrombie of a pair of scales, formerly the property of Dr. Edward Jenner, was accepted.

Medical News.

THE Wellcome Historical Medical Museum will be closed for cleaning from April 1st to 30th inclusive.

ANDREW TAYLOR STILL, the founder of "osteopathy," died recently at the age of nearly 90.

AT a meeting of the College of Ambulance, Vere Street, London, on March 23rd, it was decided to place the institution on a permanent basis, for which purpose a considerable sum of money will be needed. Its founder, Sir James Cantlie, expressed the hope that it would be linked with the University of London, and brought into relation with the new Ministry of Health.

A PAPER on the medical aspects of the food problem will be read by Dr. Robert Hutchison at a meeting of the West London Medico-Chirurgical Society, at the West London Hospital, on Friday, April 5th, at 8.30 p.m.

PROFESSOR ARTHUR KEITH will give at the Royal Institution after Easter a course of five lectures on British anthropologists, and Dr. C. S. Myers two lectures on present-day applications of experimental psychology.

AN entrance Salomons Scholarship of £50 at Epsom College will be vacant at the beginning of the summer term. Applications must be received, addressed to the Secretary of the College, 37, Soho Square, W., by April 6th.

THE annual meeting of the Medical Sickness Annuity and Life Assurance Society will be held at the Holborn Restaurant on Friday, May 3rd, at 4 p.m. Nominations for members of the committee must be received in writing at the society's office, 300, High Holborn, W.C., not later than one month before the date of the meeting.

THE regulations of the University of London with regard to the M.D. (State Medicine) have been amended to recognize laboratory experience at a base hygiene laboratory and experience in charge of a base district on lines of communication of a British expeditionary force. Full particulars can be obtained on application to the Academic Registrar.

THE University of Edinburgh has accepted an invitation to attend a conference summoned by the Foreign Secretary and the Minister of Education to consider, with representatives of other universities, the possibility of establishing closer connexion between British universities and those of the allied countries. The conference is to be held on May 9th.

AT the monthly meeting of the Central Midwives Board on March 21st, the chairman, Sir Francis Champneys, referred with deep regret to the death of Mr. Arthur Henry Williams Ayling, L.S.A., who had represented the Society of Apothecaries, and announced that Mr. Charles Sangster, M.R.C.S., L.S.A., had been appointed his successor. Twenty-nine midwives were removed from the roll on their own application. At the meeting on the previous day four women had been struck off the roll on various charges.

THE Prehistoric Society of East Anglia is an energetic body which now draws members from districts far beyond its borders, and not a few among them are members of the medical profession. Its president last year was Dr. A. E. Peake, who does not reside in East Anglia, but his address described some new excavations of Grime's Graves at Weeting, in Norfolk. Like other papers in the *Proceedings*, and like indeed a great part of the matter on prehistory now being published, it is largely concerned with attempts to date, or rather to find epochs for, the objects unearthed.

AT the annual Court of Governors of the Hospital for Epilepsy and Paralysis, Maida Vale, on March 22nd, the observations made by Mr. Hodge, to which we referred last week (pp. 346, 352), and the letter by Professor Elliot Smith in the *Times* of that day, were discussed. It was pointed out that the Home of Recovery at Golders Green was established as a branch of the hospital at the end of May, 1917, to receive men, on the recommendation of the Ministry of Pensions, who had been invalided from the services suffering from what is commonly known as "shell shock." Two resolutions prepared spontaneously from the patients at present in the Home, numbering 95, and signed by all, had, it was reported, been sent to the Committee. The resolutions stated that all having benefited, and in many cases recovered, they desired to express their contentment and satisfaction with remaining in the institution. Past experience in general hospitals had taught them to appreciate separation from other cases, especially from the so-called "cheery man"; they preferred "to risk the air raid results before that of going to another hospital."

Letters, Notes, and Answers.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology*, Westrand, London; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Mediscera*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

GONORRHOEA COMPLICATED BY SYPHILIS.

DR. JAMES S. ROBERTSON (London, W.) states that during his term of service as house-surgeon in the London Male Lock Hospital he never saw a case of gonorrhoea in any way aggravated by an intravenous injection of novarsenobillon. In many such cases he observed that joint pains vanished after an injection.

DR. C. F. MARSHALL (London, W.) writes: Captain Lumb attributes gonorrhoeal complications, such as epididymitis, prostaticitis, etc., arising during treatment with mercury and arsenobenzol in cases of double infection with syphilis and gonorrhoea, to the action of the mercury rather than the arsenobenzol. The evidence in support of this view is not convincing. In the pre-salvarsan days mercurial treatment was more intense than it is now, when it is subsidiary to arsenical treatment, but gonorrhoeal complications seldom occurred in patients undergoing mercurial treatment for syphilis; on the contrary, the mercury appeared to have a beneficial effect on the gonorrhoea. A more probable explanation would appear to be that the phenomena observed were due to gonococcal invasion of tissues rendered vulnerable by the hyperaemic action (Herxheimer's reaction) produced by the arsenobenzol.

THE OLDEST ENGLISH HOSPITAL.

MR. A. H. COUGHREY (Librarian, St. Bartholomew's Hospital and College, London) writes: It comes as rather a shock to many of us to read in your columns that Angers Hospital is claimed to be the oldest English hospital, presumably on the ground that at the time the hospital was founded England possessed that part of France in which it was situated (by-the-by Henry II did homage to Louis). Doubt is suggested that St. Bartholomew's Hospital was really a hospital. *Liber fundacionis ecclesie Sancti Bartholomei Londoniarum* makes it quite clear that sick people, many of them from distant parts of the country, were received in the hospital, though their cures were attributed to miracles at the shrine of the church. There may be a similar objection to the title of St. Bartholomew's Hospital at Rochester on the ground that it was a lazaret house. This noted Kentish hospital was founded by Bishop Gundulph in 1078, forty-five years before its namesake in London, as a hospital for lepers.

* The building erected by Henry II when he founded the Hôpital Saint Jean at Angers in 1170 is now the Archaeological Museum, the larger part of the collection being displayed in the great hall. Over the entrance to the present hospital, built early in last century, is a tablet recording that the hospital was founded by "Henry II Comte d'Anjou et roi d'Angleterre."

"A MEDICAL SECRETARIAT."

A CORRESPONDENT sends us a curious document which he has received by post, and upon which he invites comment in the JOURNAL. It is in the form of a printed letter head "Confidential," enclosed in an envelope marked "Personal"—for which reasons we suppress the author's name. He begins thus: "Re a Medical Secretariat. In view of the possibility of a State Medical Service after the war, the proposal outlined herein is being promulgated amongst the Temporary Medical Officers of I.M. Services, in the hope that its adoption will considerably benefit the profession generally and to a large extent nullify the necessity for State intervention." Pompous, perhaps, but whetting to the appetite. He proceeds: "Whilst the medical man's inherent dislike of any form of compulsion or 'unionism' is at once acknowledged, it is submitted that it is of the utmost importance to the medical profession (and not less so as regards the national health) that the young doctors, who will be more or less suddenly thrown upon their own resources after 'demobilization,' should be themselves organized in order to effectively adjust the law of supply and demand regarding medical services. It is therefore proposed to inaugurate a medical secretariat with offices in London and to charge an annual subscription of £1 ls. to cover working expenses, with membership open to all registered doctors, dentists, and medical students." Likely openings for young practitioners are to be investigated, and the usual business of a medical agency transacted on behalf of the members. A system of accountancy is also to be introduced "whereby with absolute secrecy and satisfaction

guaranteed, medical men throughout the country would be enabled to have their bookkeeping done for them by the secretariat for an inclusive fee of 5 per cent. on the total amount received on behalf of the member." The scheme, we learn, has been placed before a number of temporary naval surgeons, and the author has been asked to undertake the task of organization, which he is prepared to do if enough support is forthcoming. A form of application for membership is enclosed, and there are three appendices, the first outlining the system of accountancy proposed, the second indicating subsidiary secretarial work which the author is willing to do—such as arranging loans by mortgage and the settlement of business disputes—and the third giving the modest story of the author's career, from which it appears that he is the son of a deceased doctor, that his age is 30, and that he hopes to obtain a "chartered secretary's" diploma next June. Lastly, there is a note that he will shortly place the proposal before the General Medical Council with the idea of obtaining semi-official recognition in view of the national importance of its primary object. In the meantime we gather that this ambitious leaflet is being distributed widespread among temporary surgeons R.N. Stripped of high-sounding phrases, the idea seems to be nothing more than a plan for setting up a medical and dental agency and bookkeeping institution, with side lines in the way of income tax and insurance work and the transaction of business which is usually placed in the hands of a solicitor. All this the originator of the scheme is prepared to take upon his own shoulders, on the strength of eleven years' service in a bank and three years' experience as accountant in the Royal Naval Reserve. Not a word is said about a managing committee, a board of directors, or other controlling body. Without in any way desiring to question the author's good faith, we cannot advise junior members of the profession to rally round this medical secretariat, even though "to give the proposed scheme an unbiased trial would cost you 21s. only."

CULTIVATION OF DRUG PLANTS.

DR. G. F. SYDENHAM of Dulverton, Somerset, writes to express surprise that the British Medical Association has not made a special effort to encourage the cultivation of native drug plants. The stocks in hand of manufacturing chemists are, he says, being used up. The National Herb Industry, Ltd., of Verulam Street, London, he is informed, last year sold £1,000 worth of herbs to chemists, and in January this year had orders for £12,000 worth. He is honorary local secretary for the enterprise, and believes it to be an honest attempt to meet a national necessity. This country, he considers, can supply a large part of the trade demand; some of the plants grow wild, but others will have to be cultivated. His district is, he says, the home of digitalis and male fern, while hyoscyamus grows wild on the north coast of Somerset. Belladonna is, he states, a profitable herb to grow. Further development and organization are, he considers, necessary to provide the drug plants required.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE following subscriptions to the Fund have been received during the week ending March 25th:

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ERRATA.

Treatment of Shock.

In a paragraph, on post-operative complications and treatment, of the paper on gunshot wounds of the abdomen by Captain R. Charles (BRITISH MEDICAL JOURNAL, March 23rd, p. 339, col. 2), the sentence with regard to intravenous injections for shock should have stated that the proportion of gum acacia used was 6 per cent., and not 2, as printed.

Prophylaxis of Pneumococcal Infections.

In the third line from the end of the leading article on prophylaxis of pneumococcal infections (BRITISH MEDICAL JOURNAL, March 23rd, p. 351, col. 2) for "antipneumococcal vaccine" read "antipneumococcal serum."

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NOTES FROM A CLINICAL LECTURE ON A CASE OF HUNTINGTON'S CHOREA.

DELIVERED AT ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

BY

PROFESSOR SIR CLIFFORD ALLBUTT, M.D., F.R.S.,
PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.

GENTLEMEN, I have asked this patient to present himself here this morning in order that you may see a case of a very infrequent disease; I cannot recall more than four such cases, if indeed so many, in my own experience. The title of Huntington's chorea I retain because Huntington—a physician of New York—published, in 1872,¹ the first comprehensive description of the malady. It seems to have had some endemic prevalence in Long Island, New York, as Huntington's father and grandfather and other physicians in the district had observed and distinguished it. The Huntingtons laid much stress on the hereditary incidence. This record fell into neglect until 1884, when Ewald recalled attention to it. Many cases have since been described in both hemispheres, some with necropsy.² The alternative title of Hereditary Chorea I avoid because in many instances it has not been obviously hereditary, and no such condition is present in the case now before you.

At one of our Discharged Soldiers' Employment Committee meetings the last case on the day's list was of a man, X. Y., who had been sent from one hospital to another as a case of "neurasthenia"; and ultimately discharged. I was thinking it not worth while to wait longer for one of this crowd when the door opened in an irresolute way, and an arm was thrust through with a spasmodic jerk; then a leg followed with a like unsteadiness; then, while the right hand twitched at the handle, the corresponding body clinging to the door edged itself round with a random attempt to close it. Then with a stagger the patient lurched forwards to our table with the gait you have seen just now, a tripping staggering gait, hastening and stopping, until he reached the chair. Yet even in the chair you see, as we did, that the man is still in incessant restless motion, like a marionette; now jerking an arm, now the trunk of the body, now shrugging a shoulder, and so on, just as a girl does in St. Vitus's dance. We are told that these movements never cease except in sleep. He is not grimacing, he puts his tongue out fairly steadily, and his speech is unaffected; notwithstanding, the first glimpse of the patient should suffice to stamp his malady on the mind of the observer.

X. Y. lives in a village in this county; and I am much indebted to Dr. Sydney Williams of Meldreth for the trouble he has kindly taken in obtaining careful and complete notes of the case and in arranging for the patient to attend at the hospital this morning.

X. Y., aged 46, was born in our county. He joined the army and served in India for seven years. Then he served in S. Africa three years. His father died at the age of 80; always a healthy man. His mother died at the age of 55; cause unknown. They had three sons, all living, and the two others are in good health; one, aged 51, is an officer's servant, the other, aged 48, an agricultural labourer. There is no history in the family of "fits, St. Vitus's, or insanity." In respect of personal history patient had always enjoyed excellent health, and escaped all infectious diseases—in his own words "he never knew his own strength." He is a life teetotaler, and never had any venereal disease. In India he took part in athletics, and ran the half mile for his regiment. He smokes about half an ounce of tobacco a week.

When on duty one night at the front with a pioneer battalion, as Zeppelins were about, orders were given to man the trenches; and in making for the trench he fell into it—some 6 or 7 ft.; he fell on his right knee, but did not regard the blow seriously till a month later when the involuntary movements began on the right side. Within two months the disorder had attacked the left side also, and soon all his body and limbs were involved in it. There is no apparent mental defect, but the patient says that his "memory has suffered much." He cannot retain his urine as well as he did. There is one point, almost the only one, in Huntington's chorea in which the movements

differ a little from ordinary chorea, namely, that in the earlier stages of the malady at any rate—as other observers of these cases have recorded—certain concerted movements may be performed with normal co-ordination; especially if the patient is tranquil and bent upon some task. Dr. Williams writes:—"I have noticed him in the road collecting dung for his garden, and when carrying the bucket and shovel the choreic movements are practically in abeyance." This occasional co-ordination, I repeat, agrees with records of other observers of this disease. One patient is said to have continued his occupation as a carpenter and to have "driven nails with fair precision." On the other hand, writing was almost impossible. The patient after much effort did succeed in making a sort of signature of his name, but it was scrambling and barely legible. The strength of his muscles seems unimpaired, at any rate as yet, and the tendon jerks were lively.

In short, this case corresponds in all respects with the recognized pattern of the malady, save as regards the absence of heredity. When heredity is apparent the malady has always been present in the preceding generation. There is a chorea described as senile chorea which comes on between the ages of 55 and 80, and is not hereditary. Other maladies affecting elderly persons, disorders of the nervous system, have been indiscriminately called chorea; such as athetosis, paralysis agitans, senile tremor, hysterical rhythmic spasms, and so forth. We can scarcely accept a limitation of the nomenclature by the element of heredity alone; but its absence may suggest a somewhat less gloomy prognosis. The incidence of Huntington's chorea falls rather more upon males, and usually about the age of 40.

Whether Huntington's chorea will prove to be identical with "senile" chorea I cannot say; we know too little of their respective natures and causes, but provisionally they should be regarded as one malady. It is said that both symptoms and morbid anatomy in Huntington's disease and in the "senile" are identical; though it is true that the occasional recovery from the "senile" kind, and perhaps the better preservation in it of the mental faculties, seem inconsistent with a parenchymatous degeneration attacking the neurons primarily, or very early. But these cases of alleged recovery are as yet imperfectly verified. Moreover we must not give the name of chorea to the common tremors and shuffles of elderly people with arterial and other senile degenerations. In these the motor instability is of another order. The descriptions of "senile" cases too often contain other forms of disorder, such as post-hemiplegic spasms, athetosis, shaking palsy, tics, festination, myoclonus, etc. The patient before us is no degenerate. It cannot be too clearly understood that in Huntington's chorea the muscular eccentricities are of the same order indeed as in Sydenham's chorea. By these alone the two kinds cannot be discriminated. One is tempted to say that all chorea proper results from interference, temporary or persistent, in the same (Rolandic?) area.

The last case of Huntington's chorea I saw was in Tunis. I happened to be at the window of my hotel, which looked on a narrow lane, when I saw a native, evidently afflicted with this malady, shuffling along and edging himself for support against the opposite wall. The movements as he walked became more and more violent, until, feeling himself shaken off his legs, he backed into a doorway, where leaning against the doorpost he scuffled down into a sitting position; there the poor fellow sat twitching, jerking and grimacing until in a few minutes the violent phase passed off; then, scrambling to his feet, he staggered off. I followed after him but failed to catch him. Accordingly I asked X. Y. if at times the agitation became such as to shake him off his legs, and he and his son—without whom he does not venture abroad—said at once that such was often the case with him.

The prognosis, even if the case be not inherited, is very grave; the muscles of mastication and speech become affected, and gradually, after many years it may be, the mind falls into degeneration, so that after many years, directly or indirectly, it proves mortal, the last phase being one of utter wreck. If in this case the fall were the cause of the attack, the outlook may be better than in a case of "spontaneous" origin: the symptoms may abate, and the tissue changes be arrested. No remedies known to us are of any value; scarcely even palliative. The

pathologists who have had the opportunity of examining the nervous centres after death tell us that distinct marks of feebly inflammatory decay are not inconspicuous in the brain; the spinal cord being normal. Especially in the Rolandic area signs of a slow pia-arachnitis are found, with degeneration of the cortical cells and some chronic cell proliferation. There are no affinities of this disease to rheumatic fever, but it would seem to be a result of some infection. In this case, as in others of the kind, the heart is unaffected. The causes of the malady are in complete obscurity; the discussions of its antecedents in the textbooks are trivial.

REFERENCES.

- ¹ *Medical and Surgical Reporter*, Philadelphia, 1872, xxvi, 317.
² In England by Suckling, Midland Medical Society, 1889.

THE NECESSITY FOR FULLER CONSIDERATION OF THE LOCAL PROCESSES OF DISEASE AND REPAIR IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

BY

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THE recent discussion at the Medical Society of London, together with the leading article in the *BRITISH MEDICAL JOURNAL* of December 8th, 1917, have served to focus attention on the fact—which has been becoming increasingly plain for some time—that the sanatorium treatment of pulmonary tuberculosis is not fulfilling all the hopes of those who believed that in it a really satisfactory treatment had at last been attained, and that by it the therapeutic problem of consumption had been definitely solved. The method has had a long and thorough trial, but it must now be recognized that the results of it are not such as to justify us in continuing to regard it as a standard method, adequate to deal with the disease with reasonable success, and without radical improvement or addition. We cannot say that in the average case treated by sanatorium methods complete and permanent cure is the normal event. In any given case the result of the treatment is uncertain and extremely difficult to foretell; the immediate mortality remains considerable, the ultimate mortality large, while our power of completely arresting the disease and of restoring the patient to active life is still disappointingly capricious. While we are able in a large number of cases to produce the most gratifying improvement in the general condition and diminution of the symptoms, it must be admitted that the tendency to the persistence of some few signs or symptoms and to ultimate relapse after the resumption of working conditions are disappointingly common.

It is the object of this paper to inquire into the significance of the comparative failure of sanatorium treatment and to indicate some principles which that treatment ignores, but which must be taken account of before we can hope to establish a method in any sense definitive.

GENERAL PATHOLOGICAL CONSIDERATIONS.

In dealing with the problems presented by the treatment of pulmonary tuberculosis it is necessary to keep in mind constantly and vividly the general pathological features of the disease. Certain broad and quite elementary features of the processes involved in the disease will therefore be recalled. The application of these facts is so obvious, and seems when written so helpful, that no apology will be made for giving some account of them here. A familiarity with the pathology of consumption is usually taken for granted, and is therefore but little referred to in discussions upon treatment. A critical consideration of such discussions will, however, frequently reveal evidence that such pathological elements are, in fact, not always kept steadily and clearly in mind, and even that the appreciation of them is sometimes imperfect or confused.

The tubercle bacillus, when it infects man, shows itself to be an organism of slight general toxicity and slight local virulence. It does not in itself produce marked constitutional symptoms and the fever that it so commonly

causes is benign even when considerable in degree; similarly, the presence of the organism in the tissues has remarkably little direct destructive effect (as compared with the pyogenic organisms, for example), but rather stimulates them to produce a special tissue, the function of which is to surround and destroy the invading micro-organisms. This special tissue is, of course, granulation tissue and constitutes the well-known granuloma of tuberculosis. It is essential to grasp clearly the peculiarities of this tissue. It has no feature peculiar to tuberculosis, but is the normal response of the body to a mild continuous irritation. The function of the granuloma is to dispose of the irritant by destroying it, and its destiny, like that of all other granulation tissue, is, when its work has been accomplished, to be converted into fibrous tissue. If a few tubercle bacilli be introduced into a healthy tissue, the normal sequence of events is the formation of a granuloma round the bacilli, the destruction of the latter by the granuloma, and the direct development of the latter into a small healthy scar. Now we can define with fair precision the conditions necessary to ensure this sequence of events: (1) The general resistance of the patient to tuberculosis must be good; (2) the dose of the organism must be reasonably small; and (3) the part infected must be kept under certain local conditions known to be favourable to cure, of which by far the most important is a state of rest. When these three requirements are not satisfied the granuloma as a protective mechanism fails and becomes itself an agent of injury. Supposing such a failure to occur either from low general resistance, largeness of the dose (or what may virtually be the same thing, exceptional virulence of the organism), or unsatisfactory local conditions, the result is a progressive enlargement of the granuloma.*

This has two important consequences:

1. The granuloma enlarges at the expense of the surrounding healthy tissues, which it attacks and destroys, as it were to make room for itself, with a vigour approaching that of a malignant tumour. This is the mechanism whereby tuberculosis produces its destructive effects, which are then seen to be part of the actual defence against the disease. As is well known, the destructive effect of the enlarging granuloma is not equal against all tissues and is apt particularly to be restrained by any dense fibrous membrane and by the parietal pleura—a feature which is one of the few absolutely characteristic of tubercle.

2. The granuloma from its very nature draws its blood supply chiefly from capillaries, any other vessels it may receive being very imperfectly developed. The consequence is that when the granuloma reaches any considerable size the central parts become very feebly nourished and therefore undergo fatty degeneration with consequent caseation and liquefaction. As long as caseation has not occurred, direct conversion of the granuloma into fibrous tissue is still possible under favourable conditions; recovery with loss of tissue but without loss of substance then takes place. When caseation has occurred there is necessarily loss of substance as well as loss of functioning tissue. There is thus actual cavity formation, and recovery is no longer possible without diminution in volume of the affected part. When the irritation caused by the micro-organism is very mild the tendency to the direct conversion of the granuloma into fibrous tissue is very strong and is in action continuously, even though the disease is progressing. The lesion then much more closely resembles the syphilitic gumma than the traditional caseous tubercle. This continuous fibrous transformation is probably the mechanism that leads to fibrous phthisis and the fibrosing tuberculosis of lymphatic glands.

The fibrous tissue into which the successfully resistant granuloma ultimately is transformed tends, of course, to contract and to diminish the volume of the affected part, even although there may have been little or no caseation and loss of substance. Diminution in volume of the lung is thus seen to be an essential feature of recovery from phthisis; it is, as we have seen, rendered necessary in two ways—through actual loss of substance of the organ in consequence of caseation, and through the contraction which must accompany the conversion of granulation tissue into a mature and healthy scar. So essential a part

* I set aside for the moment the possibility that the failure of local control of the disease may be so complete that a generalized tuberculosis occurs.

of this conversion is the process of contraction that if the latter be prevented the actual formation of fibrous tissue will ultimately be arrested. This can often be seen in cases of chronic ulcers surrounded by much rigid induration or fixed to a bone. Here the inability of the newly formed fibrous tissue to contract is often demonstrably the sole cause of the arrest of healing. Thus some shrinkage of the lung is an essential part in the actual process of recovery. If the necessary shrinkage is no more than is rendered possible by the falling in of the chest walls, costal, phrenic, and mediastinal, and other circumstances are favourable, recovery proceeds satisfactorily. If the necessary shrinkage is greater than can be readily and without undue delay compensated thus, the contraction, which naturally always tends more or less to pull on the walls of the intra-pulmonary bronchi, must now occur chiefly by means of this factor. Thus when shrinkage is embarrassed not only is the actual healing of the tuberculous process unfavourably affected, but a complication—distortion and dilatation of the bronchi—is apt to be set going, which may, even if the patient is able completely to throw off his tuberculosis, prove as disabling as the primary disease.

One further fact in the natural history of scar tissue should perhaps be borne in mind: While contraction is indispensable during the formation of a healthy scar, such fibrous tissue once formed and fully mature can by constant and gentle tension be stretched permanently to almost any degree.

FACTORS OF TREATMENT.

The foregoing pathological considerations have indicated that there are three main lines along which the treatment of pulmonary tuberculosis must be discussed: (1) The influencing of the general resistance of the body to tuberculosis. (2) The means whereby the local conditions can be made favourable to the healthy evolution of the granuloma as a defensive mechanism. (3) The special importance in the case of the lung of the contraction which accompanies all healthy scar formation and the necessity of providing for its occurrence if healing is to be satisfactory and bronchial deformation to be avoided. We thus have three fairly distinct problems to consider—the general problem, the local problem, and the mechanical problem.

The General Problem.

Sanatorium treatment as such concerns itself solely with attacking the disease through increasing the general resistance. The avoidance of reinfection and intercurrent respiratory infections, the hygienic life, and the use of exercise, are its chief weapons. We have enough evidence to-day to conclude that powerful as these weapons are they are not able in an average case to guarantee success or to obtain it often enough to enable us to hope that any degree of detailed improvement in the method will give us a definitely effectual treatment.

The subject of the general resistance to tuberculosis in man is still very far from being fully understood. It is probable that most people living under the conditions of present day Western civilization are infected with tubercle at one time or another, though in the great majority the disease never becomes recognizable during life. It is to be presumed that the development of clinically recognizable tuberculosis is an evidence of a resistance less than normal. We may suppose that, occasionally, a power of resistance greatly below the normal is inherited. Such individuals would be found out by the disease early in life, and they probably account for the cases of general tuberculosis of infancy and early childhood.* Those who escape this danger otherwise than by mere accidental avoidance of infection are to be regarded as having a definite general resistance to the disease. In the great majority of people this resistance is strong enough to crush any early infection before it becomes clinically recognizable. In a minority the resistance must be near or below the point where this extinction of the disease in a larval stage is possible. Such persons are those who develop clinically recognizable phthisis. Cases of very rapid and intractable disease probably represent individuals in whom the resistance is exceptionally low, and near the point that would permit of a primary generalized infection. Intermediato

degrees of immunity will produce types of the disease of corresponding severity. At the top of the class will come individuals whose resistive powers are nearly adequate to deal effectively with an infection in its larval period. Now there is a good deal of evidence that the general resistance to tubercle varies, within limits, with the general health of the individual. The improvement in the general health effected by sanatorium treatment progresses in certain favourable cases *pari passu* with improvement in the disease. It is probable, therefore, that the (comparatively limited) class of cases curable by sanatorium treatment is made up of individuals whose resistance is nearly or quite normal—that is, who are by nature nearly or quite able to dispose of the infection in its earlier stages, but who have had their resistance temporarily depressed by a decline in general health with which the infection has coincided. It is to be feared that this class is limited, for the concurrence of circumstances necessary to produce it is somewhat complex—namely, a natural resistance quite near the normal, a depression of this resistance through the general health, and the acquisition of the infection just at this moment.

That the effect of the general health in heightening the resistance to tubercle is quite limited is shown by the numerous cases in which, under sanatorium treatment, there is a great improvement in the general health and no corresponding improvement in the disease. Here we may suppose the natural resistance to be low and quite outside the narrow range of influence of the general health.

The Local Problem.

It is a fact very familiar to surgeons that in cases of so called surgical tuberculosis in parts subject to movement, such as bones, joints, and tendon sheaths, immobilization of the part has a remarkably favourable effect on the disease. Without any other treatment it may render the granuloma completely effective as a defensive mechanism, causing it to cease to enlarge, to become less liable to caseation, and to undergo fibrous transformation in the normal way. General treatment to raise the power of resistance is by itself quite useless in these cases, and no surgeon of experience, if compelled to choose in a given case between it and immobilization, would hesitate for a moment in preferring the latter. Doubtless general treatment reinforces local treatment strongly, and should, of course, always be used if possible, but the indispensable condition for recovery in a part subject to movement is immobilization. There is no reason to suppose that these principles are not equally applicable to tuberculosis of the lung. The element of motion in the affected part is even more conspicuously present than in the case of a joint. That general treatment alone is sometimes effective in spite of continued movement suggests that the lung, probably on account of its vascularity, is naturally unfavourable to the disease; that general treatment alone frequently fails suggests that the local factor, which is indispensable in the case of a joint, is also necessary here. Surgeons have learnt that the immobilization of a tuberculous joint to be efficient must be absolute, and the same may be expected to apply to the lung. It is certain that the relative diminution of movement obtained by keeping a patient in bed has no claims whatever to be regarded as possessing any of the qualities of true immobilization as applied to a joint.

The Mechanical Problem.

It is a fortunate coincidence that the means whereby alone can be effected the institution of absolute rest in a diseased lung are also the means whereby the requirements of healing and the solution of the mechanical problem can best be met. The collapsed lung is not only immobilized but is in a condition to undergo the necessary shrinkage which accompanies the formation of healthy fibrous tissue; thus are promoted by one and the same measure the effective functioning of the granuloma as a protective mechanism, its due transformation into fibrous tissue when its function is fulfilled, and the prevention of the transformation leading to that distortion of the internal structure of the lung which is so apt to cause a permanent and disabling bronchiectasis.²

* Apart from its occurrence in early life, general tuberculosis seems mostly to be a terminal phenomenon, setting in only when the general resistance has been broken down by very extensive local disease.

² The importance of the mechanical factor and of the treatment of it is so great that I have dealt with it separately in another paper published in the *Quarterly Journal of Medicine*, April, 1918.

The effect of each of the four methods of treatment which I shall mention directly is to put the whole or part of the lung either temporarily or permanently out of action, and at the same time to compensate for the mechanical disabilities which have been produced by the morbid changes. Two of these methods have for their object the collapse of the whole of one lung; they are nitrogen displacement, which collapses the lung only, and rib mobilization, which collapses the lung together with the chest wall. The other two influence a part of the lung only; the one is division of the phrenic nerve in the neck, which produces paralysis of the diaphragm and is followed by immobilization and a partial collapse of the lower lobe; the second is the local replacement of one part of the lung, usually the apex, by a foreign body (Tuffier).*

Nitrogen Displacement.

Although each of these methods reduces the mobility and compensates for the disabilities caused by the mechanical factor, yet the selection of the type of case which will benefit by any of these methods of surgical intervention, and the choice of which method will produce most efficient results, is a matter of great importance. The lack of greater appreciation in this country of the value of the simplest even of these four procedures, nitrogen displacement, is the result of an imperfect realization of the character of the pathological processes and of the seriousness of the mechanical disabilities, and of the fact that the effect of the treatment is directly antagonistic to the further development of the former while at the same time it compensates for the latter.

The effects of the collapse of the lung are, as I have said, twofold. In the first place, it arrests in that organ the movements associated with respiration, and, as collapse is followed by a striking diminution in the symptoms, it reduces greatly the very active and sudden movements which accompany the acts of coughing and expectorating. As the granulomata are, therefore, no longer subject to continual irritation and injury by the movements of the tissues in which they are situated, they are able to perform their protective function, the fibrosis is able to overtake when their work is done, and to convert them into healthy fibrous tissue. In the second place, the collapse allows the newly-formed fibrous tissue to contract. It prevents, therefore, the constant drag on and the distortion of the surrounding walls, and, more important still, the bronchial deformation. It allows also of the obliteration of cavities in the bronchi or parenchyma and so abolishes the absorption of the products of secondary infection; the beneficial effect of this on the constitution and so on the power of resistance is obvious.

An extensive invasion of both lungs by tubercle is the only contraindication which I recognize to the treatment of this disease by nitrogen displacement. If the facts which I have stated above are accepted, it must necessarily be allowed that it is the extensiveness only, and not the slightness of the lesion, which constitutes a grave and serious objection to the attempt being made. The problems how early a case and how soon after the symptoms have been recognized nitrogen displacement should be tried will probably remain subject to controversy for many years. So long as a case is an "early" one—that is, so long as the diminution in the volume of the lung can be balanced by processes of nature (the approximation of the boundary walls and emphysema of the adjacent healthy lung)—there is no necessity for artificial means to compensate the disabilities due to the mechanical factor. But there is still the local problem—the granuloma—which must be considered. It may be, in a given case, that improvement in the general health and the moderate increase in resistance this can effect, will be sufficient. If, however, the symptoms and the signs indicate that there is delay or incompleteness in the fibrosis of the granuloma, more complete rest of the lung by surgical intervention is undoubtedly indicated.

Another argument in favour of the early treatment of pulmonary tuberculosis by nitrogen displacement is

that the longer it is postponed the more probable is it that the collapse of the lung will be incomplete or impossible owing to adhesions. Interpleural fibrosis often interferes greatly with the treatment. If, however, the adhesions are few and are accessible for division, or can be stretched sufficiently to enable the lung to be reduced to about half its volume, great benefit may be expected and can be obtained from the partial collapse.

Rib Mobilization.

This is an alternative method of treatment, but as the collapse of the lung and the chest wall is permanent, and as the operation is much more serious, it must be considered only when collapse by nitrogen is impossible. All cases which can be treated by nitrogen displacement are not suitable for rib mobilization. Much more rigid selection is necessary, and active disease in the opposite lung is an absolute contraindication. The immobility of the lung obtained by rib mobilization is more complete than that obtained by nitrogen, as the variations in the size of the organ due to the absorption of gas from the pleural cavity and the periodic refills are absent.

Division of the Phrenic Nerve in the Neck.

This operation is followed by paralysis of the diaphragm on the same side. The dome rises up into the thorax one or one and a half inches above the normal level. During quiet respiration it is motionless, but during a deep inspiration it may ascend still further into the chest. The movements of the lower lobe are controlled by the diaphragm. Paralysis of this muscle abolishes, therefore, the movements of the base of the lung, and at the same time produces partial collapse. This operation is of great value under the following circumstances:

1. When there are extensive secondary changes (mechanical and infective) in the lower lobe.
2. To diminish movement in the lower lobe when it is the seat of primary tuberculous disease.
3. To prevent the aspiration of infective material (tuberculous or pyogenic) from the upper into the lower lobe.
4. Although it is not germane to the subject of this paper, it should be added that paralysis of the diaphragm may be of considerable value as a prophylactic measure against the development of bronchiectasis in cases of chronic interstitial pneumonia.

Insertion of Foreign Body.

Tuffier advocates local collapse of the lung by separating the parietal pleura from the chest wall, and filling the space thus formed by a foreign body, such as a lipoma or fibroma.

It is frequently stated that one of the great barriers to success in the sanatorium treatment of pulmonary tuberculosis is the desire of or the necessity for the patient to return to the environment in which he was when he contracted the disease. The conditions which surround the individual when he returns to his work can rarely be so favourable for maintaining the degree of resistance to the disease acquired while under treatment. His reserves become exhausted by overwork, underfeeding, irregular hours, anxieties, or infection such as cold or influenza, and the granuloma once more fails in its defensive function. It is clear, therefore, that when the treatment is confined to improvement in the general health of the patient and to increase in the resistance only it is unsatisfactory, and in a large majority of cases the benefit which is obtained must be temporary in character. But when the lung is collapsed by nitrogen, the tuberculous lesion is set at rest and the mechanical disabilities are compensated, the patient is to quite a considerable extent independent of those fluctuations in his general health which are inevitable. Once, moreover, the initial treatment is completed, he can return to his work and can lead a comparatively normal existence with much greater safety to the community and with at the same time a much more considerable hope of maintaining and of securing the improvement which he has acquired, and possibly even of becoming the master of, instead of the slave to, the disease.

* I have already dealt with the details of the technique of all these methods in various other articles: "The therapeutic value of gases introduced into the pleural cavity," *BRITISH MEDICAL JOURNAL*, April, 1914; "The operation of rib mobilization in the treatment of phthisis," *British Journal of Surgery*, vol. ii, 1915; "The importance of the mechanical factor in the treatment of pulmonary tuberculosis," *Quarterly Journal of Medicine*, April, 1918.

THE IMPORTANCE OF REGULATING THE FAT-INTAKE IN DIABETES MELLITUS.

BY
P. J. CAMMIDGE, M.D. LOND.

THE dietetic treatment of diabetes mellitus has passed through three stages, progressing from a simple problem with one unknown quantity to its present position of a complex investigation involving the determination of at least two additional factors.

The first stage was initiated by the accidental discovery made by Rollo, in 1797, that glycosuria could be controlled by the exclusion of vegetable foods from the diet, but it was not until the relation between the digestion of carbohydrates and the formation of sugar was established by Gmelin and Tiedemann, in 1838, that the treatment of the condition by limiting the carbohydrate intake was placed on a rational basis. The discovery by Lépine and Barrah, in 1891, that sugar could also be derived from proteins paved the way for the second stage in the treatment, for their experiments and the clinical observations of Kolisch and Schumann-Leclercq (1903) showed that regulation of the protein as well as the carbohydrate is necessary if the progress of the disease is to be checked, especially in severe cases. Until very recently the third important constituent of the diet, fat, has been regarded as a comparatively innocuous food for diabetics; they have consequently been given it in large quantities and encouraged to consume as much as possible with a view to maintaining their weight and, if possible, increasing it. The most recent experimental and clinical investigations have shown, however, that control of the fat allowance is quite as important as regulation of the carbohydrate and protein intakes if a gradual failure of metabolism with ultimate return of the glycosuria and progressive acidosis are to be guarded against.

Diabetic Lipaemia.

When phlebotomy was commonly practised it was known that the blood in severe cases of diabetes occasionally had a milky appearance, and that on standing a creamy layer of fat separated out on the surface. Although such a condition of lipaemia is very rarely seen in any other disease than diabetes no great importance has been attached to it, save that it indicated a grave prognosis, and until recently no attempt has been made apparently to study the fat content of the blood systematically to discover the antecedent stages and ascertain whether an excess of fat, without obvious lipaemia, existed in all cases of diabetes. The first comprehensive series of cases in which such an investigation was carried out was reported in 1916 by Bloor,¹ who had previously studied the fat content and relations of the blood in a number of normal individuals and other pathological conditions by methods specially developed for the purpose, and so was in a position to make reliable comparisons. He found that out of the thirty-eight diabetics investigated a lipid value of the blood in excess of the normal average was present in thirty-six, and in all but three of these it exceeded the highest limit met with in healthy persons, in spite of the fact that a characteristic milky appearance was found in only two instances. A marked increase, up to 100 per cent. or more of normal values, was found in all the severe cases, but clinically mild cases also sometimes showed considerable abnormality. As a rule, however, the more severe and long-standing the diabetic condition the more marked was the abnormality in the blood lipids.

From these results it would appear that an excessive lipid value of the blood is very common in diabetes, and that it may be regarded as an almost constant phenomenon of the diabetic condition. This being so the questions that arise are: What is the source of the excess of fat? and What is its significance? The evidence at present available suggests that it originates mainly in the fat of the food, and that the probable reason for its appearance in the blood is a partial failure of the mechanism for dealing with fat arising from the essential nature of the diabetic state, like the associated defects in carbohydrate and protein metabolism. The dependence of lipaemia on the fat content of the diet was well shown in Bloor's two cases of obvious lipaemia, which promptly cleared up when a fat-free diet was substituted for the fat-rich diet they

had been taking previously; and similar observations have been made by Allen, who has pointed out that dogs rendered diabetic by partial removal of the pancreas rarely show lipaemia unless precautions are taken to ensure good digestion, and that it then varies with their digestive powers, appearing readily on feeding them with fat and ceasing promptly on its omission. Allen has shown also that the excess of fat in the blood in diabetes is not due to hyperglycaemia, nor solely to removal of pancreatic tissue, and that absence of carbohydrate or loss of sugar from the body do not appear to be responsible for the condition, since maximal phloridzin poisoning followed by feeding with nothing but fat in dogs fails to produce anything resembling diabetic lipaemia. Bloor found that there was no definite relation between high blood lipids and the occurrence of acetone bodies in the urine, although he points out that maximal lipaemia probably never exists without acidosis, because acidosis goes with the general severity of the diabetes. That diabetic lipaemia is not due to change in the reaction of the blood is indicated by the fact that the greatest possible reduction in its carbon dioxide capacity by acid poisoning produces no characteristic change in that direction. It would therefore seem that the tendency to the imperfect utilization of fat in diabetes is not dependent upon any other feature of the disease, but is a primary phenomenon of the condition which appears to vary independently of the other symptoms, although its extent corresponds roughly to the severity of the disorder.

Ketonuria.

The existence of an excess of lipoids in the blood in most cases of diabetes suggests that the mechanism by which fat absorbed from the bowel is taken up by the cells of the body is usually more or less at fault, but there is another point in fat metabolism at which failure frequently occurs also—namely, its oxidation in the tissues. This is indicated by the presence in the blood and urine of imperfectly oxidized products in the shape of the acetone bodies (acetone, aceto-acetic acid, and beta-hydroxybutyric acid), which have been aptly likened by Woodyatt to the smoke from a badly burning candle or fire. The work of Rosenfeld, Hirschfeld, Geelmuyden, Magnus-Levy, and others has shown that the principal source of the acetone bodies is fat, and it may be taken as proved that the presence of acetone and its associates in the urine and blood is mainly influenced by the amount of fat in the tissues, and hence in the food.

It is well known that the fasting human subject shows ketonuria, and that the available store of fat in the body is one of the chief sources of the condition under such circumstances was strikingly demonstrated by the experiments of Folin and Denis² with fasting obese women in whom marked acidosis and serious symptoms of acid poisoning corresponded to the rapid loss of weight resulting from starvation. Ketonuria likewise results from simple carbohydrate abstinence, and it would seem that a certain proportion of available carbohydrate is necessary for the complete and orderly combustion of fat by the tissues. According to Zeller,³ a molecule of sugar must be oxidized for each two molecules of fat, which would mean in a normal individual the ingestion of one part of carbohydrate for each four parts of fat. If carbohydrate is not available the sugar derived from the constituent amino-acids of proteins may be used, and it is for this reason that proteins are antiketogenic in normal persons. They are less efficient for the purpose than carbohydrates, for some amino-acids are themselves capable of giving rise to a considerable proportion of acetone bodies. In the diabetic subject the degree to which fat is completely utilized depends upon the relation between the power possessed by the tissues of making use of the sugar offered to them and the amount of fat taken in the diet, or stored in the body. If carbohydrate foods are comparatively well metabolized, a considerable amount of fat can be burned without "smoking" or giving rise to acidosis; if the defect is more pronounced and only a small quantity of carbohydrate can be made use of, a proportionately smaller quantity of fat can be taken without being imperfectly oxidized, while if the tolerance for carbohydrate is slight ketonuria and acidosis occur with even a small amount of fat in the diet, or with no fat at all, since more or less of the carbohydrate or protein

origin is probably also being excreted in the urine as sugar, and there may not be sufficient available to suffice even for the complete oxidation of the protein fractions that give rise to acetone bodies.

It may consequently be taken as a general working rule that fat unbalanced by an adequate available supply of other foods is poison to the diabetic, and it therefore follows that the craving for bread and other starchy foods shown by patients on a high protein-fat diet is rather an expression of a natural want hitherto misunderstood than an evidence of original sin that can be dealt with more satisfactorily by restoring a proper balance in the diet by reducing the fat than by increasing the carbohydrate, as is usually taught. Owing probably to a latent reserve power possessed by most people, diabetics can generally be trained to utilize gradually more fat, but their reserve power in this respect is not unlimited, and, like the tolerance for carbohydrates and proteins, is easily overstrained, with rapidly increasing acidosis and death from coma.

Fat and Sugar Utilization.

A third aspect of the fat problem in diabetes that has been reinvestigated lately is the influence exerted on sugar utilization. It has been contended by some writers that sugar can be formed from fat, since the addition of fat to a diet that has previously been well borne may increase the glycosuria in diabetes; but the experiments of Ringer, Allen and DuBois, and others are strongly against such a transformation taking place in animals or man, so that some other explanation must be sought. Recent experiments carried out by Allen⁴ appear to have solved the mystery. He found that if two dogs are made diabetic by removing corresponding portions of the pancreas from each, and, after their carbohydrate and protein tolerance has been determined, one is given only just sufficient fat to prevent loss of weight, while the other is allowed as much as he will eat, or is forcibly fed with fat, the former, although thin and always hungry, will remain sugar-free, whereas the other gains in weight, appears healthy and happy, but eventually develops glycosuria, with ultimately fatal results, unless the fat feeding is promptly stopped and he is starved until the glycosuria is controlled. Contrary to what might have been expected if fat were transformed into sugar in the body, examination of the blood of such dogs shows that the first effect of adding fat to the diet is to reduce the percentage of sugar. As the fat feeding is pushed and the weight of the animal increases, a parallel rise in the level of the blood sugar takes place, however, and finally glycosuria occurs. An abnormally high blood-sugar level may exist for some time before sugar appears in the urine, and persist for a considerable interval after all fat has been omitted from the diet, suggesting that an excess of fat reduces the permeability of the kidneys for sugar, and showing that its evil effects continue long after the cause has been removed, thus probably explaining the diminishing glycosuria, without a corresponding fall in the blood sugar, of chronic cases of diabetes kept for long on a diet with a high fat content.

These experiments have been repeated under such a variety of conditions and with such adequate controls, always with similar results, that it seems reasonable to conclude that the hyperglycaemia and glycosuria following excessive feeding with fat are due to a failure of metabolism consequent on the gain in weight above what the defective assimilative functions of the animal are able to cope with, and that any attempt to induce a high level of nutrition with fat results in an aggravation of the diabetic condition similar to that which follows a like attempt with carbohydrate or protein, although its effects are slower and more insidious.

Applications to Treatment.

The application of the results of the observations outlined above to the clinical treatment of diabetes mellitus obviously entails the forsaking of several cherished beliefs and standards. It will also involve very considerable modification in current methods of determining and regulating the diet, even the most modern. We can no longer consider that we have done our duty by our patients if we have merely rendered their urine sugar-free by limiting the carbohydrate intake or adjusted the protein allowance

to their metabolic capacity; we must now also ascertain the optimum amount of fat which will meet their needs, prevent acidosis, and avoid the onset of glycosuria, either immediately or in the future.

The prevention and control of acidosis is so often a matter of primary importance when patients come under observation that it will be well to consider it first. It has long been known that it is dangerous to change a severe case of diabetes suddenly from an ordinary mixed diet containing carbohydrate to one consisting of protein and fat alone, as serious acidosis may develop, but it does not appear to be generally recognized that it is often equally dangerous to deprive a patient of all food and adopt the fasting treatment without adequate preparation. In order to prevent acidosis occurring, and avoid increasing it when already present, the chief source of the acetone bodies, fat, should first be eliminated from the diet as far as possible. After a day or two on a fat-free diet the carbohydrate may generally be reduced with safety, but it is not wise to leave out all carbohydrate until the protein intake has also been brought down by at least half. Both carbohydrate and protein may then be gradually reduced until a diet of low-value green vegetables only is being taken, when, if the glycosuria still persists, actual fasting may be instituted without fear of grave complications developing. When the diet is being built up again and the patient's tolerance is being tested after the glycosuria has been controlled, fat should be introduced with equal care, none being allowed at all until a fair tolerance for carbohydrate and protein has been established. The fat content of the diet, like the carbohydrate and protein, must then be worked out each day and the effect of every addition be carefully watched.

Unfortunately the results of analyses of the urine do not afford information that is of much help in regulating the allowance in many cases, although variations in the total acidity, true ammonia nitrogen, calcium, and magnesium excretions, with increase in the total output of acetone bodies may give useful indications in some instances, and show that the fat is being increased too rapidly. As a rule the most reliable information is given by examination of the blood. Allen's experiments on dogs have shown that a rising blood-sugar curve with increasing weight when fat is being added to the diet indicates approaching failure of metabolism with eventual glycosuria, but earlier and more certain information that the mechanism for dealing with fat is being overloaded can be secured by estimating the lipid value of the blood by Bloor's method or, since it has been found that the cholesterol increases parallel with the fat, by cholesterol determinations. When the apparatus and time for blood analyses are not available, the fat allowance must be regulated by the patient's weight and the appearance of sugar in the urine.

It must be borne in mind, however, that weight is not necessarily a true index of the tissue mass of the body as it is influenced by accidental circumstances, particularly loss and retention of water, and that glycosuria is a late symptom of failure of metabolism due to excess of fat in the diet.

If sufficient care is taken, glycosuria can usually be avoided if the fat-intake is so adjusted that, while further loss of weight is guarded against, progressive gain is prevented. This ideal, which should be aimed at in all cases, is quite contrary to the older teaching, according to which increase in weight was, above all other things, the most desirable for a diabetic, since it was considered that gain in weight meant gain in strength also. That such is not really the case has been shown by the experiments of Williams⁵ with the Collin dynamometer. It appears from his results that, as a rule, diabetics are physically distinctly weaker than normal persons, owing partly to loss of musculature, but also probably in consequence of the diminished supply of energy furnished by the imperfectly utilized food to the muscular mechanism they possess so that it is incapable of functioning normally. There appears to be a direct relation between the food tolerance and the muscular vigour of the patient, and if the tolerance is depressed by the continued use of a diet beyond his metabolic capacity further decline in the physical powers takes place, whereas if the food tolerance is increased by the employment of a diet within the physiological limitations of the individual, even though it falls far short of the theoretical energy requirements of

the body, an appreciable increase in muscular tone occurs.

Overfeeding, therefore, is not only a cause of glycosuria in diabetes, but also results in a progressive failure in metabolism with loss of strength. It appears to matter little whether the excess of food is in the form of carbohydrate, or protein, or even fat—the outcome is the same; but as the effects of an excess of fat are more insidious and difficult to recognize in the early stages it is necessary that particular care should be taken in regulating the fat allowance. Since I realized that fact and applied it in my clinical work I have obtained much better and more permanent results than formerly. It has also enabled me to recognize and deal with cases of recurrent glycosuria that would otherwise have been puzzling. As an example I may quote the case of a boy of 14 who was brought to me in October, 1916, by Dr. J. Howard Cook.

When he was first seen by Dr. Cook he was passing about 100 grams (5.5 per cent.) of sugar a day, but when he came to me the sugar excretion had fallen to about 10 grams a day. The patient's carbohydrate and protein tolerance were worked out, and he was put on a diet on which he remained sugar-free for about three months. A return of the glycosuria then occurred, but on his carbohydrate allowance being readjusted the sugar disappeared, and it remained absent for about four months. As the glycosuria then recurred it was evident that his carbohydrate tolerance was steadily falling, and the prognosis appeared to be bad. A further readjustment of both the carbohydrate and protein allowance kept him sugar-free for another four months, when sugar was again found. I went into the case very carefully with Dr. Cook, and we came to the conclusion that as the boy's weight was increasing more rapidly than would probably be accounted for by natural growth and a considerable amount of fat was being taken in the diet, it would be advisable to try the effect of reducing it. This was at once done, and I hear that he has since remained free from any trace of sugar although more starchy food has been taken, and that he has improved in strength and general condition.

The importance of a strict control of the fat content of the diet has been impressed upon me by a number of other cases, including several which had been submitted to the fasting treatment with immediately satisfactory results, but with ultimate return of the sugar. In some of these that have come under my care owing to the recurrence, I have found that an excess of protein was being taken, but in others careful chemical examination has shown that the fat content of the diet was the difficulty, and when it was adjusted to the patient's metabolic powers the glycosuria promptly ceased and did not return.

Patients who are steadily losing weight, as most diabetics are, naturally desire to put on flesh as quickly as possible, and are apt to judge the success or failure of any treatment they may undergo by the extent to which their wish is gratified; but, although we may understand and sympathize with their longing, it must not be gratified, and we should explain that gain in bulk is a sign of failure rather than of success. A steady weight that can be maintained without overtaxing the patient's defective metabolic powers should be aimed at, and any attempt to improve a bad situation by overfeeding, or even feeding up to the theoretical caloric requirements of the body, must be abandoned. Gain in weight must be sacrificed to well-being and satisfaction of the appetite to length of days. Individualization of the diet, in which the allowance of carbohydrate, protein, and fat is regulated by the tolerance of the patient for each, and by his powers of dealing with the diet as a whole, is the line along which the treatment of diabetes is developing, and, although it is very likely that we have not yet reached finality and that other considerations, such as the mineral content of the diet and the amino-acid make-up of various proteins, etc., will eventually have to be taken into account, it is clear that the older standards and empirical methods employed for so long are doomed, and will have to give place to scientific dieting based upon exact modern chemical research and knowledge.

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³ *Arch. J. Anat. u. Physiol. Phys. Abst.*, 1914, p. 213. ⁴ *Amer. Journ. Med. Sci.*, 1917, cliii, p. 313. ⁵ *Arch. Int. Med.*, September, 1917, p. 399.

AN OUTBREAK OF PHLEBOTOMUS FEVER.

BY

CAPTAIN J. A. HARTLEY, M.D. DUBL.,
R.A.M.C.(T.F.).

AN outbreak of phlebotomus fever (sandfly fever) occurred in a squadron of yeomanry on outpost duty in mid-Egypt in the middle of the summer of 1917. The post was on the western edge of the cultivation, and I was in medical charge of the unit. Of the total strength 86.4 per cent. were infected. The first to contract the illness were the men, non-commissioned officers next, and officers last. The first case was discovered on the thirty-seventh day in occupation, and from this there were three or four fresh cases daily for a week, and an average of six daily in the second week. For medical reasons the unit then moved about a mile and a half to a new camp on fresh ground, and, although it was impossible to avoid carrying the infection, better conditions followed. For military reasons it was desirable to maintain occupation of the first position, and after taking preventive measures additional to what had already been followed, a guard drawn from another unit was placed in it. Four days had scarcely elapsed when the non-commissioned officers and men who formed this presented symptoms of infection, and the illness spread through all of them.

The accommodation consisted of a dwelling-house and offices which the officers and non-commissioned officers occupied, and shelters constructed of wood and canvas for the men. All were placed compactly on an elevated site adjacent to a pool which covered about an acre and contained more or less stagnant water. Agricultural drains of muddy water were in touch. The sanitary arrangements were satisfactory except the drinking water, which was bad; the latrines and horse lines were at a reasonable distance. Preventive measures were adopted in the form of cresol spraying throughout, and the use of paraffin oil on breeding places. Everyone, officers and other ranks, had a mosquito net, but this could not be counted on as the midge is so small that it can pass through the mesh. They were plentiful, very small and midge-like, with hairy bodies. They were found on walls and in rubble, but the breeding places must be moist.

The incubation period was from four to seven days. The onset was very sudden, accompanied with severe malaise, headache, and suffusion about the eyes and post-orbital pain. Pain in the lumbar region was generally intense, and pain and cramp in the limbs occurred. Constipation was nearly always present and profuse sweating. The temperature rose quickly to 102.5° or 103°, and on a few occasions to 105°. After twenty-four hours the pyrexia diminished, and at the end of three days fell to normal. The pulse was not correspondingly accelerated—it was seldom above 80; it became soft and weak and the cardiac condition required attention.

The suddenness of the onset was the marked feature. A man to all appearances in normal health was on duty at 9 a.m., and an hour later reported ill with giddiness and inability to carry on. His temperature was 103° F.; other symptoms developed in the course of an hour or two. One night another was found on horseback wandering up and down the road, unable to recall to mind the way he was accustomed to take to reach camp. He was feeling dazed and ill, and his temperature was 103.2°. An hour earlier, feeling all right, he had left head quarters of the regiment, two miles back.

Phlebotomus fever had not previously been prevalent, nor were contacts from outside found. One or two subjects of malaria were on the strength. From dengue the condition is differentiated by the suffused eyes, absence of rash and of secondary rise in the temperature after a few days running normal. In paratyphoid the pyrexia seldom runs so high, and has not the characteristic third-day drop to normal. Severity of the rigor and fall of the temperature in a matter of hours distinguish it from malaria; enlargement of the spleen is also to be remembered.

Most cases were evacuated to hospital. Those remaining in the lines were kept together apart from the uninfected; they were given a purgative and sodium salicylate, phenacetin, or opium for the relief of the pyrexia and aching limbs. Subsequent debility was a marked feature

THE American Women's Zionist Organization announces that Mrs. Peter J. Schweitzer of Brooklyn has given £5,000 for the building and maintenance of a model eye hospital in Palestine. A medical unit has left for Jerusalem.

considering the shortness of the acute stage, but many managed to recover sufficiently to return to light duty after fourteen days.

CLINICAL NOTES ON PHLEBOTOMUS FEVER.

BY

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AND

CAPTAIN C. S. STADDON, R.A.M.C.

PHLEBOTOMUS FEVER occurred in Macedonia as an epidemic which attacked certain units camped in the vicinity of some old ruined buildings.

The *Phlebotomus papatasi* fly was very numerous in the tents and dug-outs, and bites were inflicted both by day and night. Exposed parts were most affected—the

fur on the dorsum, but was clean at the tip and at the edges. The pulse was in many cases slow; rates of 55 and 50 were common, and in one case the rate fell to 40 during both of two attacks.

The temperature usually rose suddenly to 103° (105° was the highest noted), remained between 102° and 103° for about twenty-four to thirty-six hours, terminating, in the large majority of cases, by a critical fall, and remaining subnormal for three or four days.

The temperature charts showed three main types, depending on the fall and subsequent course of the temperature curve. In the accompanying charts the whole pyrexial period is not shown.

1. Curve showing a critical fall, or much more rarely a gradual one, on the second, third, or fourth day, and remaining subsequently subnormal or normal. (See Chart 1.)

2. Curve showing a critical fall to normal or subnormal, followed by a further rise, either immediate or after a day

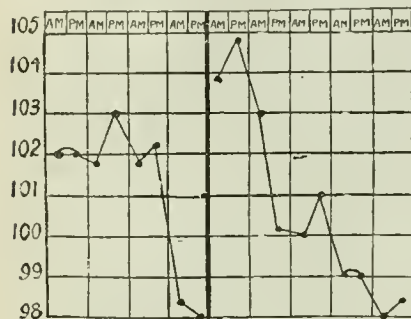


CHART 1.

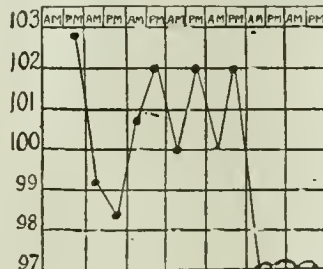


CHART 2.

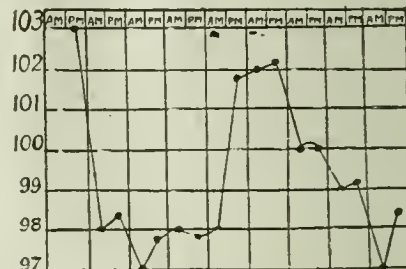


CHART 3.

backs of the hands, the forearms, especially the flexor surfaces, the ankles, and the face. A small irritable papule was produced; in one case the papules were so numerous as to simulate a definite rash.

It was found impossible to make any accurate observations as to the fly's radius of action, but whether by actual flight, or more probably by conveyance on wagons and limbers, it was certainly not less than 300 yards, or more than 500.

The Incubation Period.—This varied from four to six days, and was marked by a feeling of malaise and irritability of temper.

The onset was almost invariably sudden, and was usually accompanied by slight shivering; no definite

or two, the temperature remaining up for one or two days. (See Charts 2 and 3.)

3. Curve showing a critical fall, followed by more than one post-critical rise of temperature occurring at irregular intervals. (See Charts 4 and 5.)

Course.—The prostration became more and more marked as the pyrexia continued, and by the time it subsided might have become very severe. The headache disappeared with the fall of temperature, but the backache and the pains in the limbs frequently persisted for several days afterwards; in several cases the pain only became marked after the fall in temperature had taken place. The slowness of the pulse often persisted for four or five days after the temperature fell. Appetite returned gradually,

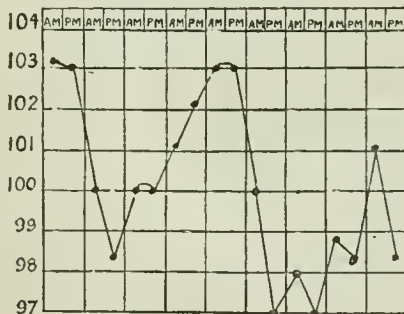


CHART 4.

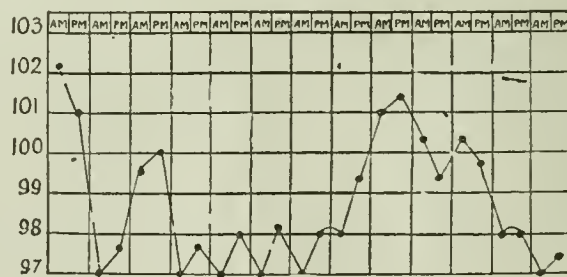


CHART 5.

rigors, however, were observed in any case. A slight degree of nasal catarrh, lasting for the first day or two of the fever, occurred in some.

Symptoms.—Severe headache, either frontal or post-orbital, was invariable; abdominal discomfort—not amounting to pain—backache (very marked in some cases), pains in the limbs, and anorexia usually accompanied it.

Signs.—The face was usually uniformly flushed, but though this flush was in no way typical, it did not in any way suggest the dark, flushed, bloated facies of relapsing fever. The conjunctivae were injected, but the amount of injection varied, being in some cases extremely marked and hardly noticeable in others. It bore no relation to the severity of the infection. The eyeballs were usually tender on palpation. The tongue showed a thick brownish

but convalescence was slow, and the patient remained debilitated for a week or ten days or even more.

The complications observed were:

Conjunctivitis.—This was quite severe in one case.

Epistaxis.—This occurred in several cases.

Sore Throat.—This, associated with faucial infection, was observed in several cases.

Vomiting.—This was quite marked in one case, and was not due apparently to any outside cause.

Reinfections were comparatively common. They were almost invariably milder; the temperature seldom rose above 100° F. (101.8° F. was the highest noted), and the rise lasted only one or at most two days. The symptoms and subsequent debility were also much less marked, and no complications were noted. No case of more than one reinfection was observed.

The treatment adopted presented no points of special interest. Tinct. opii mxx at the onset, repeated on the second and third nights and combined with magnesium sulphate 1 oz. daily, was found very efficacious. Aspirin relieved the headache and the pains. Easton's syrup was given during convalescence.

Conclusions.

The following would seem to be the chief clinical features in which the disease, as seen here, differed from the commonly circulated descriptions:

1. The occurrence of definite reinfections.
2. The frequency of post-critical rises of temperature.
3. The great variability in the amount of conjunctival injection.
4. The great preponderance of critical falls of temperature over those falling by lysis.

It is also an interesting fact that no cases were noted amongst the Cypriote muleteers camped in the affected area.

We should add that though it was impossible in a district like this definitely to exclude malarial infections amongst the cases studied, only those which from the clinical standpoint were undoubtedly phlebotomus fever were included in the series from which these conclusions have been drawn.

THE INVOLVEMENT OF THE EXTERNAL AND INTERNAL POPLITEAL NERVES IN LESIONS OF THE SCIATIC NERVE.

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DURING the South African war the external popliteal nerve was stated to be involved nine times as frequently as the internal popliteal nerve. In injuries of the sciatic nerve during the present war the proportion is stated to be three to one. Heffman believed it to be due to the smaller blood supply of the external popliteal; but, on the other hand, this is the smaller nerve. The fact that the internal lies more in line with the femoral vessels and that the external is the more superficial cannot account for the disproportion, as the nerves lie side by side, and bullets pass in all directions.

The external popliteal, corresponding to the musculospiral nerve in the arm, supplies muscles which act against gravity. The slightest lesion of the nerve is followed by paresis of the extensor muscles, which is always evident by foot-drop and steppage gait. Great clinical experience is not necessary to make a diagnosis, and, owing to the continual overstretching of the muscles, no improvement follows until proper treatment has been applied.

The internal popliteal, corresponding to the ulnar and median nerves in the arm, supplies the plantar flexors of the ankle, the small muscles of the foot, and sensory fibres to the skin of the heel and sole. The action of these muscles is aided by gravity. In complete division but slight deformity is usually present, and apart from inelasticity in the gait, slight inconvenience is caused; this is shown by the useful movement obtained in complete division of the sciatic after correction of the drop-foot by a suitable boot. In incomplete division slight pes cavus may be present with paresis of the flexor muscles and anaesthesia, trophic changes being usually absent. Voluntary contraction of the flexors produces plantar flexion of the ankle and toes. The paresis is often difficult to observe, unless a careful examination is made, full plantar flexion of the ankle and toes being possible by the action of gravity alone, if the extensors be relaxed. It should be sought for with the patient lying prone and the knee flexed to a right angle, plantar flexion now taking place against the action of gravity. The skin of the sole and heel is not very sensitive, and to excite epicritic sensation in the normal sole slight pressure of the cotton-wool may be necessary. The internal saphenous and the popliteal position of the external saphenous encroach on

the sole of the foot and many of the ligaments are supplied by the external popliteal, and as in an incomplete lesion deep pressure sensation is often retained, the greatest care in applying the cotton-wool test is necessary.

In the case of an incomplete lesion of the internal popliteal associated with a complete or incomplete lesion of the external popliteal, the flexor muscles contract with the aid of gravity, and, as they have not to overcome the normal tone of the extensors, their action may appear to be as great as usual.

Careful examination by a competent observer is necessary for the diagnosis of some of these incomplete lesions. The foot from the time of the injury is placed by the action of gravity in the position of plantar flexion, this relaxes the affected muscles and helps their recovery, even if no treatment be applied.

In lesions of the sciatic nerve admitted to Alder Hey from other hospitals, the external popliteal was affected three times as often as the internal. The greater number of the latter were admitted for the painful neuritic condition, or for the combined lesion with foot-drop.

One hundred cases, admitted direct from France, in which the wound was in the upper two-thirds of the thigh, and there was a possibility of sciatic involvement, were carefully examined by me. The sciatic nerve was involved in 22.

In 4 the external and internal portions were completely involved.

In 3 the external was completely and the internal incompletely involved.

In 2 the internal was completely and the external incompletely involved.

In 9 the external and internal were both incompletely involved.

In 3 the external was alone involved.

In 1 the internal was alone involved.

The external popliteal was thus involved in 21 and the internal in 19 cases. In some of the latter diagnosis was only possible after a most careful examination, and in most cases the associated foot-drop alone caused inconvenience; except in the painful neuritic forms, there was a marked tendency for improvement to occur in the incomplete lesions. Incomplete lesions of the external popliteal did not show the same tendency to recover, and with the slightest paresis diagnosis was always evident owing to the inability to maintain dorsiflexion.

Conclusions.

It may therefore be stated that for diagnosis of incomplete lesions of the internal popliteal nerve a most careful examination is necessary, especially if a lesion of the external popliteal be present. In addition, the muscles are naturally placed in the position of relaxation, and recovery follows in many cases without a diagnosis or any special treatment. Incomplete lesions of the external popliteal are always associated with foot-drop, and, as the affected muscles are overstretched, no improvement follows until a diagnosis has been made and appropriate treatment instituted.

I cannot but think that the majority of lesions of the internal popliteal are never diagnosed, while lesions of the external popliteal are scarcely ever missed. During the examination of certain cases which could not pass the necessary tests at a command dépôt thirty-six nerve lesions were discovered by me, in spite of the fact that all cases should have been fit for general service four months after admission; thirty-five were previously undiagnosed lesions of the median and ulnar nerves, while only one was a lesion of the musculospiral, and this had been operated upon. Lesions of the median and ulnar nerves do not usually give rise to a deformity of a degree comparable to that present in musculospiral lesions. It therefore seems that even in the arm nerve lesions are more likely to be missed by inexperienced observers if marked deformity be absent; this must apply all the more to the leg, where special function of the toes is not required.

At a meeting of the Société de Biologie on March 23rd Professor Richet read a paper on the mechanism of death by haemorrhage. He stated that in a dog bled to 4 per cent. of its weight, respiration was profoundly affected by the position of the head. If it were lowered the animal breathed regularly; when it was raised respiration became apnoeic. He concludes that death by haemorrhage is due to cerebral anaemia.

THE EPIDEMIOLOGY OF MENINGOCOCCAL MENINGITIS, OR CEREBRO-SPINAL FEVER.

By A. M. N. PRINGLE, M.B., C.M.,
M.O.H. IPSWICH.

THE prevalence of cerebro-spinal fever is essentially seasonal, as is well illustrated by the fact that in Ipswich, during the three years 1915-1917, 26 cases occurred in the March quarter, 33 in the June quarter, 2 in the September, and 2 in the December quarter. The maximum prevalence of the disease was in the month of March, closely followed by April. The next in order were the months of May, February, and June, but the degree of prevalence in these three months may be judged from the fact that the total number of cases for the three months was equal only to that of the month of March. After June the cases have been sporadic; the only month in which no cases have occurred has been July.

The position, therefore, is that the disease has never been entirely absent from Ipswich during the last three years, but has been most prevalent in February, March, April, May, and June, particularly in March and April. This seasonal prevalence has been characteristic of each of the three years.

Consideration of these facts would appear to establish a *prima facie* case for the association of the disease with some condition, or conditions, common to the whole year, but most in evidence in the winter and spring.

Without entering into details, we may assume that most would agree that an organism found in one part of the body, morphologically, culturally, and serologically identical with an organism inhabiting another part of the human host was one and the same organism. We are therefore justified in the assumption that a nasopharyngeal coccus and the meningococcus, which are morphologically, culturally, and serologically identical, are one and the same organism. The fact that the meningococcus in the cerebro-spinal system produces the phenomena of meningococcal meningitis, and that in the nasopharynx it produces no obvious symptoms, is quite consistent with this conclusion.

A large number of demonstrations go to prove that the nasopharynx of an individual suffering from meningococcal meningitis contains the meningococcus in the early stages of the disease. Failures to demonstrate the meningococcus in the nasopharynx of cases of meningococcal meningitis may be due to many causes, such as the extreme delicacy of the organism, faulty swabbing, possibly the exhibition of an anaesthetic before the swab is taken, the taking of swabs too late in the disease, and so on.

The practical epidemiological point is that there is sufficient evidence to justify the opinion that in every case of meningococcal meningitis the nasopharyngeal precedes the meningococcal infection. If this view be accepted, then the spread of the disease is due to the transference of the meningococcus from one nasopharynx to another.

We may now inquire what evidence exists indicating that the meningococcus is spread from person to person. In this relation I quote the figures of a recent report by the Local Government Board, which epitomizes the work done in this matter by the Board's bacteriologists. They found that amongst 1,881 persons from many different sources and places who had not been in contact with cases of cerebro-spinal fever, no less than 13.5 per cent. harboured in the nasopharynx an organism which was morphologically and culturally identical with the meningococcus, and in the opinion of the Board's bacteriologists was, in fact, the meningococcus. If this statement be correct, even if the proportion given is greatly overstated, it affords definite evidence of a widespread nasopharyngeal meningococcal infection. The number of persons infected in an infected area would, on this basis, in a town of the size of Ipswich, in any one year, be very large, each being capable of transmitting the infection to others.

A normal healthy nasopharynx will rid itself of the meningococcus without treatment, or in spite of it, on the average, in something under a fortnight. An unhealthy nasopharynx, with adenoids, etc., can retain the infection for a longer period. Some individuals retain the infection for prolonged periods and become true carriers. I have known one case out of a limited number which remained

infected for over six weeks. Such persons will serve to assist in maintaining the meningococcus in a locality and will help to bridge over the summer and autumn intervals. Naturally, those in this group will be relatively few, so that the numbers infected by them will be few in relation to the total population. Nevertheless, they will assist in maintaining the reservoir.

We are now in a position to go back to the seasonal nature of meningococcal meningitis. Nasopharyngeal infections of all sorts are spread from person to person in the acts of coughing and sneezing, the immediate atmosphere being impregnated with spray or droplets, containing members of the nasopharyngeal flora. Therefore, all nasopharyngeal infections will be most readily spread during the seasons of the year when coughs and colds and other nasopharyngeal and respiratory infections are most prevalent. The spread of infection will be assisted by the closer crowding of the population during these periods of the year and by the closing up of ventilation and the complete ignorance and indifference of the public as to the mode of spread of this group of catarrhal infections.

We should, therefore, expect that meningococcal meningitis, secondary to nasopharyngeal infection, would be most prevalent in February, March, April, and May, which is precisely what does occur, as evidenced by the sudden appearance of cases of the disease in these months.

In my opinion the rise in meningococcal meningitis coincides with an increase in the density of the nasopharyngeal infection, whilst the summer and autumn fall coincides with a corresponding drop. We thus get a vicious circle produced by (1) a rise in the usual winter coughs and colds, a proportion of the sufferers harbouring the meningococcus; (2) a number of people are infected by these, the number varying with the opportunities of infection; (3) these in turn cough on the infection, and thus with an increase of catarrhal infections a constantly increasing number of persons become infected with the nasopharyngeal infection; (4) when the finer weather comes on, coughs and colds diminish rapidly, and so does the meningococcal nasopharyngeal infection.

The question may now be asked, granting all this, Why are there not more cases of meningococcal meningitis? My answer to this is that the invasion of the meninges by the meningococcus is an accident dependent on conditions as yet undetermined. If this view is correct, it is merely a mathematical proposition that the greater the number of individuals involved, granting the possibility of the accident, the greater will be the number of accidents. I believe that the existing evidence tends to show that the height of the meningococcal epidemic corresponds to the greatest density of the nasopharyngeal epidemic and that the sporadic cases occurring during the other parts of the year merely indicate the existence of a reservoir of nasopharyngeal meningococcal infection.

If these views are correct, then the present mode of dealing with a few positive contacts of a few cases of meningococcal meningitis is futile.

In support of this view of the epidemiology of the disease is the quite marked independence of individual cases. True, on occasion, more than one member of the same family may be attacked. Thus I have seen three cases in one family and two in another. Nevertheless, the general fact is that the cases are single and independent and occur amongst individuals who have no connexion of any kind with one another. This, in my opinion, is strong evidence of a widespread generalized infection.

A FATAL CASE OF PARATYPHOID B SIMULATING TYPHUS FEVER.

BY

P. S. HICHENS, M.D., AND E. J. BOOME, M.B.,
F.R.C.P. D.P.H.,
TEMP. LIEUT.-COLONEL CAPTAIN R.A.M.C.(T.F.).
R.A.M.C.(T.F.).

THE following fatal case of paratyphoid fever due to the *Bacillus paratyphosus* B seems to be worth noting, not only from the extreme severity of the lesions found *post mortem*, but also from the clinical course of the disease.

On admission to this unit the patient presented a clinical appearance almost indistinguishable from an advanced stage of typhus fever. He was in a state of

low muttering delirium with carphology, coma-vigil, and retention of urine; there was a faint purple petechial and macular eruption on the chest and abdomen. Had we not had the advantage of skilled bacteriologists to examine the patient both before admission to this unit, and also while here, the condition would almost certainly have been diagnosed as an advanced stage of typhus fever. Owing to our situation at the front, it has been impossible for us to search the literature and ascertain whether many other such cases have been already recorded. As far as we have been able to learn the number of severely toxic cases of paratyphoid is very small.

The kidney lesions in this case were remarkable, and Hurst in his book, *Medical Diseases of the War*, seems to describe a somewhat analogous case suffering from paratyphoid A, in which death occurred from suppurative nephritis in the fifth week. Death occurred in this case in the third week from what might be called "a pyaemic condition," and in all the abscesses the *Bacillus paratyphosus B* was found.

Captain Lindsay of the 13th Mobile Laboratory discovered the bacillus before the case was admitted to this hospital, and we are grateful to Captain J. Cruickshank, Officer Commanding 18th Mobile Laboratory, for further bacteriological investigations and the help he gave at the necropsy. We are indebted also to Captain A. M. Davie, R.A.M.C.T., for notes on the patient at the onset of his disease in the line, and to Captain Gray, R.A.M.C., for some of the earlier clinical notes.

Condition of Patient in the Line.—The patient had had two doses of antityphoid vaccine in December, 1915, and two doses of the triple vaccine (T.A.B.) in June, 1917. He had served nine months in France, and had reported sick at odd times before with very minor ailments. On September 17th, 1917, when the battalion was in the line, he complained of pains in the stomach and diarrhoea of sudden onset. Next day he complained of pains in the head and legs, with shivering; temperature 101.2°; diarrhoea better. He was sent by the regimental M.O. to the field ambulance as P.U.O., and was detained there for the night. On September 19th he was evacuated to a clearing station, complaining of pains in the head and across the abdomen, with pain also in the muscles of the thigh and calf. On September 20th there was pain and tenderness in the epigastrio region, with cramps in the hands and legs, vomiting, rigors, and cough. On September 24th abdominal pain was complained of, the lower abdomen being tender, but not rigid. The patient complained of retention of urine, but passed a small quantity after suprapubic fomentation. From September 25th to 29th the condition was much the same; the urine passed in twenty-four hours varied between 4 and 12 oz. On September 29th *B. paratyphosus B* was found in the blood on culture. The spleen was palpable and the urine smoky. He was transferred to the infectious casualty clearing station.

Condition on Admission.—The patient was semi-comatose, with dusky and livid face. There was retention of urine and the bowels were confined. Epistaxis occurred. After a while there was low muttering delirium and carphology. The abdomen was slightly distended and tender, the spleen readily palpable; there were no typical rose spots, but on the chest a fine petechial eruption with subcuticular mottling in the axillae. Next day the patient was much worse, wildly delirious, and trying to get out of bed. Signs of consolidation were found in the left lung and at the base of the right lung. A simple enema was given with satisfactory result. Ten ounces of bloody urine were drawn off by catheter. The patient died at 5.45 a.m. on September 31st.

Post-mortem Examination.

On the abdomen and front of chest there were a few pale petechial spots.

Left Lung: Adherent all over (old adhesions). Large haemorrhagic infarction in lower lobe; area of infarction with pneumonia in upper lobe. *Right Lung:* Free from adhesions; lower lobe completely consolidated; early grey hepatization, with red hepatization of contiguous portions of other lobes. There was inflammatory exudate between the lobes.

Ileum congested along whole length, with acute inflammation of mesentery in this area; glands enlarged, congested, and haemorrhagic; Peyer's patches along last three feet of ileum swollen and congested; no ulceration. Large intestine contained fluid faeces; diffuse inflammatory changes along caecum and ascending colon.

Surface of left kidney studded with yellowish-white nodules and in places definite abscesses with fluid pus; on section kidney riddled with abscesses. Similar septic condition of right kidney.

The liver showed cloudy swelling; gall bladder markedly distended. Spleen enlarged and congested; haemorrhagic spots on section. The bladder showed well-marked purulent cystitis. Brain and medulla: Some excess of fluid, but no meningitis.

B. paratyphosus B was grown from urine, kidney abscesses, bladder, and spleen.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PREVENTION OF NERVE BULBS IN STUMPS.

PAINFUL bulbs on the ends of nerves following amputation are so frequent and troublesome as to cause a very protracted convalescence in a large number of cases. In an article in the *BRITISH MEDICAL JOURNAL* of August 25th, 1917, I described a method of dealing with nerves which experience has further shown to be valuable in preventing these neuromas.

Recently I had the advantage of seeing a median nerve which had been treated in this way four months previously together with an ulnar nerve which at the amputation had been severed in the ordinary way. The median end was the shape of a pointed pencil, and the ulnar nerve had a large and tender bulb.

It would appear that when a nerve is severed in amputation the axis cylinders grow out in search, as it were, of those of the other severed end. These nerve elements from the central end multiply, enlarge, and get involved in and surrounded by fibrous tissue, which on contracting squeezes and renders tender and painful the sensitive nervous tissue involved in the mass. A bulb may exist and not be painful or tender until this contraction takes place.

My experience tends to show that if the sheath of a nerve is cut and stripped back along its trunk with a piece of gauze between the finger and thumb for about half an inch in the form of a cuff, and then brought forward and tied after the denuded trunk has been severed, the sheath acts as a limiting resisting membrane, and this protrusion of axis cylinders is prevented.

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COINCIDENT INFECTIONS OF GONORRHOEA AND SYPHILIS.

FROM 5 to 10 per cent. of all cases of gonorrhoea subsequently develop syphilis. The infections are acquired simultaneously or within a short period. In an experience during the last twelve months of over 200 cases of double infections I have never seen complications or retardation of cure caused by either mercurial or arsenical preparations, as suggested by Captain Lumb (*BRITISH MEDICAL JOURNAL*, March 9th, p. 285). The cases were treated with injections of novarsenobillon, either intravenously or subcutaneously, and 1 grain of mercurial cream weekly. Smears for gonococci were taken on admission, and afterwards weekly smears, the first thing in the morning. If the smear was negative and the patient dry for seven days, a urine test was done after prostatic massage. If this test was negative the case was considered cured.

Patients in the syphilis wards gave negative smears sooner than those in the gonorrhoea wards, due, as I concluded, to their having to rest more, owing to their injections, and perhaps a greater incentive to get rid of a loathsome combination by inducing them to irrigate thoroughly. Venereal hospitals are a refuge for many slackers and shirkers. Among these 200 cases two of epididymitis occurred during treatment, and another about a month after the completion of antisyphilitic treatment following the passage of a bongie. No cases of prostatitis occurred. The treatment for gonorrhoea was irrigation of the bladder with potassium permanganate and prostatic massage occasionally. No drugs were given, and vaccines only in cases of rheumatism. The patients, except in rare instances, were cured of gonorrhoea before the course of antisyphilitic treatment was completed.

The urethral discharge is sometimes increased following an injection of neosalvarsan, especially in early secondary syphilis with wide generalization of the spirochaete—the class of case in which a rise of temperature and malaise follow a first injection. Any depressing cause will increase the urethral discharge temporarily. In early primary syphilis reactions seldom occur.

A small proportion of cases are either lamed by intramuscular injections of neosalvarsan, or have so much pain as to make the method unsuitable in private practice. The deep subcutaneous method causes less pain and

certainly much less stiffness. It is suitable for all but very thin men. The novarsenobillon is dissolved in a few drops of distilled water, croc-camph. added up to 2 c.cm., and injected immediately. The needle is inserted vertically to the skin over the upper and outer gluteal region to a depth of about three-quarters of an inch. I do not find stovaine solution any help. Only neosalvarsan or its equivalents, neokharsivan, novarsenobillon, or novarsenobenzol, can be used for subcutaneous injections.

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APPENDICITIS IN A FEMORAL HERNIA.

MRS. D., aged 43, had a lump in her right groin for ten years, and had had attacks of "inflammation" in it about twice a year, usually brought on by extra work. The attacks lasted about a week, during which the lump would become larger and painful, and she had pain in the lower part of the belly. The history as to vomiting and constipation was uncertain.

On January 16th, 1918, an attack commenced, and as she gradually became worse her doctor advised her admission to hospital (January 23rd, 1918). The lump was a femoral hernia, large, tense, and tender; her bowels had opened after medicine two days before, and there was no vomiting; pulse 100, temperature 99°.

The sac was found to be tense and full of clear fluid; at the bottom was what was thought to be either a Richter's hernia, or possibly the appendix. After the constriction had been nicked and enlarged four inches of appendix was easily pulled down, the terminal inch being doubled on itself; a cuff was turned up and the four inches of appendix crushed and removed. As the woman was fat and had chronic bronchitis, it was not considered advisable to prolong the operation by removing the rest of the appendix flush with the caecum.

The appendix in its terminal two inches and its mesentery were considerably enlarged and thickened; much of the thickening was not recent; it appeared as if it would have perforated at the bend referred to. Recovery was uneventful.

R. V. DE ACTON REDWOOD, M.R.C.S.

Rhymney Cottage Hospital.

REPLACEMENT AND RESTORATION OF FUNCTION OF THE UTERUS AFTER PROLONGED INVERSION.

ON September 30th, 1917, a Gilbertese married woman, aged about 25, was admitted to Betio Central Hospital, Tarawa, suffering from complete inversion of the uterus. The inversion took place at the birth of her youngest child, now aged 2½ years, and had been present ever since. There were no symptoms, there had never been any haemorrhage, and the only thing that the patient complained of was the presence of the tumour.

Reduction after cleansing was attempted in vain.

The part was washed daily with sanitas lotion, 1 in 100, and two weeks later I was able to reduce the inversion with very little pressure and replace the uterus. A ring pessary and a cotton-wool tampon were inserted. The tampon was removed daily, the patient was douched, and a fresh tampon introduced.

In about two weeks she had a little blood on the tampon one morning. Four weeks later menstruation occurred normally.

The case may be interesting to practitioners because of the apparent rapid restoration of function after such a long period of "rest."

J. G. McNAUGHTON, M.D., M.R.C.P. Edin.,
S.M.O. Gilbert and Ellice Islands.

Gilbert Islands, Western Pacific.

ERRANT RABBIT BONES.

ON two occasions I have seen at *post-mortem* examination rabbit rib bones on their way through the small intestine to the peritoneal cavity. In one case there were two of these bones passing through, and in the other only one. They had had nothing to do with the cause of death.

Lincoln.

W. A. CARLINE.

Reports of Societies.

SPIROCHAETOSIS ICTEROHAEMORRHAGICA.

AT a meeting of the Section of Medicine of the Royal Society of Medicine held on March 26th, Surg.-General H. D. ROLLESTON, R.N., being in the chair, Colonel Sir BERTRAND DAWSON, K.C.V.O., R.A.M.C., gave a lecture on *spirochaetosis icterohaemorrhagica*, exhibiting pictures on the epidiascope illustrating the cases and the pathological conditions. (See paper by Dawson, Hume, and Bedson, *BRITISH MEDICAL JOURNAL*, September 15th, 1917.) After discussing the etiology and symptoms Sir Bertrand Dawson showed notes of cases illustrating various types of the disease, and demonstrating how the brunt of the morbid process did not always fall on the same organs. He considered that the jaundice was caused either (1) by obstruction to the outlet of the common duct in the cases where there was inflammation and swelling of the duodenum and papilla of Vater and no changes within the liver except bile stasis, or (2) by interference with the drainage of bile within the liver, in cases where there was disorganization of the lobules with damage to the cells and intrahepatic ducts. Where there were no definite changes in the liver and no swelling of the duodenum, jaundice was absent. Repeated examinations had shown that jaundice was not due to over-production of bile. There had never been any evidence of blood destruction, and in two cases in which it was tested the blood fragility was normal. Comparing this disease with acute yellow atrophy, the speaker considered that what was styled in the *post-mortem* room "acute yellow atrophy" was the fullest anatomical expression of a destructive process, of which there were several grades, and which might be caused by several agencies, the *Spirochaeta icterohaemorrhagiae* amongst them. The *spirochaete* was found with difficulty in man, but was abundantly present in the guinea-pig, in the blood of the jaundiced animal, in the liver, and in the kidneys and suprarenals. *Spirochaetes* were excreted in the urine, faeces, and bile. In the diagnosis of *spirochaetosis icterohaemorrhagica* the presence of the typical *spirochaete* taken in conjunction with the clinical manifestations was strong evidence on which a positive conclusion was warranted.

In the course of the discussion Surgeon-General Sir DAVID BRUCE said that no *spirochaetes* had been found in cases of jaundice in South Africa. There was no proof that *spirochaetes* had been found in trench fever. None were present if precautions were taken in collecting the urine. He thought that there was not yet sufficient proof to warrant the assumption that the infection in *spirochaetosis icterohaemorrhagica* took place by the mouth. The same thing had been said of malaria before it was proved otherwise. Infection might occur through the skin.

Surgeon-General ROLLESTON said that probably many cases of "Weil's disease" were *spirochaetal* jaundice, whilst the splenic enlargement in others might be evidence of enteric jaundice.

HOSPITALS FOR ADVANCED PULMONARY TUBERCULOSIS.

AT a meeting of the Tuberculosis Society on March 25th, at the House of the Royal Society of Medicine, a discussion took place on the need for hospitals for advanced cases of pulmonary consumption.

Dr. HALLIDAY SUTHERLAND, the President, commenting on the recent rise of 12 per cent. in the death-rate from pulmonary tuberculosis in England and Wales, suggested that active measures against tuberculosis were likely to be followed by an immediate rise in the death-rate, because when the services of experts were generally available many deaths now wrongly attributed to bronchitis or to chronic pneumonia would then be ascribed to their real cause—tuberculosis. But there was no adequate provision throughout the country for the treatment of advanced cases. The Departmental Committee on Tuberculosis (1912) recommended as a minimum standard that the combined number of sanatorium and hospital beds should be one bed to every 2,500 of population. He estimated that of all new

cases of pulmonary tuberculosis coming to tuberculosis dispensaries 50 per cent. could be treated at dispensaries, at open-air schools, or at home; 30 per cent. required sanatorium treatment for an average period of six months, and of these latter one-third required a year's subsequent treatment at a farm colony; 20 per cent. would be in the advanced stages; of these, half were living in small overcrowded houses, where the chance of infecting others was very great and comforts were very few; and for these patients tuberculosis hospitals were required. Clinical experience suggested that for every two who died of pulmonary tuberculosis there were three patients needing sanatorium treatment. Applying that formula to Scotland, there were, on a moderate estimate, 7,936 patients in 1915 requiring sanatorium treatment. But actually there were only 2,365 beds available for all cases, while there were 2,645 advanced cases requiring hospital treatment. There was one bed for every 2,010 people, and in 1917 there was one bed for every 1,900 people. In England and Wales there were 41,676 deaths from pulmonary tuberculosis during 1915. In June, 1916, there were 11,893 beds in England, or one bed per 2,973 people. Including Wales, there were 12,523 beds. He estimated that in the two countries there were 62,514 cases requiring sanatorium treatment. But there were 20,838 advanced cases requiring hospital treatment. England needed 50,975 beds, or one bed per 693 of population—more than four times the number available in 1915. Of new beds, over 30,000 were needed in sanatoriums, over 10,000 in farm colonies, and over 9,000 in tuberculosis hospitals. Outside the Poor Law he did not know of more than 600 beds for advanced cases in England and Wales, hence sanatoriums for the most part were filled with advanced cases. The truth of the matter was not the recent unfortunate verdict of the Medical Society of London that sanatoriums had failed, but that sanatoriums so far had never had a chance. A tuberculosis hospital of 20 beds should be created in the vicinity of every tuberculosis dispensary. If that were done to-day, 7,420 beds would be available for advanced cases within easy access of their homes. In addition to hopeless cases these hospitals would admit some patients for observation and others for special treatment. When suitable treatment was offered the people would take advantage of it. Compulsion would be unnecessary, and, indeed, where it had been tried, as in New York, the result was a failure.

Mr. HERBERT WOOLCOMBE (Charity Organization Society) said that the whole subject was one of great urgency, and was about to be considered by the National Association for the Prevention of Consumption.

Dr. F. R. WALTERS (Surrey) thought the President had under-estimated the number of advanced cases, if they were agreed on their definition of an advanced case. Cases could be divided into ambulant and febrile, and many of the febrile cases required hospital treatment.

Sir ROBERT PHILIP said that care must be taken in the definition of an advanced case. There was a stage in the illness beyond which the case was hopeless, and for such patients these hospitals were primarily intended. If any other definition were accepted the ground which should be covered by other institutions would be encroached upon. As regards the failure or success of sanatorium treatment, that was a subject on which members of such a society should be able to express an opinion.

Dr. A. J. SHINNIE (Westminster) said that the Westminster guardians had a special hospital at Hendon, and there was no difficulty in inducing patients to go to it, although it was difficult to persuade them to go to an ordinary Poor Law infirmary.

Dr. J. A. RAEURN (Battersea) thought that the President had over-estimated the number of advanced cases for whom hospital treatment was required.

Dr. SUTHERLAND, in his reply, said that the estimates he had given were intended to serve as a basis for discussion.

The following motion was then passed unanimously:

That the Tuberculosis Society is of opinion that no adequate provision exists for the treatment of advanced cases of tuberculosis; that a tuberculosis hospital should be created in relation to every tuberculosis dispensary; that such hospitals should be under the medical control of the tuberculosis officers; and that the Society will welcome any effort on the part of the National Association to bring such hospitals into being.

Reviews.

EDINBURGH SURGERY BEFORE LISTER.

COMING so soon after Sir Rickman Godlee's life of Lord Lister, Mr. MILES's pleasantly written account of *The Edinburgh School of Surgery before Lister*¹ is most appropriately timed. Mr. Miles evidently enjoyed his task, and carries the reader easily from the first pages with the weird spelling of the Barber-Surgeons' petition in the sixteenth century to Lister's appreciation of his father-in-law and immediate predecessor, James Syme. The first deacon of the barber-surgeons was Gilbert Prymross, chirurgion to James VI and ancestor of Lord Rosebery, Hon. F.R.C.S. Eng. and Ed. This guild, while not advancing surgery directly, created opportunities for practical anatomy by obtaining from the town council in 1505 the grant of "ano condemnit man after he be deid, to make anatomie of," though there is no evidence of a regular course of instruction in this subject till the end of the seventeenth century. The surgeons and barbers parted company in 1722, the barbers lingering on till 1892. The period of the Monros began in 1720 with the appointment to the chair of anatomy at the early age of 22 of Alexander, whose just fame has obscured his father's claim to grateful memory for his efforts in stimulating the authorities to organize a complete system of medical education within the university and the institution of the Faculty of Medicine in 1725. The Royal Infirmary, opened in 1741, arose out of the amalgamation of the Physicians' Hospital (1729) with the Surgeons' Hospital (1736), and for years contained the only public bath in the city. During the first half of the eighteenth century the surgeons were not specialists, and during this period of the practitioner surgeons the only names that stand out are those of John Bennet and Alexander Wood. Sketches of them are given, interesting rather on account of their eccentric and convivial characters than for their professional and original eminence. The rise of the Edinburgh school of surgery is traced from its father, Benjamin Bell, who was an ancestor of Joseph Bell, the last of his race and the reputed prototype of Sherlock Holmes, and is followed by chapters on the systematic and clinical professorships which contain many attractive biographies. The lives of Lister and Syme, with the story of their friendship, rivalry, quarrel, and reconciliation, are especially interesting. In conclusion, though what is easy to read is rarely so easily written, we may express the hope that when the physicians of this great school are described, as they should be, in a companion volume in this series, the same success may be attained.

OPERATION AND AFTER.

MR. W. I. DE C. WHEELER's little handbook of *Operative Surgery*² has quickly reached its third edition; the best evidence that it meets a want. Probably, as Sir Alfred Keogh says in his foreword, a great number of young men called upon to take the responsibility of major operations without much experience, appreciate the possession of a small book that just fills a corner in the kitbag. As a matter of fact Mr. Wheeler has tried to hit two birds with one shot: to offer guidance to the senior student in his first course in operative surgery on the cadaver, and at the same time to provide an easy reference aid for the young surgeon at the front. Considered academically, it is to be feared that the author has but winged his birds; there is not enough "spread" in 364 pages. In these surgical centres near the front where the energetic junior staff fill in their spare time with operative surgery classes—and there are such—this is just the book to have.

A great merit of Mr. ALAN H. TODD's book on *Surgical After-Treatment*³ now in its second edition, is that it is cheap, and thus accessible to the house-surgeons, students,

¹ *The Edinburgh School of Surgery before Lister*. By Alexander Miles, Surgeon to the Royal Infirmary, Edinburgh. The Edinburgh Medical Series. London: A. and C. Black. 1918. (Pp. 220; 8 page illustrations. 5s.)

² *A Handbook of Operative Surgery*. By William Ireland de C. Wheeler, Lieut.-Colonel R.A.M.C. Third edition. London: Baillière, Tindall, and Cox. 1918. (Cr. 8vo, pp. 364; 226 figures. 10s 6d. net.)

³ *A Practical Handbook of Surgical After-Treatment*. By Alan H. Todd, M.S., F.R.C.S. London: Edward Arnold. 1917. (Cr. 8vo, pp. 236; 36 figures. 4s. 6d. net.)

and nurses for whom it is primarily intended. It is indexed, and the information it contains is therefore available at the moment it is wanted. Probably the author will modify some of the views he expresses when he is a little further away from a hospital, but with the exception of some dicta as to secondary haemorrhage on p. 54—which, to say the least, are obscure in their orthodoxy—the advice given is generally safe. If every patient who has an injection of salvarsan is to wear an anterior splint for twenty-four hours, the venereal clinics will not be popular. It is a useful little book.

BIOLOGICAL ASPECTS OF WARFARE.

FROM the biological aspect the combative instinct is a universal and normal attribute, and its evolution chiefly depends on three factors—the reproductive instinct, the search for animal food, and intertribal warfare. Cannibalism makes for ferocity, and man, the arch-slaughterer, according to Dr. CAMPBELL in his book on *The Biological Aspects of Warfare*,⁴ shares with the tiger the two opposed dispositions of combative destruction for his victims and tender altruism for his offspring. But cruelty, the basest of all vices, is not seen among the subhuman animals—even a cat playing with a mouse—who are unconscious of the sufferings of others; to speak of a cruel man as "brutal" is therefore unjust to the brutes. Dr. Campbell's argument is that when the arboreal life of the forest was given up, the conditions entailed by a hunting career brought about the evolution of the pre-human ape into man, and the resulting intertribal battles further stimulated his mental powers and led to the survival of the fittest. But here Dr. Campbell draws a contrast with modern wars, in which the losses on the two sides are approximately the same and the best physical types more or less equally eliminated, while the individual is benefited to some extent by education and discipline, though as a whole the influence is dysgenic by promoting inferior physical types. He follows Herbert Spencer in regarding the exercise of might as legitimate within certain checks or limits which increase with the growth of commercial life. But though it might have been anticipated that these restraints to might-sanction would by now have spread widely, the present war has witnessed the abandonment of moral restraint and reversion to the primal sanction of might by one group of belligerents. The influence of war for good, in stimulating a nation to enormous efforts of production, must be admitted; but it is much to be desired that a similar outburst of energy to wage war on the hygienic and economic evils in our midst in times of peace could also be evoked.

Struggles and powerful stimuli are essential for development, but how in the future, without recourse to war, the degenerating effects of luxury can be counteracted is a great social problem. As means to prevent war, attention is drawn to democratic government and all-round free trade; the latter may now seem the dream of a visionary, but dreams have come true. Dr. Campbell is a stimulating writer, and as his essays are never dull the two short papers on the factors determining man's evolution from the ape and on claustrophobia, bound up in this volume, may be recommended to the usual thoughtful reader.

TROPICAL LABORATORY WORK.

THE scope of the fourth edition of *Laboratory Studies in Tropical Medicine*⁵ by Drs. DANIELS and NEWHAM is explained in the preface. The authors have tried as far as possible to bring the book up to date, and to incorporate any new methods which have been proved to be sound and of general utility. They point out that the war has brought into contact with problems of tropical medicine many who had not previously given any attention to them; it is hoped that the book will help to tide some of those over their difficulties. The unfortunate thing about so many of these new workers is that they will not take the trouble to consult the literature, and in many instances rush into print with what appears to them to be something

entirely new, whereas it probably saw the light of day a good many years ago. It is sincerely to be hoped that any in this category will read the above book and inwardly digest it. A criticism which must be made is that the part of the book dealing with protozoa in the faeces is not full enough, more especially in view of the great attention lately given to this branch by so many workers. No mention is made, for example, of Wenyon and O'Connor's *E. nana*, nor of the cyst of the small species of *E. histolytica*, so difficult to tell from the cyst of the former. The occurrence of coccidia in human faeces might also have been dealt with in more detail. However, space must be considered, especially in these days, and the authors have probably hesitated to expand the work. The book is a very useful one, and will help these for whom it is intended in every way.

NOTES ON BOOKS.

DR. E. W. G. MASTERMAN, in his little book *The Deliverance of Jerusalem*,⁶ shows the intimate acquaintance with the city to be expected of one who has lived there on and off for twenty years, and a knowledge of the topography and archaeology of the holy land which becomes the Honorary General Secretary of the Palestine Exploration Fund in that country. His description of the plain of Philistia and its coastal cities, of the inland mountains, among which Jerusalem stands some 2,450 feet above the sea, and of the deep valley of the Jordan, renders the military operations easy of comprehension. As to the future of Palestine he writes cautiously. Syrian Moslems formed about three-fourths of the relatively small population before the war. The immediate needs are a settled and just government, an efficient sanitary service, and capital to restore agricultural prosperity and at the same time to check malaria, by which many districts are scourged. The book contains a map and a number of excellent illustrations.

The Belgian Hospital at La Panne is well known to all the world. There is perhaps no better method for those at home to get an idea of the work at a forward operating centre, of the opportunities for scientific investigation of war problems, or of the good use to which charitable funds may be put, than perusal of the first fasciculus of the *Publications by the Staff of the Ambulance de "L'Océan"* under the editorship of the director Dr. DEPAGE. The first 65 pages, by the editor, are devoted to a description of the hospital and all its internal arrangements; not the least interesting part being the account of the "Institut 'Marie Depage'" or group of buildings devoted to research. Dr. Debaisieux gives a good summary of the treatment of wounds, particularly by the Carrel method, and this is followed by an article on secondary suture of wounds. Cranio-cephalic injuries are dealt with by Dr. Janssen from the points of view both of morbid anatomy and clinical practice. Dr. Rubbrecht follows with a contribution on the treatment of fractures of the jaws; Dr. Dustin with one upon the neurological service. The remaining papers are the outcome of research work done in the laboratories, the results of which have already been incorporated in the daily practice of all the allied medical services.

The second edition of JELLIFFE and WHITE's *Diseases of the Nervous System*⁷ aims at providing for the advanced student and for the practitioner of medicine a textbook of neurology and psychiatry. It is divided into three parts: The first deals with the physico-chemical systems of the body—namely, the vegetative or visceral system and the "endocrinopathies" or disorders due to disturbances of the ductless glands. The second part is given to sensorimotor neurology, or disorders of the nervous system generally. Part three, some two hundred pages in length, deals with disorders of the psychical or symbolio systems—neuroses, psychoneuroses, and psychoses—ending up with an account of "characterological defect groups." This extremely up-to-date textbook is full of facts and figures and is well illustrated. It is not food for babes, and should appeal mainly to the expert in nervous disorders.

⁴ *The Deliverance of Jerusalem*. By E. W. G. Masterman, M.D., F.R.C.S. London: Hodder and Stoughton. 1918. (Demy 8vo, pp. 51, 1s. net.)

⁵ *Ambulance de "L'Océan" La Panne*. Fasc. I. Paris: Masson et Cie, London: H. K. Lewis and Co., Ltd. 1918. (Roy. 8vo, pp. 303, 14s. net. Two numbers annually; subscription 25s. net, post free.)

⁶ *Diseases of the Nervous System*. By Smith Ely Jelliffe, M.D., Ph.D., and William A. White, M.D. Second edition. Philadelphia and New York: Lea and Febiger. 1917. (Med. 8vo, pp. xix + 938; 424 figures, 11 plates.)

⁴ *The Biological Aspects of Warfare*. By Harry Campbell, M.D., F.R.C.P. Reprinted from the *Lancet*. London: Baillière, Tindall, and Cox. 1918. (Demy 8vo, pp. 44, 1s. net.)

⁵ *Laboratory Studies in Tropical Medicine*. By C. W. Daniels, M.B., F.R.C.P., and H. B. Newham, M.D., M.R.C.P. Fourth edition, thoroughly revised, with new and additional illustrations. London: John Bale, Sons, and Danielsson, Limited. 1918. (Demy 8vo, pp. xv + 560; 164 figures, 6 plates. 21s. net.)

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MEDICAL WAR LITERATURE.

Is it too much to say that France is winning again the place she has held and lost more than once as the spiritual and intellectual leader of the nations? Partly from love of peace, partly from an easy tolerance of ways she neither understood nor admired, she had submitted even more completely perhaps than this country to the miasm of German propaganda. German agents insinuated themselves into her trade and commerce, and were setting up a claim to lead her in literature and art. German intellectuals, as they have now admitted, aimed at bringing the thought and art of other nations into subjection, as their rulers aimed at a world hegemony which would enable them to compel all other peoples to accept their Kultur and their political control. The response of the French—some politicians apart—to the intense stimulus of war has excited the unfeigned admiration of those who believed in the spirit of the race and the astonishment of those who thought her decadent. We have drawn inspiration from her high spirit when, in 1914, she was, as it seemed, beaten almost to her knees before the Marne. We have sought to imitate her constancy during four weary winters, and to-day we can understand the courage with which she is facing the fresh turn of ill fortune she is sharing with us. The rebound of the French mind, when the weight of suspense was removed and the worst was known, has shown itself in many ways and not least in the remarkable achievements of some of her imaginative writers, not a few of whom have been discovered within the last three or four years. There have been some remarkable English and Canadian books, but no such efflorescence as in France. In the domain of science Germany has been seeking for a generation to impose herself as the arbiter of reputations and the source to which every one must go who desired to understand the progress of science. Without seeking to belittle the contributions Germany has made to science, it may yet fairly be said that she relied far more on establishing herself as a kind of court of appeal, and one of her chief instruments was the laborious collection and lavish publication of abstracts and the compilation of large and costly works of reference. Left to her own resources, as she has been more or less during the last four years, she has failed to maintain her claim to supremacy in science. Systematic search through German medical publications has yielded very little worthy of reproduction.

In clinical medicine and surgery France has undoubtedly taken a leading place, and on more than one occasion recently we have heard the reproach that Great Britain has been outdistanced by her in the production of medical writings relating to the war. The accusation thus bluntly stated is unpalatable, but it contains a certain element of truth. So far as it concerns the bulk and value of the work done in the scientific investigation of the problems newly raised or raised anew by the war, it is not to be accepted. The researches conducted, mainly under the inspiration of the Medical Research Committee, into the etiology and prevention of the typhoid

fevers, the dysenteries, and cerebro-spinal fever, are not only of present application, but are permanent acquisitions; so, too, is the work done with regard to disorders of the heart, and in orthopaedics. We may also point with well-founded satisfaction to the way in which the many hygienic problems arising in connexion with munition workers have been tackled under the direction of the committee appointed for this purpose. The contributions made by British surgeons to the prevention and treatment of wound infections can also bear comparison with anything done in France; but in the investigation of the nature and treatment of the psychoneuroses of war we have learnt nearly all that is new from France, and the lesson does not seem yet to be thoroughly understood.

The reproach against this country, that it has been backward in the production of medical literature bearing on the war, finds most of its justification in the failure of English publishers to issue books in which men having recent experience of war conditions summarize the best opinion for the use of medical officers in daily contact with the sick and wounded, and the new problems they present. Some excellent books of the kind have been published by British writers, but the total output has not been large. The Oxford Press made a good beginning, but its effort seems to have died away; the Cambridge Press has done little or nothing; and the London University Press has found no better means of meeting the demand for something like a war library than to issue translations of the set of original handbooks published by Masson in Paris (Collection Horizon). This is a well-deserved compliment, but judging by the very high standard of many of the clinical papers on military medicine and surgery published in the English medical periodicals, native writers competent to deal with almost the whole range of subjects could with a little encouragement from the army authorities and the display of a little more energy by publishers easily have been found.

Probably no one not actually concerned with the conduct of medical periodicals appreciates the difficulties under which they are being carried on. The shortage of paper is one of the chief; in the imposition of restrictions on the amount of paper that may be used there has been no attempt at discrimination. So far as we have been able to observe there has been no very noticeable diminution in the bulk of the principal German medical periodicals. A good many of the smaller French medical periodicals stopped publication when the war broke out and many of these have not reappeared, but those which have been continued show no appreciable diminution in size, and as witness to the vitality of French medical thought the reduction in numbers has perhaps been rather an advantage. Our rulers seem to have given no thought to the need for allowing the medical press to present British work in clinical and scientific medicine in a way adequately to show its excellence to observers and practitioners in our own and other countries.

NEURASTHENIC PENSIONERS.

BREAKDOWN of the nervous system, due to the effect on certain temperaments of the strain of active war conditions, may manifest itself in several different ways, and there seems some danger of confusion of ideas as to the proper method of treating such cases in their various forms and stages. No quite satisfactory general term has been found to apply to them. The speech of the Minister of Pensions at Worcester dealt with pensioners who were spoken of

as "neurasthenic," and the term may be used here, although it is not wholly satisfactory.

Professor Elliot Smith, in a valuable letter to the *Times* of March 22nd, stated that as the outcome of a series of informal conferences at the War Office it was unanimously agreed "that neurasthenic patients should not be mixed with other patients, but should be sent to large hospitals specially set apart for the expert treatment of nervous and mental ailments." Sir Alfred Keogh adopted the recommendations of this informal conference of specialists representing all parts of the country, and they are now being put into practice.

Professor Elliot Smith fortifies his own opinion by reference to the view expressed by Colonel Aldren Turner in his preface to the translation of Roussy and Lhermitte's *Psychoneuroses of War*. "There would appear," he said, "to be general agreement upon the value of the segregation of soldiers suffering from the psychoneuroses, and three years' experience has justified this principle. But it is essential that these patients when segregated should be under the care and treatment of medical officers skilled in the special methods of treatment, and that an 'atmosphere of cure' should pervade the special hospital. . . . The chief criticism raised," he added, "against segregation is that the patients imitate each other. . . . Such is not the general experience, and the authors [Roussy and Lhermitte] confirm what has been observed in this country, that evidence of direct 'contagion' of psychoneurotic symptoms from one group of patients to another is quite exceptional." The view expressed by Roussy and Lhermitte in their book is that the psychoneuroses of war, being disturbances based upon a psychical foundation, yield to rational persuasive psychotherapy, which is defined by Brissaud as consisting "of the employment of means destined to demonstrate to the patient his will power and to train what is left of it in the best possible manner." The war having increased the number of these cases and affected their form it is more than ever desirable to apply energetic and rapid treatment, so that the men may be restored to usefulness. In France such patients are treated in neurological or neuropsychiatric centres. The plan has given excellent results, and "rendered great service both to the patients themselves and to the community." Almost all these cases, they assert, are curable.

Segregation, Professor Elliot Smith points out, was deliberately adopted by our own War Office because such a policy as Mr. Hodge is now talking of adopting in the case of pensioners had failed. Widespread experience, Professor Elliot Smith states, has proved "that when patients suffering from the minor mental effects due to war conditions are mixed in general hospitals with other patients, the manifestations of their symptoms, their eccentricities of conduct and behaviour, make them objects of morbid curiosity to their more normal fellow-patients." The consciousness of this, he says, is a serious addition to their troubles and does an incredible amount of harm. In a special hospital, where wise and sympathetic physicians treat neurasthenic patients with skill and insight, there will always be a large proportion of the patients who are in various stages of recovery. Having recently been through the phases of the illness which the newer patients present, they understand their condition and can give them sympathetic help instead of offensive curiosity or misplaced joviality. From the moment of their entry into a special hospital new patients see with their own eyes and learn from their fellows that such troubles as they are suffering from are really curable. And this

"curative atmosphere" becomes one of the most valuable therapeutic agents in restoring these men to a normal condition of mind.

To this Sir Robert Armstrong-Jones, Drs. Caiger and Fox, and Sir George Savage have replied that, while segregation of soldiers suffering from shell shock or neurasthenia may be desirable, it is impracticable for pensioners, most of whom have already been for a long time in hospitals and are now free to choose for themselves. The segregation of pensioners in the later stages of convalescence is condemned. Such men, it is argued, should be treated in village centres, where they would mix with men suffering from all kinds of curable disablement (physical, nervous, and mental) during the convalescent period following discharge from the army. In such centres they would be in healthful and encouraging surroundings, working in congenial occupations, and, if possible, training in the open air. If we could get our terms properly defined it would probably turn out that there was no real conflict of opinion. The point at which the Ministry of Pensions seems to be going wrong is in making the assumption, which appears to underlie its methods, that because a man has been for a long time in hospitals and has been discharged from the army he is incapable of being benefited by the direct method of skilled treatment, which has been so brilliantly worked out in France, and applied with so much success in military neurological centres in this country, as was described by Major Hurst and Dr. Fearusides during a discussion at the Royal Society of Medicine recently reported in our columns (p. 345). We agree with Professor Elliot Smith that the Pensions Minister "might take a leaf out of the War Office's policy and see that the pensioners obtain the efficient and sympathetic treatment which is being provided by the special neurological hospitals of the Army Medical Service."

THE APPEAL TO MEDICAL MEN BY THE MINISTRY OF NATIONAL SERVICE.

LAST week, at the request of the Ministry of National Service, we published an appeal to medical men who had served with temporary commissions in the R.A.M.C., to volunteer to serve again. The response to the appeal has, we understand, not been unsatisfactory, and has been particularly good from Scotland. We have no information as to Ireland. The appeal is renewed this week, and it is hoped that among those who respond may be a considerable number of medical men with operating experience. We were unable last week to give any specific information as to the conditions of service volunteers were asked to accept. Those to whom telegraphic communications were sent have been informed, as have also the Local Medical War Committees, that the Ministry of National Service has undertaken that the case of any doctor now responding to the appeal, who may desire on personal grounds to return home, or whose presence at home becomes greatly needed to meet civil requirements, shall be reviewed by direction of the Ministry at the close of the present crisis, or in any case not later than six months from the date of joining, with a view to his being released, unless the Ministry, after considering the military and civil necessities at the time in consultation with the Statutory Professional Committee, decides that this is impossible from a military point of view. The hesitation in giving a more definite undertaking may be attributed partly to the uncertainties of the future, and partly to the intention of the War Cabinet to raise the age limit for military service. The Prime Minister, in a statement issued last Saturday, said that "in addition to the

action taken to meet the immediate needs of the moment, it will be necessary to bring into operation certain measures which have long been in contemplation. It is clear," he continued, "that, whatever may happen in this battle, the country must be prepared for further sacrifices to ensure final victory," and he added that the necessary plans had been carefully prepared and would be announced when Parliament meets. The reference is assumed to be to the intention to raise the age limit. Parliament meets on April 9th, and it is expected that on the following day the Minister of National Service will introduce a bill to raise the age limit to 50 and to deal drastically with existing exemptions. The bill will probably become law without much delay, and it is to be noted that the attitude of the Ministry of National Service towards medical men is likely to be materially modified so soon as the Government plans are made public. It would only be reasonable that the Ministry should in the future give special consideration to the desires of those medical men who now come forward to resume commissions previously relinquished. It will be remembered that as long ago as June, 1916, the War Office announced its readiness to give commissions in the R.A.M.C. to medical men between 45 and 55 willing to undertake whole-time general service in the United Kingdom. The offer was then made owing to the great demands upon the Army Medical Service. These demands had not notably diminished before the recent reverse on the Western front, and the losses in medical personnel which have been sustained and the large number of wounded who require treatment make the demand still more urgent to-day. As was then pointed out, every senior man who offers himself for whole-time general service in the United Kingdom will set free one younger medical officer now employed in this country to serve abroad.

THE MEDICAL SERVICES DURING THE RETREAT.

It is now certain, as was generally supposed, that a very considerable proportion of the prisoners claimed to have been taken by the enemy in the early part of the present offensive were wounded men who had to be left behind on the field of battle. Military considerations made it a matter of extreme difficulty to collect and evacuate casualties during rapid retirement over a wide area. The losses to the R.A.M.C., both in personnel and in stores, must have been heavy, though there is reason for believing that the staffs of the advanced casualty clearing stations which had to be evacuated were got back in safety. Some of these units were able to close up fairly early, but many did not evacuate until the last moment; indeed, until they were practically in the firing line. So far as possible, the sisters were sent back first, then the patients, and the personnel last of all. The difficulties of arranging for ambulance trains and other transport on a large scale during a period of congested traffic must have thrown a very heavy strain upon the administrative medical officers, for in such confused and changing circumstances the exact moment when evacuation should take place is obviously a decision of extreme responsibility. As might be expected, the difficulties in a number of clearing stations were increased by the presence of patients and personnel from more advanced medical units which had been evacuated by road somewhat earlier in the retirement. Nevertheless, we believe that not only these patients but those in attendance on them were all taken back to safety, and the various units are already in course of re-formation behind the present battle line. A great deal of hospital equipment and medical stores of every kind must inevitably have been lost, but this is easier to replace than trained personnel. All accounts agree as to the splendid behaviour of the sisters and nurses of the evacuated units, many of whom lost everything they possessed, and were for a time in great danger. As for the wounded men who have been streaming down to the bases and across the Channel, we

learn from competent observers that they have kept throughout in remarkably good spirits. Taking them as a whole, the cases seem to have been on the light side. A good many patients evacuated during the first few days were suffering from the effects of gas.

ACUTE POLIOMYELITIS AND STREPTOCOCCI.

THERE are two distinct views as to the significance of certain streptococci cultivated from the nervous tissues of cases of acute poliomyelitis. Rosenow, Mathers, and others regard them as causally related to the disease, and even related to Flexner and Noguchi's globoid bodies, while Bull, Kolmer, and others look on them as secondary invaders and devoid of any etiological significance. The question has important bearings on the prophylaxis and treatment of acute poliomyelitis. The treatment of the disease by the injection of serum from convalescents has been shown to be effective, but much more success in the production of antibodies against the poliomyelitis virus has been claimed for these streptococci, and the serum of a horse (Rosenow's antipoliomyelitic serum) immunized by these streptococci has been stated to possess neutralizing, protective, and therapeutic properties in human poliomyelitis. Amoss and Ebersson¹ of the Rockefeller Institute for Medical Research have experimentally investigated the power of Rosenow's serum to prevent poliomyelitis in monkeys subsequently injected with the virus of poliomyelitis, and have compared it with the known power of the injection of the blood serum of convalescents from the disease to produce this protection. They have not found any evidence that Rosenow's serum is effective therapeutically in monkeys, or that it possesses any antibodies of the same nature as those present in the blood of monkeys or human beings convalescent from the disease.

CULTIVATION OF TUBERCLE BACILLI FROM THE BLOOD.

IN spite of the large amount written on the presence of tubercle bacilli in the blood there is little information based on sound investigation, and the incidence of bacillaemia has been variously estimated. In 1909 Rosenberger excited considerable incredulity by finding bacilli in the blood of 100 per cent. of 49 cases, and later of 300 cases, by staining the centrifugalized sediment from citrated blood; and subsequently Kuraslidge found tubercle bacilli in the blood of apparently healthy people. These improbable results were later explained by the frequent presence of acid-fast bacilli in distilled water and by the production of artefacts resembling acid-fast bacilli in the staining of films when the antiformin method is employed. Fallacies have also arisen in connexion with the more reliable inoculation test of guinea-pigs, namely, confusion between tuberculous and non-tuberculous lesions. After allowing for probable errors, Miss Mildred C. Clough,² of the Johns Hopkins Hospital, estimates, on the basis of the inoculation test, that in generalized tuberculosis tubercle bacilli have been found in the blood in 66 per cent. of cases, and only in 7 per cent. of other forms of tuberculous infection. Suitable cultural methods would probably give positive results more promptly and more regularly than animal inoculations, and to this question of technique Miss Clough has paid much attention. Up to the present the only positive blood culture was that reported by Faber in a case of generalized tuberculosis. By means of blood cultures Miss Clough has now obtained positive results in five out of seven cases of generalized tuberculosis, and found blood cultures negative in nine cases of other forms of tuberculosis, guinea-pig inoculations in four of these cases being also negative. In the pleuritic fluid in one case, and in the cerebro-spinal fluid in seven, smears were

¹ H. L. Amoss and F. Ebersson, *Journ. Exper. Med.*, Baltimore, 1918, xlvii, 309-317.

² M. C. Clough, *Amer. Rev. Tuberculosis*, Baltimore, 1917, 1, 593-621.

negative, while cultures were positive. Cultures are therefore valuable in the diagnosis of generalized tuberculosis, in the study of bacillaemia in other forms of tuberculous, and in the examination of spinal, pleuritic, peritoneal, and arthritic fluids when smears do not show tubercle bacilli.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.

THE first word in the new section¹ of the *Oxford English Dictionary* had at one time a definite medical significance, an obsolete meaning of supple being "to soften or mollify a wound or swelling by applying an unguent, a fomentation, etc." A quotation (1579) from a work by Langham illustrates this former meaning: "Apply them to supple, mollifie, ripen, and dissolve all kindes of tumours, hot or cold." A more familiar term is *suppository*, from Lat. *supponere*; it has an illustrative quotation from Lanfranc's *Chirurgie*, of about the year 1400; and in 1583 it was used by Melbancke figuratively (!) in *Philotimus* in the words, "It is not my purginge pilles . . . but Cornelius his swete suppositorye, that must minister you physicke." A large group of medical terms begin with *supra-*, such as *supraclavicular*, *supraorbital*, *suprarenal*, *suprascapular*, and *supraspinatus*. Under *suppuration* there is a full selection of illustrations, the earliest being from Copland's *Galen* of the year 1541. Mr. Onions, who edits the present part of the *Dictionary*, deals most interestingly with the word "surgeon." It is used in three senses. The first is also the widest, for it includes one who practises the art of healing by manual operation (the strictly etymological significance), a practitioner who treats wounds, fractures, deformities, or disorders by surgical means; in early use often more widely, a medical man, a doctor; now specially, one who holds a licence or diploma from the Royal College of Surgeons or any other body legally qualifying him to practise in surgery. The second meaning is that of a medical officer in the army or the navy; and the third is the figurative—for example, "I am the Lorde thy surgione," from Coverdale's *Bible* (Exodus). Another word whose older medical meanings are interesting is "sweat"; at first it signified the life blood, and, later, by a curious series of changes came to be one of the secretions of the skin.

ARTERIO-SCLEROSIS.

ONE of the many pitfalls which beset the path of the vital statistician is illustrated by what has happened with regard to the attribution of a greatly increased number of deaths to arterio-sclerosis since the term was first used in the Registrar-General's tables in 1911. The deaths so returned grew continuously from 3,675 in 1911 to 8,012 in 1916. As Dr. Stevenson, in his review of the statistics of the year, observes, it is impossible to suppose that the disease can have in reality showed any corresponding increase of fatality during so short a period as six years. When the figures are analysed further the coincidence becomes more striking; if the deaths of 1911 be taken at 1,000, then those of the five succeeding years were respectively 1,388, 1,769, 2,010, 2,174, and 2,180. The chief growth, therefore, occurred in the period 1911-1914. The frequency with which the condition occurred as a cause of illness and death had by 1912 aroused so much professional interest that in that year the Local Government Board published the first of a series of reports upon the subject by Professor F. W. Andrewes, F.R.S. Another cause which it is thought may have contributed to the result was the issue by the Registrar-General in the same year of suggestions to medical practitioners in regard to certifications, in the course of which the inadequacy of "old age" as a form of

death certification in those cases in which the disease causing death could be stated was pointed out. The deaths attributed to old age declined considerably in subsequent years. In 1911 they constituted 346 per 1,000 total male deaths at ages over 75; in 1916 they constituted 267. It is thought probable that in many cases the change was brought about by mention of that disease of old age which at the time was attracting so much attention. The surmise is supported by the fact that the growth, from 1911 to 1916, in mortality attributed to arterio-sclerosis was greatest in old age, increasing with each quinquennium from 55 to 60 onwards. Of the deaths attributed to arterio-sclerosis only about 3 per cent. occurred under 50 years of age and 40 per cent. under 70. The restriction to old age applied a good deal more to females than to males, 67.6 per cent. of all the deaths of females occurring after 70 years of age, as against 55.5 of males. This was to be expected in view of the fact that the proportion of women living at these ages was very much greater than that of men. Further analysis of the statistics showed that excess of male mortality was greatest at from 55 to 70 years, and thereafter diminished progressively. It does not appear at present possible to carry the matter much further, for a very large number of deaths are still attributed to cerebral haemorrhage and apoplexy, and a certain number to cerebral atheroma. Dr. Stevenson points out that until 1901 nearly all deaths from lesions of the cerebral arteries were grouped together under the heading "apoplexy"; this heading was first subdivided into "cerebral haemorrhage, cerebral embolism," and "apoplexy, hemiplegia," 55 per cent. of the deaths being attributed to the latter heading; by 1916 the proportion had fallen to 25 per cent. In commenting on this, Dr. Stevenson observes that twenty years ago it was customary in such cases to certify the condition, apoplexy or paralysis, resulting from the cerebral haemorrhage; then the matter was traced one step further back to the vascular lesion; and now another change is in progress by which the cause of the cerebral haemorrhage is recorded and the death is therefore allocated to arterio-sclerosis. He thinks that a further stage of the same process may possibly even now be transferring some of these deaths to Bright's disease in so far as it is regarded as causing arterio-sclerosis, while a still further stage would transfer them to the toxin (lead, gout, etc.) underlying the renal or arterial disease. The growth in the number of deaths attributed to arterio-sclerosis implies a corresponding diminution in numbers listed to other causes, so that an artificial decline in mortality from certain causes dependent on arterial disease must result. The importance of ascertaining as far as possible to what causes these deaths would have been allocated in the absence of mention of arterio-sclerosis, and how the numbers so lost to various other headings compare with the numbers still allocated to them, is recognized, and investigation of the matter is in hand, but has been interrupted by the war. A preliminary examination of the certification of deaths in London males in 1914 tends to show that cerebral haemorrhage loses more deaths than any other one cause from the increasing popularity of arterio-sclerosis as a form of certificate.

SPECTACLES FOR SOLDIERS.

THE army authorities, we are informed, do not supply soldiers with spectacles whose lenses have a strength of less than one dioptré. It has been suggested that this is a mistake, and inflicts an unnecessary hardship upon the men. It seems to us that a distinction should be made between soldiers in the field and those engaged in office duties. The men in the Army Pay Offices and the Record Offices, for instance, often work for very long hours, and many of them suffer from eye-strain in an aggravated form. Ophthalmic surgeons who work near these offices

¹ *A New English Dictionary on Historical Principles*. Vol. ix, Si-Th; Section Supple-Sweep. By C. T. Onions, M.A. Lond. Honorary M.A. Oxon. Oxford: At the Clarendon Press. March, 1918. (Price 5s. net.)

must have been struck with the number of soldiers who consult them for this cause. In times of stress the hours of work are very long, twelve to fourteen hours being not uncommon. It is essential, in these circumstances, that any error of refraction or of muscle balance shall be accurately corrected, and we think that for these men the rule should be modified. In the case of soldiers on active service in the front area conditions are different. Many of them do not use their eyes for much close work, and men with gross errors of refraction are eliminated. It is important to keep the spectacles as simple as possible; they are frequently lost or broken, and the arrangements for replacing them must be easily worked. For these men small errors are not at all important, and even were glasses provided they would not be worn. The object is to give good average acuity, rather than to prevent eye-strain. Young healthy men living an outdoor life do not suffer from asthenopia, and so do not require glasses of low power. But even in this case it seems to us that a cylinder as low as half a dioptre might be allowed when combined with a sphere of one or more dioptres. As far as we can learn the arrangements made for the supply of spectacles to the troops have worked well, and a good substantial article has been provided.

DRIED MILK.

THE Local Government Board has issued an admirable report by Dr. F. J. H. Coutts on Dried Milks, with special reference to their use in Infant Feeding.¹ As a result of exhaustive inquiry Dr. Coutts is satisfied that dried milk is a valuable food, possessing certain special advantages which are likely to lead to its use being greatly extended in the future. In the first place, the labour and cost of transporting the water (which represents about seven-eighths of the total weight of fresh milk) are avoided. Dried milk is also easily handled and stored, while under suitable conditions it remains fit for food for reasonably long periods. It is convenient and economical in use, for the consumer can make up just what is needed for a particular occasion and no more. Dried milk is not germ-free, but the proportion of bacteria contained is extremely small as compared with ordinary milk, and bacteria do not tend to multiply on keeping. While dearer than an equivalent amount of fresh market milk, it is cheaper than milk specially prepared for infants. Dr. Coutts has obtained a great deal of evidence to support the view that when breast feeding is impossible dried milk of recent manufacture, made carefully under hygienic conditions from a good quality of cow's milk, is a very valuable food for infants. There are several processes for preparing milk powder, but two methods are most commonly employed: in the one liquid milk is sprayed over metal cylinders heated internally, in the other after partial condensation it is sprayed into heated air. The chief aim is to get milk in a solid state with as little change as possible in its constituents. When carefully prepared from good fresh milk the powder keeps for several weeks or months, if moisture is excluded, but it is generally conceded that the product of the hot roller process keeps better than the powder made by spraying milk into hot air. On mixing one part by weight of the dried powder with seven parts by weight of warm water a liquid is obtained corresponding in composition to ordinary milk, though with a slight "boiled" taste; there is a tendency for a little solid matter to settle and for fat to rise to the top. Dried milk made from full-cream milk contains 26.62 per cent. of fat, 24.46 per cent. of protein, 36.98 per cent. of milk sugar, 6.12 per cent. of mineral matter, and 4.32 per cent. of water. As put on sale in this country the powder usually comes under one of four classes: full cream, three-quarter

cream, half cream, and skimmed. For infant feeding the full cream variety should alone be used in ordinary cases, in dilutions suitable to different ages. When made up with the proper amount of water it contains the essential food elements in a proportion more suitable for the baby than diluted full-cream sweetened condensed milk which contains an excess of sugar. Thus it comes about that at official infant welfare clinics the use of dried milk is increasing, as on the whole the most suitable food for babies when they cannot get breast milk. Prolonged experience at infant welfare centres indicates no ground for fearing that dried milk leads to scurvy or rickets, but it is thought desirable to give a little orange or grape juice to the baby once or twice a week. There is evidence to show that dried milk is also a valuable food for nursing mothers. While the processes used in drying milk largely reduce the proportion of bacteria present, special precautions must be taken to avoid recontamination during powdering and packing of the dried product. Hence the most scrupulous cleanliness should be observed in the factories; when milk is dried at the farm special premises should be set apart for the purpose, and the milk should be dried as soon as possible after it is drawn from the cow.

THE MATERNITY AND CHILD WELFARE BILL.

THE Maternity and Child Welfare Bill, introduced by the President of the Local Government Board on March 14th, bears evident signs of being a compromise, and leaves some doubt whether it is not a compromise so weak as to be practically useless. As will have been gathered from the note published on March 23rd, p. 354, it proposes that a local authority may make such arrangements as may be sanctioned by the Local Government Board "for attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of 5 years and are not being educated in schools recognized by the Board of Education." The local authorities are to be the county councils and councils of any borough or urban district with a population of over 20,000 or any district council which may be judged to be in a better position to make arrangements than the other councils. The proviso that nothing in the Act "shall authorize the establishment by any local authority of a general domiciliary service by medical practitioners," is apparently designed to prevent the establishment of a second domiciliary service side by side with the panel service under the National Insurance Acts. Provision is made for the constitution and appointment of maternity and child welfare committees by such local authorities as exercise their powers under this Act or under the Notification of Births (Extension) Act, 1915. It will be noticed that the bill is purely permissive; it would be for each local authority to determine whether it should or should not make arrangements for attending to the health of the mothers and children. Judging from past history, it seems probable that if the bill were to become law in its present form the more progressive local authorities would take advantage of it, but that a very large proportion of local authorities would not, especially as they could find many excuses for doing nothing in the conditions produced by the war, which must continue for some time after its termination. On the other hand, there are a good many recent instances of permissive legislation which, after it has been put into force in a number of districts, has been made compulsory throughout the country, and the idea of the Local Government Board may be that the precedent should be followed in this case. However this may be, it is quite clear that the bill does not in any way satisfy the demand for the establishment of a Ministry of Health. It would be one of the first duties of such a Ministry to give attention to maternity and child welfare, and the ineffective nature of Mr. Hayes Fisher's bill is really an additional argument for the speedy establishment of a Health Ministry.

¹ New Series, No. 116. Food Reports No. 24. H.M. Stationery Office. 2s. net.

THE WAR.

LESIONS OF PERIPHERAL NERVES RESULTING FROM WAR INJURIES: PATHOLOGY AND TREATMENT.

THE following is the conclusion of the report of the meeting at Alder Hey Military Orthopaedic Hospital on December 8th, 1917, the earlier part of which was published last week, p. 379.

RE-EDUCATION AND FUNCTIONAL DISABILITIES OF ACTIVE SERVICE.

Dr. WILLIAM CUTHBERT MORTON, having outlined the methods adopted by him in investigating functional cases, went on to deal with their treatment. The patient was first assured that while his disability was very real, there was no reason why it should not yield to treatment. If any part of the disability was due to actual and permanent damage to the tissues, he was warned not to look for any improvement in this direction. If an organic lesion was causing no trouble except through suggestion, he was assured that this was not disabling him. Where there was no organic lesion, or one which caused no trouble whatever, he was told that through shock or otherwise he had lost control of his muscles, which required to be disciplined if he was to regain control. As far as possible he was trained to observe what muscles were at fault, and wherein the fault lay, so that when the treatment was being carried out he might realize what he was to try to do, and, above all, when he had succeeded in doing it. If there was inco-ordination he was taught, first, to relax all the muscles of the part, and then to execute the particular movement in the simplest and most natural way. When a muscle was in spasm it should be made to relax by removing all tension, or else by stretching it either by manipulation or by splinting. A flaccid muscle might be induced to contract by gentle tapping, but it was better to employ electricity, or what was called excitation. Electricity was employed in the form of the faradic current with two terminals, or in a bath. In the bath all the muscles of the part were simultaneously stimulated by the same current, so that the strongest group of muscles would prevail. Simultaneous faradism had been applied independently to each of the great nerve trunks of the part; by regulating the strength of current for each nerve it was possible either to balance the muscles against each other or to cause each group in turn to prevail over its antagonists. In this way the muscles worked under varying tension, and their sensory nerves conveyed to the spinal cord and higher centres impulses which tended to recall to the patient the sensations which accompanied the vigorous use of the limb before it was disabled. Excitation consisted of smart simultaneous active and passive movements. If a muscle were suddenly stretched it would contract in order to save itself from injury. It would be suddenly relaxed only by stretching its antagonists, and it would then contract reflexly in order to steady the joint. If these passive movements were made to coincide with active effort on the part of the patient each group of muscles would be trained to contract or relax at the moment when its antagonists were relaxing or contracting. Besides excitation, special exercises were often needed, for an almost trivial change in the re-education might make all the difference in the result; a slight readjustment of the muscular effort, for instance, might double the stride. Massage, gymnastic exercises and drill all had their place. Massage was of value chiefly where muscles had become atrophied through disuse, as in a flaccid limb, or worn out through overaction, as in long-continued clonus. In spastic cases electricity and massage were actually harmful. Hypnotism was never employed.

USE OF MEMBRANE IN NERVE SUTURE.

Major R. C. ELMSLIE pointed out certain difficulties in diagnosis, more especially in cases showing a functional element added to an organic lesion. He also alluded to the difficulty of knowing how to act in cases where the paralysis had followed immediately after an injury; he was inclined to think that such cases should be more frequently subjected to exploratory operations. With

regard to wrapping sutured nerves in membrane, he mentioned an instance in which the nerve was exposed some time after this procedure and found for a distance of three inches to be converted into a dense mass of fibrous tissue of cartilaginous hardness. In this mass of tissue were seen small pieces of Cargile membrane. His preference was for fascia containing fat. He criticized Captain McMurray's opinion that the tendo Achillis should be divided in all cases of lesion of the external popliteal nerve.

TESTING AND RECORDING OF FUNCTION.

Captain BURROW emphasized the importance of co-operation between surgeons and neurologists, and the desirability of having in all centres a uniform method of examining and keeping records of cases, and described the methods employed by him at Leeds for testing and recording sensory and motor functions. Electro-diagnosis was most useful in conjunction with careful neurological examination. When careless short cuts were taken and electro-diagnosis was asked to give a full diagnosis, errors must arise. Electro-diagnosis would tell the observer something of the state of the nerve and muscle that was under the electrode, but nothing as to the actual condition at the site of the nerve injury. A positive response to faradism was always useful; it definitely decided the reflex lesions and functional cases and gave information in partial organic lesions. Absence of faradic response meant very little, especially in muscle groups which had been neglected. He had seen faradic response return a few days after careful splinting of an overstretched group of muscles. Voluntary movement was also present in many muscles as a lesion recovered before faradic response was obtainable. A living muscle with varying chemical changes was liable to change polarity. In well nourished muscles with the limb warm he had often noted the KCC greater than the ACC even in complete division of the nerve of supply. The character of the contraction was much more important. The slow vermicular contraction or longitudinal contraction which passed like a wave from the neighbourhood of the testing electrode was usually found to be associated with complete lesions of nerve conductivity.

The diagnosis was often completed at operation, when the exposed nerve was tested for conductivity by the faradic current. He condemned the rough naked eye decisions made by some surgeons as to the conductivity of a nerve, for clinical and microscopical evidence proved them to be wrong again and again. There might sometimes be more loss of function after operation than before it, but the loss incurred temporarily was often unimportant when perfect adaptation of the cut ends was obtained. The eventual recovery of function was often much more rapid after total division and suture than after operations for the freeing of the nerve.

OPERATIVE TREATMENT OF EXTRAMURAL AND INTRAMURAL DAMAGE.

Major S. ALWYN SMITH said that he used a sleeve from the tensor fasciae femoris as a covering in all cases where scar tissue which could not be fully removed surrounded a nerve, and also in all cases in which linear capsulotomy was performed for interstitial fibrosis. No undue formation of fibrous tissue resulted. Dissection of a case operated upon five months previously showed that the sleeve had not changed its character, and that it was easily separated from the subjacent capsule of the nerve.

He asked for opinions as to the operative procedure to be adopted in the following circumstances:

1. *Extramural Damage.*—Cases of long-continued damage due to aneurysms which had produced traction and pressure on a nerve, or to scar tissue producing constriction, where the nerve capsule was intact, but where the damaged portion of nerve was found like string or tape and did not conduct mild faradic current. He had encountered three such instances. Was it advisable to sacrifice the damaged portion, followed by end-to-end suture; or, as had been his custom, was it sufficient to perform linear capsulotomy with or without a fascial sleeve? So far he had not obtained good results in the few cases of this description that he had encountered.

2. *Intramural Damage.*—Partial lesions showing well-marked interstitial fibrosis, more or less diffuse, might

slightly conduct faradism applied directly at operation, and were often the origin of causalgia. Was it justifiable to remove the damaged portion and perform end-to-end suture, or had the results of removal of the fibrous nodules and capsulotomy been satisfactory? He had had several cases of this nature in which he had been inclined to take the heroic course, despite the fact that one or two muscles whose nerve supply was derived distal to the damage were still acting.

ELECTRICAL EXAMINATION.

Captain STANLEY BARNES said that it was important to study the distribution of the muscular atrophy. In nerve section the muscles supplied, if examined a month or more after the damage, were much smaller than those innervated by untouched nerves, although the unaffected muscles might lie adjacent to the atrophied ones and might subserve somewhat similar functions. This was never the case in atrophy due to joint lesions, when all the muscles that could cause movement at that joint showed a fairly level degree of atrophy. A muscle a few weeks after severance from its motor nerves was atrophied and of pale yellow colour. The microscope showed loss of striation, a relative and possibly actual increase in the number of nuclei, and considerable loss of sarcolemma with no loss of supporting structures. This uninervated muscle, owing to its severance from the nervous system, would cease to contract to any volitional stimulus, and if no treatment were applied, would tend slowly to lose its capacity once more to become normal muscle. If any neighbouring healthy muscles when in action moved the lymph flow in this latent muscle, then the process of atrophy was slow, and it might be that suture of its nerves years after section would result in recovery. But in most situations after the lapse of a few years in which no treatment had been maintained, a nerve suture, though surgically successful, would fail to restore function in the atrophied muscle. The reaction of degenerated muscle to electricity was peculiar; to faradism it ceased altogether in a very few days after the axis cylinders had been divided. The galvanic excitability during the early days of the process of degeneration was often increased, but within a fortnight (when faradic excitability was usually lost) the curve of excitability dropped to normal, and from this stage onwards fell gradually, until the final stage of atrophy was reached in which no reaction to galvanism occurred. There was no motor point to a degenerated muscle, for it had no nerve supply. The galvanic electrode was best applied on the bare dissected muscle itself, and this was, in theory, the only way to find out whether the tertiary degeneration—atrophy—was so complete that nerve suture was bound to fail. In practice this was not done, as it involved a further wounding, and it was known from experience that, certainly up to two years after injury, it was worth while to attempt suture.

Any successful stimulus to a degenerated muscle fibre always resulted in an unusual type of contraction; instead of the normal sharp flick, so quick as to appear instantaneous to the eye, which occurred either at the make or break of a continuous current in a normal muscle fibre, there was a slow wavy contraction which took an appreciable part of a second to reach its maximum and an equal time to die down. The same type of contraction could be obtained by mechanical irritation of a superficial muscle like the deltoid when it was lightly but sharply tapped by a percussion hammer. In testing for electrical excitability by faradism or galvanism it was easier to observe accurately which muscle or tendon moved if the muscles were rendered flaccid by light fixation of the limb.

A muscle which had undergone Wallerian degeneration gave no reaction to faradism, showed an altered degree of excitability to galvanism, and gave a slow wave of contraction to galvanism, with a polar reaction of ACC greater than KCC. The combination of these four factors constituted the full reaction of degeneration, but three only were of value. Reaction to faradism meant that some nerve fibres at least were uncut. A negative result was unsatisfactory and galvanic testing was very desirable; a positive slow wavy contraction to galvanism was more reliable than failure of the faradic reaction. The polar reaction was not quite so important. If KCC = ACC it was probable that some healthy muscle fibres were contracting with some degenerated ones; in any case great care had

to be exercised to determine clearly that the reaction referred to the muscle under test only. When the reaction of degeneration was present with a positive wavy contraction to galvanism, physiological nerve section might safely be assumed. A functional or hysterical paralysis gave normal muscle reactions; muscles damaged by local disease or injury or by ischaemic contracture usually gave a feeble reaction to faradism; to galvanism the reaction was quick with KCC > ACC. Whenever a muscle had given this reaction after possible damage to its nerve, all other factors having been eliminated, it had been assumed that the corresponding nerve fibres had been cut.

In examination for alterations in sensation he used pin-prick tests almost entirely. The tendency had been to rely more upon muscle testing than upon sensory changes in advising treatment; only very rarely had any discrepancy in diagnosis arisen. Usually where damage to a mixed nerve was severe but incomplete, the motor damage predominated.

In all cases of complete physiological block of the nerve he had advised operation if reasonably practical. When, however, the lesion was incomplete, as for instance when some sensory fibres were intact, he had waited for a time. On the whole, he had come to the conclusion that he would have done better to advise operation more freely. When some of the muscle supplied gave reaction to faradism, he now advised exploration, unless signs of further restoration of function occurred within a month, as recovery was more rapid after clearing away scar tissue.

Prognosis.

Cases of motor or mixed, and sensory nerves which had been completely divided and subsequently sutured were alone discussed, and it was assumed that the surgical reunion was successful and that the after-treatment was sufficient. Many cases had been recorded in which, after complete section and reunion of the nerve, voluntary power in its muscle supply had returned within a few days or weeks; many more had been recorded in which sensory restoration was claimed within a few days. His own experience, extending to about forty cases of complete section by gunshot wounds and reunion by surgical means, was that no such return of physiological function could be expected for at least six months after suture; that usually nine months elapsed before the first signs of motor recovery occurred; and that full recovery of motor power was to be expected only after some eighteen months or two years. He had seen no evidence of any return of sensory function at an earlier stage than five and a half months, and no case of complete return of sensory function, although he had examined a few cases as late as twenty months after operation.

The point was important because, after suture of a musculo-spiral nerve, the surgeon might assume that the union had failed because no return of function had occurred three months later, and operate again. The records of cases of immediate and rapid recovery (say within six months after suture) were due to errors of observation attributable to mistakes in recognition of tissues at the time of operation, and to reliance on the report of unskilled observers at the time when "recovery" was reported. It was not difficult, when operating in a mass of scar tissue in an axilla, to mistake the internal cutaneous nerve for the median; careful examination was required to determine whether there was any real recovery of motor power in the median motor supply, and the testing of cutaneous sensibility needed considerable skill and consummate patience. Another source of error was incomplete diagnosis before operation—the mistaking of a functional for an organic paralysis.

Discrepancies of observed results as regards return of sensation, and possibly of muscle power, might be explained on the ground that all uninervated living tissue appeared to exert an attraction for neighbouring nerve fibrils. Even without sensory nerve suture, an anaesthetic area due to nerve injury tended constantly to diminish in size, particularly as regards protopathic sensation. Therefore it was not to be assumed that shrinkage in anaesthetic areas after nerve suture was due solely to return of function of the nerve; the impulses might be passing by another route.

If the men disabled by nerve section required a minimum of twelve months' after-treatment, special arrangements

must be made both as regards their army service and their treatment.

Captain PLATT said that in an experience of 106 operations, the great majority of which had been for end-to-end suture or simple neurolysis, he had been specially interested in two types of lesion: (a) those in which there was a localized intraneural scar of great density occupying a definite area in the cross section of the nerve trunk associated with paralysis of one muscle group, and (b) those in which with complete division of a nerve and extensive loss of substance, end-to-end approximation could not be obtained in spite of acute flexion of joints. Working with a fine probe electrode and the Bristow coil, he had been able to confirm at operations the topography established for the median and ulnar nerves in the upper arm. In this type of lesion a simple neurolysis would not influence regeneration in the blocked segment. Careful exsection of the intraneural scar was a legitimate operation, and in his own experience had been followed by good results.

In fourteen cases in which the gap was large he had used nerve grafts. At the present conduction had been definitely established across the gap in three cases only. In a case of median injury in the upper arm, five months after the insertion of a graft two inches in length power had returned in the flexor longus pollicis and there was a diminution in the area of anaesthesia.

Insulation of a nerve after operation rested on a sound physiological basis. He always used fascia; where a graft was used a fascial tunnel was essential. The use of sterile vaseline or olive oil as a preventive of perineural adhesions seemed logical, but he had not been impressed by cases in which these substances were employed.

Radium Emanation.

Captain WALTER STEVENSON spoke of the beneficial effects which he had found to result from the exposure of scar tissue to radium emanations in freeing structures matted together by scar tissue, and in relieving the pain and trophic changes following nerve involvement. The anaesthetic effect of radium on scar tissue was definite and immediate, and persisted for a week or more. This was useful in mobilizing the fixed and painful joints, especially of the hands.

RESULTS OF NERVE SUTURE.

Captain S. W. DAW, after mentioning the indications for and against operation in nerve injuries, gave some details of the method he employed for the union of divided nerves. He preferred a continuous suture of fine catgut; when it was impossible to remove all surrounding scar tissue he wrapped round the suture line with Cargile membrane dipped in hot vaseline. Operations for freeing nerves were often disappointing. He gave details of 35 cases, (great sciatic 5, external popliteal 2, musculo-spiral 5, median 4, ulnar 19). The disproportionate number of ulnar cases, due to the records being more easily got, might have minimized the favourable aspect of the results. The average time between wound and suture was under seven months, and the average time between suture and last examination was also under seven months.

The two external popliteal sutures showed signs of regeneration in improved sensation and electrical response within 2 and 3 months respectively.

Of the five great sciatic cases two showed voluntary movements of flexion and extension of the ankle 17 and 18 months after suture. Two showed improvement in sensation and electrical reaction 4 and 5 months after suture. One showed no improvement 7 months after suture.

Of the five musculo-spiral cases four showed complete recovery 7, 8, 10, and 11 months after suture, three of these having gone back to duty.

The four median cases were all high—that is, at or above the elbow. Two cases showed voluntary action of all muscles 4 months and 13 months after suture. In neither case had sense of light touch returned. The other two showed electrical improvement in 3 and 6 months.

Of the nineteen ulnar cases, four showed good voluntary action, including practically all the hand muscles, 4, 4, 7, and 13 months after operation. Three of these were at or above the elbow, one low in the forearm. Seven showed signs of recovery, such as loss of R.D., return of protopathic sensation, or voluntary movements of individual muscles, 3, 3, 4, 6, 7, 7, and 9 months after suture. These were chiefly low sutures. They included three cases of the interesting but quite unsound procedure of ulnar median anastomosis. In these there was protopathic return over much of the ulnar distribution in the hand, in

one case referred to the tip of the index finger. Time will show how far recovery proceeds, but some permanent loss of function of the borrowed median nerve is feared. The remaining eight ulnar cases showed no signs of recovery. Their average time since operation was under 7 months.

Review of the Results.

	Cases.	
Good recovery of voluntary action	12	roughly 34%
Signs of recovery	14	40%
No results as yet	9	26%

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUT.-COLONEL J. ROBERTSON, R.A.M.C.(T.F.).

Lieut.-Colonel James Robertson, R.A.M.C.(T.F.), was killed in action on March 21st, aged 39. He was the son of the late Mr. John Robertson of Aberdeen, and was educated at Aberdeen University, where he graduated M.B. and Ch.B., in 1904, M.D. in 1908, and Ch.M., with honours, in 1909; also studying in Dublin, Hamburg, and Berlin. After acting as house-surgeon at the Aberdeen Royal Infirmary and as clinical assistant at the Samaritan Free Hospital and at St. Mark's Hospital, London, he made a voyage to South America, and in 1906 took an appointment as medical officer to a tea garden in the Duars, Northern Bengal. Returning home after about a year, he went into practice in Aberdeen, where he was parochial medical officer and senior assistant anaesthetist to the Royal Infirmary. In his student days he was an enthusiastic volunteer, and on his return home joined the 1st Highland (Aberdeen) Field Ambulance, in which he attained the rank of captain on October 14th, 1911, and of major on November 29th, 1914. During the war he had risen to the command with the rank of lieutenant-colonel, and had been mentioned in dispatches.

CAPTAIN B. G. BEVERIDGE, M.C., R.A.M.C.(T.F.).

Captain Bernard Gordon Beveridge, M.C., R.A.M.C.(T.F.), was killed in action on March 21st. He was the only son of Dr. Beveridge, and was educated at Gordon's College, Aberdeen, and at the university in that city, where he graduated M.B. and Ch.B. in 1912. He joined the 1st Highland (Aberdeen) Field Ambulance as lieutenant on November 21st, 1914, and was promoted to captain after a year's service. He had been in France almost ever since he joined. He received the Military Cross on November 19th, 1917.

CAPTAIN H. DUNKERLEY, R.A.M.C.

Captain Harold Dunkerley, R.A.M.C., was killed in action on March 23rd, aged 28. He was the younger son of Mr. Herbert Dunkerley of Bombay, and was educated at Downing College, Cambridge, where he graduated B.A. in 1912, and subsequently M.A., and at the London Hospital, taking the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1914. After acting as surgical clinical assistant at the London Hospital, he took a temporary commission as lieutenant in the R.A.M.C. on December 1st, 1914, and was promoted to captain after a year's service. He went to the front in 1915, and served for nine months with the Rifle Brigade, till he was wounded and invalided home. Three months later he returned to France, and served successively with a stationary hospital, with the North Somerset Yeomanry, and with a field ambulance.

CAPTAIN E. NEWTON, R.A.M.C.

Captain Eric Newton, R.A.M.C., reported missing in East Africa on August 5th, 1917, is now presumed killed on that date, aged 28. He was the son of Captain I. Newton, medical officer of Bhatinda, and was educated at Aberdeen University, where he graduated M.B. and Ch.B. in 1915, taking a temporary commission in the R.A.M.C. soon after. He was a Scottish international hockey player.

Died of Wounds.

CAPTAIN H. T. LUKYN-WILLIAMS, R.A.M.C.

Captain Herbert Temple Lukyn-Williams, R.A.M.C., died of wounds on March 27th, aged 32. He was the second son of Canon Lukyn-Williams, of Guilden Morden.

and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1911. He took a temporary commission as lieutenant in the R.A.M.C. on February 1st, 1915, and was promoted to captain on completion of a year's service. He was attached to the Sherwood Foresters when he was fatally wounded.

CAPTAIN J. C. METCALFE, M.O., R.A.M.C.(T.F.).

Captain John Clifford Metcalfe, M.O., R.A.M.C.(T.F.), was reported to have died of wounds, in the casualty list published on March 27th. He was educated at Leeds University, and after graduating M.B. and Ch.B. with first class honours in 1912, went into practice at Liversedge, Yorkshire. He joined the 1st West Riding (Leeds) Field Ambulance as lieutenant on October 13th, 1914, and received the Military Cross on June 3rd, 1917.

Wounded.

Major M. A. Power, M.C., R.A.M.C. (temporary).

Captain H. T. Chatfield, R.A.M.C. (temporary).

Captain A. S. Hendrie, R.A.M.C. (temporary).

Captain F. P. Fisher, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Cameron, John Hunter, Second Lieutenant, eldest son of the late Dr. John Cameron, of Lochgilphead, Argyllshire, died at Fatehgarh, on March 4th, of pneumonia following malarial fever, contracted during two years' active service in East Africa, aged 29. He was educated at Cheltenham College and at Edinburgh University, where he graduated B.Sc., subsequently going to India as a civil engineer. A brother, in the Royal Flying Corps, was killed in August, 1917.

Davenport, Arthur Allan Orme, M.O., Lieutenant East Lancashire Regiment, elder son of Dr. Arthur F. Davenport, of St. Kilda, Melbourne, died of wounds on March 24th, aged 24. He was educated at Geelong School, where he was head of the school, stroke of the eight, and captain of football. He got his commission in 1915, served in Gallipoli, being present at the evacuation, and then in Egypt, till January, 1917, when he was sent to another front. He was wounded on April 24th, 1917, and on the same occasion received the Military Cross. He returned to the front on January 26th, 1918.

Drummond, Kearsley, Captain Northumberland Fusiliers, fifth son of Dr. David Drummond of Newcastle-on-Tyne, died of wounds March 24th. He got his first commission on September 12th, 1914.

Macklin, J. J. M., Lieutenant King's Own (R.L.) Regiment, attached to the 12th Lancashire Fusiliers, youngest son of Dr. T. T. Macklin, J.P., of Lancaster, killed in action at Salonica on March 12th, aged 23. He was educated at Plymouth College and the Blackburn Royal Grammar School and subsequently at the Ontario Agricultural College, Guelph, Canada, where he took the diploma in agriculture. He was a member of the O.T.C. there, and was one of six students brought over by the War Office and granted commissions in British regiments in 1915. His health was so much impaired by an acute attack of appendicitis and operation in 1916 that he was gazetted out, but immediately rejoined for home service and six months later was passed fit for overseas and was sent to Salonica. Two of his brothers are serving at the front, one in the R.A.M.C. and one in the Royal Artillery.

Matthews, David J. W., Private Canadian Forces, son of the late Dr. Matthews, of Belmont, Canada, killed February 17th.

Schäfer, John Sharpey, acting Commander R.N., elder and only surviving son of Professor Sir Edward Schäfer, F.R.S., of Edinburgh University, killed at sea March 22nd, aged 36. He joined the navy in 1895, and was for some time naval assistant in the Hydrographic Department at the Admiralty, but had retired previous to the war. His brother, Lieutenant T. S. Schäfer, Northumberland Fusiliers, was killed on September 26th, 1915.

MEDICAL STUDENTS.

Brereton-Barry, W. R., Second Lieutenant, reported wounded and missing on August 16th, 1917, now officially presumed killed, was the second son of Judge Brereton-Barry. He obtained his commission in the Royal Dublin Fusiliers in February, 1916, at the age of 18; served through the rebellion in Dublin, and went to the front in March, 1917. He was a second-year medical student at Trinity College, Dublin. On August 16th he was severely wounded in the arm, but refused to go to the dressing station, and insisted on going forward with his men. He led an advance into the enemy lines, in the course of which his right leg was shattered by a shell. Next morning he sent a note by a runner to his battalion saying he was in a shell-hole within the German lines. Search parties were sent out that night, but failed to find him.

Simon, Frank, killed in France early in January last, was a fourth-year medical student in the School of Physic, Trinity College, Dublin. Immediately upon the outbreak of war he volunteered for active service and received a commission in the Royal Dublin Fusiliers in September, 1914. Since then, until the time of his death, he had been on active service with the B.E.F. in France.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

Two Supplements to the *London Gazette*, issued on March 26th, contain further lists of awards for gallantry and distinguished service in the field. The following medical officers are among the recipients of the awards indicated:

To be *Brevet Lieut.-Colonel*.—Majora (temporary Lieut.-Colonels) R. M. Barrow and M. Mackelvie, I.M.S.

Distinguished Service Order.—Captain J. Scott, I.M.S.

Military Cross.—Captains A. O. Ainsley, R.A.M.C., W. E. H. Bull, R.A.M.C., C. A. Godson, I.M.S., W. Ooldie, R.A.M.C., J. D. Kidd, R.A.M.C., P. J. Moir, R.A.M.C., C. N. Davies, I.M.S., B. M. Take, R.A.M.C.(S.R.), R. G. Walker, R.A.M.C.; temporary Captains W. K. Bigger, R.A.M.C., N. M. Cummins, R.A.M.C., B. Knowles, R.A.M.C., R. Stansfield, R.A.M.C.; Lieutenant C. W. W. Baxter, I.M.S.; temporary Lieutenant V. K. Apte, I.M.S.

The name of Major (temporary Lieut.-Colonel) Charles Algernon Stidston was incorrectly printed in the notification of the conferment of the D.S.O. published in the Supplement to the *London Gazette* of February 4th, 1918 (BRITISH MEDICAL JOURNAL, February 9th, p. 187).

NOTES.

THE MEDICAL SERVICES OF THE BRITISH ARMIES IN FRANCE.

THE KING, who during his two days' visit to the armies in France travelled some three hundred miles and visited many centres, seems to have spent much of his time with the 3rd Army, which holds the line in the neighbourhood of Arras. In the letter he wrote to Field-Marshal Haig on his return to London he spoke of the indomitable courage and unflinching tenacity with which the troops have withstood the supreme efforts of the greater part of the enemy's fighting power. He visited many hospitals and casualty clearing stations, and conveyed his impression of them in the following sentence:

"In a large casualty clearing station I realized what can be accomplished by good organization in promptly dealing with every variety of casualty of greater or less severity, and passing on by trains to the base hospitals those fit to travel. The patient cheerfulness of the wounded was only equalled by the care and gentleness of those ministering to their wants."

MALARIA.

The following Army Council Instruction, which is of general application—that is to say, it includes men belonging to Overseas Contingents—was issued on March 29th:

Officers and men who have been returned home on account of malaria will not in future be available for posting to a theatre of war where malaria is prevalent, namely, Salonica, Egypt, Mesopotamia, or East Africa. They will, however, be available for other theatres of war when otherwise fit. The documents of all such men will be clearly endorsed—"Malaria case—not available for a theatre of war where malaria is prevalent."

Scotland.

CONDITIONS OF ADMISSION TO SCOTTISH UNIVERSITIES.

THE draft ordinance making new regulations for admission to the Scottish universities, which, as has been noted, received the approval of the General Council of the University of Edinburgh last month, is also approved, we understand, by the other Scottish universities. The institution in 1892 of the preliminary examination in each faculty was due to the recommendation of the University Commissioners under the Act of 1889. They made the recommendation with reluctance and looked upon it as a temporary measure only, designed to meet a difficulty which they hoped would be removed as the standard of secondary education in Scotland improved. Before 1892 many students unfit for university study entered the universities, which consequently had to do much work on the secondary school level and to maintain junior classes in such subjects as Latin, Greek, and mathematics, solely to help students insufficiently prepared for attendance at the senior or graduating classes. Only between 10 and 20 per cent. of the students now present themselves for the preliminary examinations; the remainder are admitted through the machinery of the leaving certificate examinations. The universities appear to have agreed that

the time has come to abolish these temporary expedients. The new ordinance, according to the *Scottish Educational News*, "marks a real revolution in Scots education. It is the beginning of the end of externalism in examinations. The question whether or not a student is to be admitted to a graduation course will depend henceforth, not on the result of an examination in one or two subjects, but upon the length and the character of his secondary school course, and on a report from his teachers as to how he did his work during that course. We understand that something in the nature of a concordat has been drawn up between the Universities and the Education Department, by which the leaving certificates will be awarded on the same principle." The Entrance Board will have large powers; it will be able to accept the leaving certificate of the Scottish Education Department or other certificate deemed equivalent thereto. The equivalence will be determined not by examination, but by the result of the work done during the period of secondary education. The intention appears to be to replace the test of a single examination by the more prolonged test of general progress over a number of years. The draft ordinance contains paragraphs co-ordinating this change with the existing certificates from schools in places outside Scotland, but the general principle will be maintained. The change will throw a greater responsibility on the secondary school teachers of Scotland, but is not altogether without precedent; it was tried in the training colleges some fifteen or twenty years ago, and was successful. It is expected that it will be no less successful in the wide field of secondary education.

Ireland.

PARLIAMENTARY REPRESENTATION OF QUEEN'S UNIVERSITY, BELFAST.

A LETTER to those graduates of the university who will have the right to vote has been issued by the honorary secretaries of Sir William Whitla's committee; these secretaries are representative of the faculties of medicine, arts, science, law, and engineering, and also of women graduates. It sets forth Sir William's claims and qualifications, and urgently calls upon all potential voters to write to the secretary of the university without delay and see that their names are properly enrolled, and that everything is in order, so that any mistake or error may be rectified before it is too late. This is emphasized as of vital importance. This is a unique opportunity of obtaining a medical representative who knows the problems of the day, and can devote his whole time to the work. No other medical candidate has appeared, and it is improbable that any will now come forward. Mr. R. T. Martin, B.A., solicitor, senator of the university, who has been much interested in university matters, and Mr. R. M. Henry, M.A., Professor of Latin, are also mentioned as possible candidates.

UNIVERSITY COLLEGE, CORK, AND A MUNSTER UNIVERSITY.

The governing body of University College, Cork, has unanimously expressed its opinion that the success of the College as an institution of higher education in Cork is seriously hampered by its position as a member of a federal university. Besides the inconvenience and waste of time due to journeying between Cork and Dublin, it is held that the dissimilarity of local conditions limits development of the College in various important directions. The Government is therefore called upon to introduce the necessary legislation for constituting an independent university in place of the present dependent college. In making this request the great industrial developments now taking place in Cork are emphasized. The governing body has also issued in pamphlet form a statement in support of the claim for establishing a separate university for Munster.

IRISH ASYLUM WORKERS.

At a meeting of the Down District Asylum Branch of the Asylum Workers' Association, on March 25th, Dr. M. J. Nolan, who presided, pointed out the desirability at the present period of unrest of discussing how best to maintain the honourable position of the association, and to safeguard it from any conduct tending to besmirch its

good name or lower the status of its members in the eyes of the public. On the motion of two of the attendants, a resolution was unanimously carried extending sympathy to those in other institutions who were seeking to better their positions, expressing the hope that such improvement would be secured by the methods adopted by the Asylum Workers' Association, and deprecating very strongly the resort to strikes. At the same time, the view was expressed that committees were not free from blame in failing to provide their employees with suitable remuneration, having regard to the high cost of living.

MORTALITY IN IRELAND, 1866-1915.

Sir W. Thompson, Registrar-General for Ireland, in his address to the Section of State Medicine of the Royal Academy of Medicine in Ireland, dealt with mortality in Ireland for fifty years (1866-1915). Comparing the five-year periods 1866-70 and 1911-15, he showed that while the mortality in England and Wales had decreased 36.4 per cent. and in Scotland 28.7 per cent., in Ireland it had increased by 2.1 per cent. This difference he attributed in a great measure to emigration, the young and healthy going away. Fully 85 per cent. of emigrants in recent years were between 15 and 35 years of age. The infant mortality rate in Ireland in the period 1911-15 was 21 per cent. under that for England and Wales, and 24 per cent. under that for Scotland. At the same time, the figures showed, when compared with the period 1866-70, that, though the infant mortality rate for Ireland had decreased only 4 per cent. and Scotland 7 per cent., that for England and Wales had decreased 30 per cent. As compared with 1866-70, the mortality from tuberculosis in Ireland in 1911-15 showed a decrease of 13 per cent., while the decrease in England and Wales and Scotland amounted to 56 per cent. in each case. The mortality from cancer showed a strong tendency to increase, but the average rate for Ireland was lower than that of any of the three countries. In 1911-15 it was 86 per 100,000 of the population, as compared with 105 for England and Wales and 110 for Scotland.

Sydney.

ROLL OF HONOUR AT THE SYDNEY HOSPITAL.

A ROLL of Honour comprising the names of 131 members of the staffs of the Sydney Hospital was unveiled on November 28th last by Mr. D. Storey, the Acting Minister of Public Health. The Roll, which is hung in the main vestibule of the hospital, is of beaten copper, surmounted by the coat-of-arms of the hospital. The Roll includes the names of Dr. W. Chisholm and Dr. T. Fiaschi of the honorary medical staff; Dr. J. B. Nash, a member of the board of directors, and forty six of the medical staff, four of whom have died on active service—Dr. B. Pockley, the first to be killed at Rabaul; Dr. J. K. Donaldson, Dr. A. C. Jekyll, and Dr. W. R. Aspinall. Of the nursing staff forty-seven, including the matron, have gone on active service. Mr. Storey, who was introduced to the gathering by Dr. A. J. Brady, said it was a great privilege to have the honour of performing the ceremony to commemorate for all time the memories of those who had gone to other regions, and also to have a reminder of those still giving their services to assist in restoring the wounded to health. He did so with the most affectionate and profound reverence to the memory of those who had gone, and admiration for those still at work in the various arenas of war, and with the hope that those still on active service would soon be back again in Australia safe and sound.

MENTAL DEFICIENCY.

A pamphlet has recently been issued from the Government printing office, entitled *Mental Deficiency: a Medico-Sociological Study of Feeble-Mindedness*, by Sir Charles Mackellar, M.B., and Professor D. A. Welsh, Professor of Pathology in the University of Sydney. Sir Charles Mackellar estimates from the statistics of actual insanity that, in the Commonwealth, there are about 20,000 mental defectives, and in New South Wales probably not fewer than 5,000, that is including not only adults but also the children attending the public schools, and many who have

not yet reached the school age. It is contended that crime, prostitution, illegitimacy, drunkenness, and pauperism are constantly recruited from the ranks of the uncontrolled feeble-minded, whose defective brain power renders them unable to inhibit the impulses leading them to violence and indulgence that have very baneful results for the community in which they live. The authors call for legislation to enable the State to take control of the feeble-minded, so as to give them the opportunity of living as useful a life as possible, and at the same time to prevent them from passing on their defective mentality, with all its possibilities of evil, to a new generation. They advocate the life-long detention of mental defectives in farm colonies. While it is recognized that this is a matter of the utmost importance it is not probable than any legislation on these lines will be passed for some considerable time to come.

THE EARLY TREATMENT OF CANCER.

The Department of Public Health is taking an important step in the direction of bringing the subject of cancer, especially its early symptoms and signs, before the general public of New South Wales. The contents of a poster, which is to be attached to public buildings, emphasizes the fact that the only cure for cancer at present known is its early and complete removal. The co-operation of the profession and the public is necessary to secure early recognition. Stress is laid on the fact that cancer in its early and curable stage usually gives rise to no pain or symptom of ill health, though it shows itself in its commonest situations by certain obvious signs. A list of striking symptoms and signs well known to the profession as indications of early cancerous disease is given, and persons who have any of them are urgently advised to consult a doctor without delay. The concluding paragraph states that, though there is no evidence that cancer is communicable from one individual to another, it is desirable that rooms occupied by a person suffering from cancer should be disinfected from time to time and kept scrupulously clean.

Correspondence.

CHARACTERS OF HUNTINGTON'S CHOREA.

SIR,—If you can spare me a few lines more on this malady may I briefly describe another case, superficially resembling that of Huntington's chorea but in nature wholly different from it? A day or two after my dispatch to you of the revised proof of my note on Huntington's chorea I made my official visit to our Heart Hospital at Colchester. Among the soldiers paraded, a man entered the consulting room who for a few moments might have been regarded as a case of Huntington's disease; but for a few moments only. The man had been buried under shell explosion, and suffered a severe shaking. It is true that he tottered and shuffled into the room quivering in all his limbs, and that his movements were tremulous and vacillating. Notwithstanding, when the man came to a stand, it was apparent that the quaverings were rhythmic and symmetrical; the knees, for instance, oscillated thus together to and fro—between three and four times a second; no "Puck-like-twitches." When told to sit down at ease he became more tranquil, and in a minute or two the trepidations diminished almost to quiescence. He could now extend his arm with no more than the atonic tremors of any debilitated man. When asked to write his name, he went to the table, took up a pen, still with no more than simple tremor, and wrote his name in a good steady hand without sign of twitch or jerk in the script. Such distinctions as these seem to me to deserve some emphasis.—I am, etc.,

Cambridge, March 30th.

CLIFFORD ALLBUTT.

"PANCREATIC INSUFFICIENCY."

SIR,—The article in your issue of March 30th, p. 376, raises an important point—namely, the diagnosis of pancreatic insufficiency. I agree that the condition can only be detected with certainty by laboratory methods. There is another question, however—namely, why patients suffering from that condition are to be allowed an extra

ration of meat and fat? The pathology of the disease, and my clinical experience of it during the past ten or twelve years, both suggest that this is unnecessary and, indeed, harmful. Such patients usually do best when their protein is supplied chiefly in the form of casein and gelatin, and their fats are taken in the form of milk, yolk of egg, cod-liver oil, and emulsified fats, as I have pointed out elsewhere.¹ More than a very limited amount of lean meat, with a little butter, is not required. With a diet on these lines and the help of some reliable preparation of pancreas digestion and absorption are generally well carried out, so that the patient's physical condition improves, and, moreover, there is no economical loss to the community such as a diet like that the Food Controller's advisers seem to think advisable would entail. In some instances cream is well borne, and may, in fact, be regarded as an essential food, as it is in some cases of diabetes. I am therefore sorry to see that the permission to prescribe it under special circumstances has been withdrawn, and am certain that it will have harmful consequences.—I am, etc.,

London, W., March 31st.

P. J. CAMMIDGE.

GENERAL ANALGESIA BY ORAL ADMINISTRATION.

SIR,—In the JOURNAL of March 9th (p. 301) my statement that a "65 per cent. solution of ether in oil will not produce post-anaesthesia dysentery or bloody diarrhoea" is questioned; the writer states that his cases had these symptoms and that consequently he had not used the method between 1913 and 1917. Previous to 1913 I used a 75 per cent. solution. In April, 1915 (*American Journal of Surgery*), I published an article giving the maximum dosage as 8 oz. of a 65 per cent. solution, the usual amount for an adult being 6 oz. If diarrhoea occurs, there is faulty technique somewhere, either the oil and ether is not well shaken up or there has been too many enemas beforehand or unnecessary irrigation afterwards. The 65 per cent. solution is not irritating to the lower bowel. The writer has personally had three anaesthetics—two nitrous oxide and one colonic, and decidedly prefers the latter. The article on oral analgesia is a preliminary statement. The technique will undoubtedly be modified. But all of the anaesthetics are safer in the analgesic stage, as in this stage you are separated from the danger zone by "anaesthesia"; oral (ether) analgesia is safer than nitrous oxide and oxygen anaesthesia, even when given under the most auspicious circumstances. Subcutaneous ether-oil analgesia has been successfully used since the article referred to was published, and will unquestionably be used in the laboratory in preference to inhalation anaesthesia, but oral analgesia is preferable, and in conjunction with morphine will enable the ambulance surgeon to do more for his patients than heretofore. By using the most powerful analgesic—morphine—in conjunction with the analgesic qualities of ether (orally) and nitrous oxide (by inhalation) we have a combination that approaches the ideal.—I am, etc.,

March 13th.

JAMES T. GWATHMEY,
Captain M.R.C., U.S.A.

MEDICAL REINFORCEMENTS FOR THE WESTERN FRONT.

SIR,—In the JOURNAL of March 30th, p. 375, your appeal to medical men to offer their services during the present emergency is certainly very touching, and will meet with the full sympathy of the whole profession. It is not, however, likely to meet with its full support unless some means are adopted for safeguarding the interests of those who are already serving. It would be a serious matter for a man of 50 years of age whose practice is his living to join the army, and have only to look forward to the declaration of peace as the time when he will have to start a fresh practice. As matters stand at present this could be his only fate, judging by what has happened to the majority of the men who have already joined. Men of military age have hitherto chiefly been affected, and in most cases after the war will still be young enough to start a new practice. With the older men it will be different, and I consider it would be a cruel return for their generous patriotism to accept their offers of voluntary military service.

¹ *The Faeces of Children and Adults*, p. 467.

Surely it is not too much to ask for at least the same protection as business men now get—namely, "that no new business, or trade, or shop be allowed to be opened during the war"; and I believe it is the duty of our Association to do all it can for the protection of its members. I would suggest that during the war no one be allowed to start a medical practice without a special permit from the Ministry of National Service, and that this permit be not granted without the sanction of the local Division of the British Medical Association of the area in which the proposed practice is situated.

As a class the medical profession is loyal and patriotic, and if their interests were as far as possible safeguarded, your appeal would meet with a hearty response from its members. Your appeal is undoubtedly urgent, but not more so than the present matter, which, indeed, should have prefaced it. If the Association will get this promptly carried out it will be doing a real service to the medical men already in the army as well as giving some encouragement to those who are about to join.—I am, etc.,

Glyn Neath, Glamorganshire, April 2nd.

S. McCURE.

MEDICAL OFFICERS OF RESERVE BATTALIONS.

SIR,—It is a surprise to me that even now, when our armies are in great need of medical officers, the time of so many men should still be wasted in this country in the Reserve battalions which do not proceed to the front, but supply drafts. Surely one medical officer could easily find time to act for two battalions instead of one, and yet be less heavily worked than most of the civilian medical men. I feel quite sure that a very short experience would prove the truth of this, and it surprises me that the Central Medical War Committee does not press this point on the War Office.

Any further depletion of medical men must act injuriously, not only on civilians, but also on the health of those members of our profession who are striving day and night to carry on their work; and this loss of health will still further increase the dearth of medical men left to attend the needs of the civilian population.—I am, etc.,

P. L. GRUSEPPI, M.D.Lond., F.R.C.S.

Felixstowe, April 2nd.

PRIMARY SUTURE OF WOUNDS AT THE FRONT IN FRANCE.

SIR,—Will you kindly allow me to draw attention to a printer's error in your report of my address on primary suture?

I am made to say: "It is not clear that delay in reaching a casualty clearing station may be unavoidable." This should read: "Is it not clear that delay in reaching a casualty clearing station may be unavoidable?"—I am, etc.,

March 25th.

ANTHONY BOWLBY.

THE PULSE-PRESSURE TEST BEFORE OPERATIONS.

SIR,—Just forty years ago in the Edinburgh Infirmary I took pulse tracings during operations. I possess one set of tracings now. They show that when the first incision was made, when the thigh was sawn through, and when each nerve in the flap was cut short, a marked fall in the pressure occurred.—I am, etc.,

London, E.C., March 26th.

A. OCHER WARD.

IN four of the universities of Switzerland the official language is French and in three it is German. Although there is a large Italian-speaking population there has hitherto been no university in which Italian is the official language. Some time ago a wealthy inhabitant of Ticino, Signor Romeo Manzoni, bequeathed the whole of his fortune to the government of the canton for the foundation of an Italian-speaking university. His example was followed by a number of other benefactors and a fund of several millions of francs has been collected. The authorities of Ticino have taken the first steps towards the fulfilment of Signor Manzoni's wish by founding a superior school of Italian culture in Ticino. It is divided into several sections which are intended to form the nucleus of a university.

Obituary.

WE regret to record the death of Mr. R. H. B. NICHOLSON, consulting surgeon to the Hull Royal Infirmary. He was the son of a medical practitioner in Hull, and spent the whole of his life in that city. He received his medical education at the Hull and East Riding Medical School, where he held the appointment of demonstrator of anatomy. He took the diplomas of M.R.C.S.Eng. and L.S.A. in 1862. He became assistant surgeon to the infirmary in 1876, surgeon in 1886, and consulting surgeon in 1901. From an early date he took a great interest in the affairs of the British Medical Association, was a member of the Committee of Council, and after the reconstitution in 1883 was for many years a member of the Central Council, and served on numerous committees, including the Parliamentary Bills Committee and the Journal and Finance Committee. He did not write much, but contributed several papers on clinical surgery to our columns. He took an active part in establishing the Jubilee Nurses' Home, and had been chairman of its executive committee for many years. He was also surgeon to the Lying-in Charity and to the Withernsea Convalescent Home. He was one of the pioneers of sanitation in the city, and in association with Mr. J. A. Spender, then editor of the *Eastern Morning News*, founded the Hull Sanitary Association, which stimulated the corporation to action. He also took a leading part in promoting improvements in housing, and in these ways contributed much to bring about the present healthy state of Hull. Mr. Nicholson was a man of handsome presence and genial manners, and his kindness of heart endeared him to many, including a large number of members of the Association, who for many years were accustomed to meet him at every annual meeting. He leaves a widow and three sons, one of whom, Mr. Guy Berners Nicholson, assistant surgeon to the Hull Royal Infirmary, holds a temporary commission as captain in the R.A.M.C., and is serving in France.

DR. KENNETH SCOTT, who died on February 19th after an operation for appendicitis, was the only son of Mr. Thomas Graham Scott, of Edinburgh, and was born at Morton Bingley, Yorkshire. He was educated at the Edinburgh Academy, at the University of Edinburgh, and at King's College, London. He took the diploma of M.R.C.S. in 1887, and graduated M.B., C.M. Edin. in the same year with honours. Two years later he took the F.R.C.S. Edin., and was appointed lecturer in ophthalmology at the Egyptian Government Medical School, Cairo, and ophthalmic surgeon to the Kasr-el-Ainy Hospital. These posts he held for ten years, and from 1900 to 1906 he was honorary secretary of the Cairo Blind School, of which he was the organizer. On relinquishing his Egyptian appointments, he started in ophthalmological practice in London, and from 1907 to 1909 was lecturer on ophthalmology at the West London Post-Graduate College. He was also appointed consulting ophthalmic surgeon to St. Mary's Hospital for Women and Children, and on the outbreak of war became medical administrator of the City of London Red Cross Hospital. Dr. Scott made few contributions to medical literature, but a paper read before the Egyptian Medical Congress in 1902 on exact methods of visual examination, showed the practical side of his mind, and the tendency which led to his future success. After settling in London he rapidly attained a practice which during the few years before his death was almost greater than the strength of one man could manage. His health was not good, but his devotion to his work, and the determination never to allow his ideal of exactitude to be lowered enabled him to face with success his laborious life. He was a man of charming manners, a delightful colleague, and held in very high estimation both by his professional brothers and his patients.

DR. GEORGE BELBEN FLUX died in the Royal Free Hospital, London, on March 18th. He was educated at King's College Hospital, and took the diploma of L.S.A. in 1887 and those of M.R.C.S. and L.R.C.P. Lond. in 1888. He took the degree of M.D. Brux. in the same year and

the M.D.Dnrh. in 1904. After acting as resident medical assistant at Nottingham General Hospital, he settled in London. He became anaesthetist to the Great Northern Central Hospital and to the National Dental Hospital, and afterwards to the British Lying-in Hospital and King's College Hospital. He had contributed many articles on anaesthetics to the medical journals. He took a temporary commission in the R.A.M.C. in April, 1917, but was invalided out in the following December.

DR. GEORGE WILLIAM SHIPMAN of Grantham, one of the best known medical practitioners in Lincolnshire, died on March 24th, at the age of 70. After studying medicine at Guy's Hospital, he obtained the diplomas M.R.C.S., L.R.C.P. in 1869, and soon afterwards joined his father in practice at Grantham, where he took for many years a leading part in public life, holding the office of mayor of the borough and J.P. for the county. For more than thirty years he served as medical officer to the Lincolnshire Regiment of Militia, and retired with the rank of surgeon-lieutenant-colonel in 1900. Dr. Shipman took an active share in founding the Grantham Hospital, and served as surgeon for twenty-six years. He was the first chairman of the Kesteven Division of the British Medical Association, first chairman of the Grantham Medical Society, and a former president of the Lincolnshire Medical Benevolent Society. His loss is deeply felt by a wide circle of colleagues, patients, and friends.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—Eva M. Clark, H. R. Goldberg, W. A. Gray, Martha L. Hamilton, W. G. Hughes, G. Lange, D. O. Macdonald, H. B. Mackenzie, A. R. C. McKerrow, J. S. Mann, D. J. Micah, J. C. Morris, Anne O. Roberts, G. M. S. Smith.

UNIVERSITY OF DURHAM.

THE following candidates have been approved at the examination indicated:

THIRD M.B. (*Materia Medica, Pharmacology, and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology*).—J. R. Hnches, Sujana Raj Chatterji, Nan Coxon, L. W. Hearn, J. Hetherington, R. Sanderson, Habib Toma.

* Second class honours.

UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

THIRD M.B., CH.B. (*General Pathology and Morbid Anatomy*).—May Ashburner, Mary E. Boulton, Mary S. Jones, J. F. O'Grady, E. Figgott, A. el H. Sadek.

UNIVERSITY OF DUBLIN.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., PART I.—*Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene, Pathology*: *J. H. Coolican, *W. A. Byrre, E. Counihan, N. Long, A. R. Aldin, W. J. Hogan, J. T. Myrhardt, J. W. Scharff, †D. S. Prentice, †G. H. Keller.

FINAL M.B., B.CH., B.A.O., PART II.—*Medicine*: *H. L. Parker, V. M. Syngé, J. O. Fouché, E. E. Rollins, R. M. D. Devereux, J. B. McGrahan, P. A. Dormer, E. F. Wilson, J. M. Hill, T. H. R. McKiernan, F. A. McHugh. *Surgery*: T. M. Bentley, L. Alberini, F. Gill, A. L. Gregg, W. L. Young, J. G. Bird, R. W. Nesbitt, F. A. McHugh. *Midwifery*: W. F. McConnell, W. Sweetnam, E. F. Wilson, J. B. McGrahan, J. W. Scharff, D. S. Prentice, R. B. N. Smartt, W. A. Shannon, D. McElwee, B. D. Merrin, F. A. McHugh.

D.P.H., PART I.—R. A. Keane.

* High marks.

† Pathology completing examination.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examination indicated:

FINAL PROFESSIONAL.—W. Evans, C. K. T. Hewson, P. J. O'Connell, M. M. Price, P. K. I. Ryan, J. C. Smyth, J. G. Thornton.

Medical News.

THE Admiralty has under consideration a proposal to use Larbert Asylum, near Glasgow, for a naval hospital. The number of sick and wounded it would accommodate is about twelve hundred.

THE Colonial Office has issued the twentieth edition of a leaflet (No. 678) giving information of a general character for the use of candidates for appointments on the West African Medical Staff.

THE first number of a new journal devoted to the interests of the (United States) Indian Medical Service was published recently. Its object is to raise the service to the level of the Army, Navy, and Public Health Services.

PROFESSOR S. G. SHATTOCK, F.R.S., will give three demonstrations during April at the Royal College of Surgeons of England. On April 8th, on foreign bodies; on April 15th, on necrosis; on April 22nd, on malignant tumours. The demonstrations, which will be given at 5 p.m. each day, are open to medical students and practitioners, and also to first-aid and ambulance students.

THE Röntgen Society has recently founded an annual lecture in memory of its first President, the late Professor Silvanus P. Thompson. The first will be delivered by Professor Sir Ernest Rutherford, F.R.S., at a meeting of the society, at Burlington House, on Tuesday next, at 8 p.m. Cards of admission can be obtained from the honorary secretary, Dr. S. Russ, Middlesex Hospital, London, W. 1.

MR. RAYMOND JOHNSON, surgeon to University College Hospital, in seconding a motion for the adoption of the report at the annual meeting, drew particular attention to the good work done during the year in the child welfare section of the hospital. He mentioned also that 250 beds had been assigned for sick and wounded soldiers and sailors. At this meeting two ladies, H.H. Princess Marie Louise and Lady Owen Philipps, were elected members of the General Committee.

THE Air Ministry has announced in the *London Gazette* that all officers serving with the Royal Naval Air Service and Royal Flying Corps on March 31st, 1918, or in connexion with those services, with certain exceptions, are granted temporary commissions in the Royal Air Force with effect from April 1st, 1918. The specified exceptions include medical officers. It is understood that these will be seconded to the Royal Air Force from the Royal Naval Medical Service and the Royal Army Medical Corps.

IN its annual report, recently presented to the State Legislature, the New York State Hospital Commission recommends the adoption of vigorous measures for the prevention of mental disease. The insane cost the State £1,676,400 in 1917, and the Commission expresses the opinion that one-half of the cases are preventable. The measures recommended are: the checking of alcoholism and syphilis, better instruction of the public in mental hygiene, the suppression of extreme poverty, and extension of the out-patient department of State hospitals with more free clinics for mental and nervous disorders and "field agents" to look after incipient and convalescent cases.

THIRTY cases of luxation and avulsion of the eyeball during birth have been published. In four instances the labour was natural, in two the labour was difficult, and in two the orbit was mistaken for the rectum and the eye dislocated by the finger of the accoucheur. All four eyes were lost. In the remainder of the cases the labour was instrumental, and the eye was displaced by the forceps. In two only was the eye replaced with preservation of vision. In one of these the eye was enucleated by the finger of the midwife, who was under the impression that she was dealing with a breech presentation and exploring the anus. H. Friedenwald had recorded another case in the *American Journal of Ophthalmology*, vol. i, No. 1. The left eyeball was completely luxated by the blade of the forceps and the lids were closed behind the eye. An incision was made at the outer canthus and the eye replaced. Two years later the eye was healthy and had good vision. In a number of cases the infants have died from the severity of the head injuries, and many eyes which have been replaced have been lost from panophthalmitis. When reposition is considered possible, it is necessary to remove any fragments of bone from fractures of the orbit, for which purpose Kroenlein's operation may be necessary. Canthotomy is nearly always called for. It has been held that no blame attaches to the obstetrician when the accident results from the forceps.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Authors desiring reprints of their articles published in the *BRITISH MEDICAL JOURNAL* are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The telegraphic addresses of the *BRITISH MEDICAL ASSOCIATION* and *JOURNAL* are:

1. EDITOR of the *BRITISH MEDICAL JOURNAL*, *Aitology*, Westrand, London; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

THE following appointment for certifying factory surgeon is vacant: Dudley (Worcester).

DOUBTFUL WATER.

IN dealing on a small scale in an emergency with doubtful water by the addition of a solution of chloride of lime, Schell and Parsy recommend, in order to get rid of the excess of hydrochlorite shown by the starch test, that the water should be stirred with a packet of iron wire. Peroxide of iron is formed and is deposited; in about half an hour the water has lost any disagreeable taste due to the chlorine.

RECORDS OF PHYSICAL TREATMENT.

THE War Disablement Committee of the Royal Society of Medicine (Section of Balneology) has resolved to place at the disposal of all practitioners making use of physical treatment for disabled soldiers cards for recording results of such treatment, including baths and electricity, provided they are ultimately returned filled up. A collection of the cards is being made from spas and health resorts to form the basis of a special chapter in the medical history of the war. Cards can be obtained from Messrs. Adlard and Son, 23, Bartholomew Close, E.C., price £2 per thousand.

SANATORIUM TREATMENT OF THE TUBERCULOUS SOLDIER.

DR. J. HORNE WILSON (London, W., late Captain R.A.M.C.), writes with reference to recent correspondence as to the tuberculous soldier: It is probably true, as Dr. Camac Wilkinson states, that not even 10 per cent. of the cases can be benefited by sanatorium treatment, and therefore other methods must be tried which hold out more hope than the domiciliary treatment hitherto offered to the 90 per cent. remnant. I agree that early diagnosis with tuberculin, properly interpreted, would lead to prompt treatment of early cases before tubercle bacilli appeared in the sputum, and it is my experience and opinion that tuberculin in its various forms offers a solution of the difficulty in a large percentage of the cases, and ought at least be given a fair trial. Such a method rarely necessitates loss of employment by the patient, and from an economic point of view the cost to the country would be reduced to a minimum.

TREATMENT OF MENINGITIS.

MRS. Fysh, M.B.Lond. (Dryhurst, Tonbridge), writes to recommend the following treatment of meningitis: As soon as the diagnosis is made, shave the head and paint it all over with tincture of iodine. Repeat the painting daily, or every other day, as the skin can bear it. Keep the bowels acting with small doses of calomel when required. Give a diet carefully arranged so as to spare the digestive organs as much as possible—in infants making the food, of course, more dilute than in health, and using it partially predigested. Combine with these things tepid sponging regularly every six hours; this is a most important part of the treatment. By the above method I was able to save three cases out of four during the last year I held the post of medical officer in charge of the Lady Havelock Hospital in Colombo.

BARLEY BREAD IN ANTIQUITY.

ACCORDING to Pliny, "barley (husked) was the most ancient meat in old times," and this statement seems to be borne out by the fact that three varieties (*Hordeum distichum*, *H. hexastichum densum*, and *H. hexastichum sanctum*) have been found in lake dwellings in Switzerland in deposits belonging to the Stone Age. Athenian athletes trained on barley; it was the ordinary food of gladiators, who, from the allowance of the grain made to them, were called *hordearii* (barley men). Of barley bread Pliny says, that "though so much used of our forefathers in old time, the posterity that lived after found to be sought and condemned it: in such sort as they allowed it for provender only to feed their beasts and cattle with" (*Plinius Natural History*, Bk. 18, Philemon

Holland's Translation). So much was barley bread disliked and despised by the Romans that it was issued as a ration by way of punishment to soldiers who had misconducted themselves before the enemy. Plutarch tells us that when some legions ran away at the battle of Cannasium the Pro-Consul Marcellus as a part of their punishment "appointed they should give those that first turned their backs to Hannibal barley for wheat." Livy says the same penalty was inflicted on cohorts which lost their standards, for it was regarded as a great disgrace to be given this "food of gladiators." According to Suetonius, Caesar Octavius, who was a strict disciplinarian, revived this old punishment for cowardice. Though in the Gospel of St. John (vi, 9) it is recorded that Christ fed the multitude which followed him on five barley loaves and two small fishes, there is evidence that the Jews looked upon barley bread as unfit for human food. In an anecdote quoted from the Talmud by Dean Farrar in his *Life of Christ* it is related that when Johanan said, "There is an excellent barley harvest," the answer he got was, "Tell that to horses and asses."

BOTHRIOCEPHALUS LATUS IN IRELAND.

DR. O'FARRELL reported to a recent meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland a second case of *Bothriocephalus latus*. His first (*BRITISH MEDICAL JOURNAL*, 1916, vol. i, p. 309) occurred in a man who resided on the river Shannon. The new case was in a young woman who resided about fifteen miles higher up the same river.

THE METRIC SYSTEM IN DISPENSING.

DR. KEITH ROBERTSON (Greenock) writes: Dr. Sydney Whitaker, in your issue of February 23rd, 1918, p. 248, makes a plea for uniformity in the use of metric symbols. Using the metric system entirely in prescribing, as I now do, it seems to me that to avoid mistakes and ambiguity, and to enable one easily to memorize a dose, it would be best to deal in grams and millilitres only, and decimals of these. To put down 6 deg. instead of 0.6 gm. is to give the brain unnecessary work in mental arithmetic. A decigram should always be put down as 0.1 gm., a centimil. as 0.01 mil., and so on. Further, it would be well if we dropped the gm. or mil. altogether, and wrote simply 0.03 for three centigrams or centimils., according to whether we were dealing with solids or liquids, using the definite designation only where there might be doubt. Dr. Whitaker's prescription would be written thus:

R Vin. colchici...	...	...	...	...	1
Mag. carb. pond.	...	...	...	...	0.6
Mag. sulph.	...	...	...	...	1
Aq. menth. pip.	...	...	...	...	ad 30

When our dispensers get measures, weights, and bottles to suit, we will be in a still better position, and the work will be easier for them. For instance, I might write a prescription such as the above, only instead of aq. menth. pip. ad 30 mil., make it ad 20 mil. (or 10 if you like) and direct ten or twenty doses to be sent. For ten doses the dispenser simply removes the decimal point one cipher to the right; for twenty he does the same and multiplies by 2, then dispenses in a 200 or 400 mil. bottle. If then the patient is supplied with a metric medicine measure, the dosage is correct; the uncertainty of "tablespoon" quantities is done away with, and education in the metric measures is of a practical kind.

MILITARY HOSPITAL SERVICE IN THE AMERICAN REVOLUTION.

THE first plan for the organization of a military hospital service during the American Revolution was drawn up by Dr. William Shippen of Philadelphia and transmitted to Congress on February 14th, 1777. Besides director-generals and assistants for each of the northern, middle, and southern districts, provision was made for an apothecary-general, "whose duty it is to receive, prepare and deliver medicines and other articles of his department to the Hospital and ye Army as shall be ordered by ye Director General" and "for Apothecary and Mates to obey ye Apothecary General." The *New York Medical Journal* of February 23rd, which is our authority for these statements, states that Congress has now before it three bills providing for the organization of a pharmaceutical corps in the medical department, and the Surgeon-General has appointed a committee to consider the proposal. In Dr. Shippen's plan provision was made for one nurse for every fifteen sick and a matron to every hundred.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Observations

ON

THE NATURE AND SYMPTOMS OF CARDIAC
INFECTION IN CHILDHOOD.

BY

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GREAT ORMOND STREET.

II.—RHEUMATIC HEART DISEASE.*

First Attacks of Rheumatism in Childhood.

THESE bring us to the threshold of the early development of organic disease. Among such cases we find all grades of severity, from those—fortunately rare—which prove rapidly fatal, and in which the infective element reaches its acme of intensity, to those which are so transient and vague that we are left doubtful of their significance. From a study of the latter we realize that a considerable number elude discovery by parents and doctors, and that as a result the early detection of cardiac affections can be but a relative accomplishment, the accuracy of which will only be increased by continual improvement in the education of the public and in our clinical methods.

It is here that a general idea of the relative frequency of the well recognized manifestations of the disease becomes of some practical importance, and the following figures, based upon 524 examples which I believe to be first attacks, may be of service. These figures, however, can only be of relative value, for the proof that an attack was actually the first is often difficult.

When these children (all under twelve years of age) were first seen at the hospital the following conditions were present:

Heart disease	...	...	...	In	293
Chorea	...	...	...	"	268
Arthritis and arthritic pains	...	...	...	"	267
Sore throats	...	...	...	"	147
Nervous manifestations other than chorea	...	...	...	"	80
Anæmia	...	...	...	"	78
Abdominal symptoms	...	...	...	"	52
Cutaneous manifestations	...	...	...	"	39
General wasting	...	...	...	"	39
Nodules	...	...	...	"	22
Epileptaxis	...	...	...	"	8
Nephritis	...	...	...	"	2

Two important groups may be recognized:

1. Cases with sore throat, arthritis, and morbus cordis.
2. Cases with chorea and morbus cordis.

For reasons that I have given in *Researches upon Rheumatism* I have included all cases of chorea as rheumatic in origin.

The sex incidence was as follows:

Females	...	...	...	...	346
Males	...	...	...	...	169

In 9 the sex was overlooked.

The percentages in this series were approximately

Females	...	...	...	...	69
Males	...	...	...	...	33

As nearly as possible 2 to 1.

Age incidence in 364 cases:

One year and under	...	3	6-7	...	...	38
1-2	...	4	7-8	...	...	63
2-3	...	13	8-9	...	...	37
3-4	...	25	9-10	...	...	45
4-5	...	38	10-11	...	...	37
5-6	...	40	11-12	...	...	21

CLASSIFICATION OF THE CHIEF LESIONS OF RHEUMATIC
HEART DISEASE.

I think the clearest and most instructive method of approaching the subject is to commence with the earliest and often the least severe cardiac lesion—acute dilatation. This is an essential feature in the history of rheumatic cardiac affections, and must be clearly recognized. Then will come for description the most severe and most characteristic event—an acutely fatal carditis in a first attack. From these latter cases we learn the true

meaning of a cardiac infection. Next will follow the three cardinal lesions of the textbooks—pericarditis, endocarditis, and myocarditis—which lead to the consideration of recurrent carditis and the final stages of infective carditis.

Whatever classification is adopted, the element of carditis will be found frequently complicating the individual lesions, but I shall endeavour to avoid a troublesome repetition of symptoms and consider the subject only with the view of illustrating special features of the rheumatic infection.

ACUTE DILATATION.

There are all grades in the severity of acute dilatation. In very rare cases it may prove fatal without endocardial or pericardial involvement. Far more frequently it occurs with some mitral endocarditis. Again, it is the chief cause of cardiac failure in recurrent attacks of carditis. Lastly, there is a large group in which the dilatation either is not severe and may be recovered from rapidly, or may be slow in course and intractable.

We are concerned here with the mild acute cases recovering rapidly. The more severe and the chronic cases will be considered later.

When it is recognized that some degree of dilatation may be the only cardiac lesion, and also that it complicates all the more severe rheumatic cardiac injuries, it will be evident that this is not only the earliest clinical evidence we possess of rheumatic heart disease, but also the most frequent.

I advocate the value of making careful outlines of the deep cardiac dullness in this lesion and of tracing these outlines on to paper for future reference. Each outline should have fixed points, such as the left nipple and mid-sternum, marked on it, and should be completed with the date and a brief synopsis of the symptoms and signs. Though I am no believer in a rigid dependence upon cardiac percussion it is remarkable how accurate the results become by persevering with this rather laborious method. From such an experience we learn not only to appreciate the reality of simple dilatation but also to detect the part it takes in acute pericarditis, and in the exacerbations of rheumatism in hearts already injured by the disease. Another point we learn is the remarkable rapidity with which dilatation sometimes occurs even when a child has been in bed for some days. Without special care this may be easily overlooked, but it is quite in accord with other events that may happen to a rheumatic child while resting in hospital. For example, a sore throat may suddenly develop, or chorea commence, or an arthritis show itself. These outbursts of infection constitute one of the peculiarities of the disease, and they suggest the sudden influx of a fresh wave of infection after the earlier one has been dealt with by the tissue cells.

*The Signs and Symptoms of Acute Dilatation of
the Heart of Mild Degree.*

The chief signs of acute dilatation of mild degree are not difficult to ascertain or to remember when once they have been thoroughly studied, and may be summarized as follows:

If the child is leading its usual life there will be found shortness of breath, pallor, and palpitation, and there may even be a fainting attack. The pulse is quickened, and easily compressible.

The impulse of the heart is enfeebled and the cardiac dullness reaches to or beyond the left nipple line, and may be increased to the right. At the impulse the first sound is shortened, and at the pulmonary base the second sound is accentuated and may be reduplicated. Over the mitral area a soft systolic bruit may be audible, which is often at its maximum just internal to the impulse, and is not conducted plainly toward the left axilla. There will probably be a slight rise in the temperature.

From the above description it is apparent that it may be far from easy to decide whether in any given case there is together with the dilatation some endocarditis of the mitral valve. A question I have had put to me is how to distinguish these two lesions, and the answer, though not difficult to give, is necessarily incomplete.

If there is mitral endocarditis of some severity the apical murmur is conducted towards the axilla, and even if not permanent will not disappear for many months, and long after the soft murmur of a dilatation will have vanished. Further, there is usually evidence of hypertrophy of the left ventricle supervening upon the dilatation. If the endocarditis is slight

* The first article was printed in the JOURNAL of March 2nd, 1918.

the murmur will nevertheless persist after all evidence of dilatation has disappeared. There remain a certain number of cases in which the dilatation is slow in recovery, and also some others in which in all probability a valvular murmur disappears with unusual rapidity, and then we may be in doubt. The uncertainty in the latter case is not in reality of practical importance, for if the murmur disappears and the heart becomes sound we can but be satisfied. If, however, the dilatation is more stubborn than usual there will be the signs of myocardial feebleness, and for a considerable time we must remain in doubt as to whether or not an endocarditis is responsible for this delay.

It is clear, then, that a satisfactory answer to the question sometimes requires time and repeated observation before it can be given.

There is no doubt, I think, that the rapid development of acute dilatation accounts for some of the cases in childhood in which, after a slight arthritis, the patient has been allowed to return quickly to ordinary life, and has then become suddenly short of breath or has collapsed with a syncopal attack. A thorough understanding of this possibility will serve as an added warning to watch carefully the early days of what may seem a very mild attack of rheumatism.

FATAL FIRST ATTACKS OF CARDITIS.

From the least severe of the rheumatic cardiac lesions—acute dilatation of slight degree—I pass now to the most severe, which brings into prominence the part taken by infective processes in human heart disease, and illustrates how completely they may destroy all attempts at recovery of the mechanical balance of the circulation. In such cases we must expect to find symptoms of great severity and of an unusual nature—for example, shivering attacks, vomiting, and diarrhoea, great muscular prostration and extreme illness; and we are also impressed by the rapid progress made by the cardiac disease. Thus pain over the precordium will be swiftly followed by severe dilatation and cardiac excitement, pericarditis will rapidly become general, and endocarditis appear. In a week or two the heart is irreparably damaged. It is not, however, the pericarditis or valvular disease that alarms us most, but the general cardiac infection and the failure of the general vitality from the virulence of the disease.

These fatal first attacks are rare—and they are more often met with in young children or in those with a strong hereditary tendency to rheumatism.

I would draw particular attention here to the answer that these severe cases gives to those who hold that rheumatism is an attenuated pyaemia. A study of them must, I think, convince us that the illness is of a deadly virulence, and yet, as the necropsies prove, never approaches to the character of a pyaemia. The poisons may be chemically allied to those of pyaemia, but they certainly are as special in their action as the poisons of any other specific disease.

The fifteen cases upon which these observations are chiefly based fall into two main groups:

- (a) Fulminating cases of acute carditis.
- (b) Insidious cases in fragile children of feeble constitution.

In this latter group the disease is deceptively quiet in its onset, but none the less deadly. The four following examples well illustrate these fatal forms of carditis—the first three the fulminating group, the last the asthenic.

Example 1.

A boy under 5 years of age, with a rheumatic history on the father's side, was seized with general illness a week before admission to hospital. At the outset he was prostrated with vomiting and diarrhoea and pains all over the body, and on admission he looked very pale and ill. There was arthritis of both knees, and there was great dilatation of the heart with a rapid pulse (140 per minute), and a systolic mitral murmur. Two days later general pericarditis was discovered, and broncho-pneumonia developed. The temperature ranged between 103° and 100° F. The course was rapidly downhill, the liver became palpable, and slight oedema appeared. Restlessness and a running pulse, with some albumin in a scanty urine, followed, and death occurred fourteen days after admission.

The necropsy showed recent pericarditis, great dilatation, and early mitral endocarditis. The diplococcus was isolated from the pericardial, pleural, and arthritic exudations, and from the cerebro-spinal fluid.

Example 2.

A girl, aged 3½ years, was admitted to hospital very ill and with signs of severe cardiac disease. Her father had suffered

from rheumatic fever and a sister had died of the same disease. Four weeks before admission, after developing a sore throat she became generally ill, with pains all over the body and swelling of the hands and ankles.

In hospital sour perspirations were noticed with high fever; dilatation, general pericarditis, and mitral endocarditis followed. Later nodules appeared together with the usual signs of cardiac failure. Finally all food was refused, and the child died after lingering for five weeks.

Example 3.

A boy, aged 7½ years, had suffered ten days before admission with general malaise, diarrhoea, sleeplessness, and cough, rapidly followed by arthritis of the ankles, fingers, toe-joints, and erythema multiforme. The pain disappeared and three days later he was allowed to get up. The same night he became delirious. When admitted to hospital there was severe carditis and he died six days later of syncope.

The necropsy showed a large pericardial effusion with simple aortic and malignant mitral endocarditis. Reference will be made later to this most remarkable case.

The next example illustrates the asthenic form of fatal carditis:

Example 4.

A girl, aged 4½ years, who was pale, fat, and flabby, had suffered for some weeks before admission from indefinite illness. The chief early symptoms were muscular feebleness and general prostration, with progressive pallor and loss of appetite. Then there developed a slight but definite chorea. When admitted the child was very ill and the pulse rapid (130), the heart was greatly dilated and the sounds faint with a soft systolic apical murmur. The next day general pericardial friction became audible. The temperature ranged around 100° F., and the extremities were cold. There was no sign of rallying to treatment and four days later she died from cardiac failure, the temperature rising in the last twenty-four hours to 104° F.

The necropsy showed recent universal pericardial adhesions, great dilatation, mitral and tricuspid endocarditis, plastic pleurisy on both sides and an ante-mortem thrombus in the left internal jugular vein.

These cases give a general indication of the clinical course of this most fatal form of rheumatic heart disease. We do not see cyanosis and distended jugular veins. There is no pronounced development of oedema with great enlargement of the liver. The child is more often ashen pale, the liver palpable, and the oedema a mere puffiness of feet and ankles. Death is often sudden from a terminal syncope, and the general appearance one of a severe toxæmia with a high degree of oxygen want.

In cases such as these Dr. Paine and I have demonstrated and isolated the strepto-diplococcus, a result only to be expected from the experience of bacteriologists studying other virulent infections.

RHEUMATIC PERICARDITIS.

The consideration of the rheumatic lesions pericarditis, endocarditis, and myocarditis, apart from carditis, is necessarily artificial, but is essential on account of their individual importance.

Pericarditis is placed first here because of its gravity. It is in general terms a mark of a severe infection, and is repeatedly met with in fatal carditis. One hundred and fifty cases in children under 12 years of age showed at necropsy that the pericardium was adherent wholly or in part in 113 cases, and in only 9 cases was it stated to be healthy. In only 6 cases were more than 3 oz. of fluid recorded in the pericardial sac.

My experience both as a teacher and an examiner has shown me that the student looks upon rheumatic pericarditis as a disease in itself, running through three definite stages: (1) the stage of early inflammation; (2) of pericardial exudation; (3) of resolution.

In the general study of pericarditis such a conception is undoubtedly useful as a finger-post to guide us through the first difficulties of the subject, but it is not a correct or even satisfactory description of the rheumatic form in childhood. It brings the element of effusion into too great prominence, both as an incident in the illness and as a factor in the production of grave symptoms, and places too much emphasis upon mechanical embarrassment of the heart, which in reality takes but little part in rheumatic pericarditis at this age. There seems by this view to be an idea that some mysterious stage of effusion must appear and disappear with the regularity almost of clockwork. But the pathological changes are much more complicated.

We know from experiment that rheumatic inflammation commences within the pericardial tissues and not upon the

surfaces. In severe cases the foci are innumerable; in mild cases they are fewer and may not even damage the surface endothelium. The exudations vary, too, in character with the virulence and stage of the process. The worst cases show haemorrhagic exudations, but more usually they are fibrinoplastic or serofibrinous and seldom very copious. If the process is obstinate and subacute, the changes may be chiefly in the pericardial tissues, where nodular formations may occur and great thickening of the parietal layer follow. The amount of exudation in such a case will be small, if any, and the two diseased layers will become welded together by scar formation between the opposed surfaces. This condition is comparable to that of mitral stenosis.

The morbid process, commencing as it does in local foci, may severely implicate one part only of the pericardium—for example, the posterior—and even when it is termed general there are often left comparatively untouched areas in which subsequently new lesions may arise causing pericardial friction, although at the necropsy the pericardium may appear to have been universally adherent.

In rare cases, again, a large effusion may give rise to special symptoms.

It is evident, then, that our conception of rheumatic pericarditis must be built up on a clinical study of individual cases, and we cannot assume a definite and regular sequence of events.

The practical application of these pathological changes in rheumatic pericarditis to clinical medicine is of great value. In this condition there is often great and sometimes extreme enlargement of the area of precordial dullness; and if we have trained our minds to a rigid adhesion to the three stages of pericarditis we naturally regard this increased area as the result, and further the measure, of effusion. Then naturally we shall regard the feebleness of the heart as the mechanical result of the effusion and be tempted to act upon this reasoning. What, however, is the real truth? It is this: In the vast majority of cases the increased area is the result of acute dilatation (added to, doubtless, in some degree by effusion), the dilatation itself being the result of a carditis. If we rashly thrust a trocar into the area of increased dullness we should probably pierce the heart, as has been done on more than one occasion.

I am convinced that it is a very valuable aid to the physician (for it is no light undertaking to venture upon operative measures in pericarditis) if he realizes that however large the area of cardiac dullness in the rheumatic pericarditis of childhood it is exceptional for this to be the result of a large effusion.

There is another point which, while of lesser importance, must not be lost sight of. Pericarditis is rightly looked upon as a serious lesion, but we must beware of assuming that because pericarditis is *not* present the heart is not seriously damaged. Apart from the great difficulty in detecting some cases of pericarditis there may be occasions upon which it does not occur and yet the heart affection be very severe. These are examples of myocarditis which show the same dilatation and excited action as do the pericardial infections but they lack the clinical sign of friction. Such a heart may be far more seriously injured than one in which there has been general pericardial friction. I have seen, as have others, several cases of general pericarditis in strong children run a rapid and most benign course, and later have failed to detect any fault but a slight mitral leak. This exemplifies a cardinal rule in the study of infective heart disease—that we must be guided by the general results of the injury to the heart and to the patient, and not entirely by clinical terms such as pericarditis or a clinical sign such as pericardial friction.

These three points bear recapitulation:

1. The varying types of pericarditis in rheumatic children.
2. The rarity of large effusions.
3. The dependence of the symptoms upon a concomitant carditis.

Pericarditis, in addition to the evidence it affords of severe infection, brings certain dangers of its own. Pain may be a prominent feature, increased no doubt in many cases by its association with pleurisy, and the supporting power of the pericardium is seriously injured when its tissues are severely inflamed. Doubtless the movements

of the heart are embarrassed when the two surfaces of the pericardium are much roughened, and, though in childhood much effusion is rare, exceptions occur introducing these added difficulties. Very serious results will follow when the inflammatory process has spread through the outer surface of the parietal pericardium and invaded the mediastina, joining here with other inflammatory areas in the pleurae, for when healing occurs the matted tissues around the pericardium become welded to it and in turn to the heart by the internal pericardial adhesions. These complications are occurring at a time when the heart is dilated and the neuro-muscular tissues weakened by the disease. It is these particular results of pericarditis which make it necessary to consider the lesion apart from endocarditis and myocarditis, provided we also remember that these are usually present at the same time and add to the complication.

The chief clinical forms of pericarditis in childhood are:

1. Acute internal pericarditis with some effusion.
2. Acute pericarditis, internal and external, with mediastinitis and pleurisy.
3. Malignant pericarditis.
4. Relapsing cases.

These distinctions are to some extent artificial, but they are of value at the bedside because they illustrate the various courses that this lesion may take.

ACUTE PERICARDITIS.

Every textbook deals fully with the signs and symptoms of this lesion. As a rule the temperature is considerably raised, and there is a general illness with precordial pain, rapidity and feebleness of the pulse, and considerable dilatation.

Delirium appears to me to be very exceptional in childhood, and in some of the few cases I have met with chorea has seemed to me a factor in the mental state.

We rely greatly on pericardial friction for clinching the diagnosis, although we may be practically convinced by the general symptoms and trend of the case, even when friction has not been detected. Yet there are not in all cases of rheumatic pericarditis in childhood great distress and illness. On the contrary, there may be neither, and the physician may well be surprised when in a case of chorea with no apparent distress he discovers on examination of the heart very obvious pericardial friction. In fact, we can never safely forget in the rheumatism of childhood that the heart invariably requires careful physical examination.

Pericardial friction is a very constant sign in rheumatic pericarditis, but I have not expressed this frequency in statistics because it is difficult to obtain accurate figures and they are open to considerable error. In general terms it may be stated that its occurrence is the rule and that the exceptions are either cases of active myocarditis or examples of pericarditis over a localized area on the posterior aspect, and in both instances the problems in treatment are closely akin.

When effusion occurs the cardiac sounds, as a rule, become less audible, and often the friction disappears or diminishes, but this is not constant, and it is well known that a loud pericardial rub may be heard even when there is a large effusion. More frequently the disappearance of the friction is followed shortly by its reappearance. The sound is then harsher and more grating, and is coincident with a general improvement in the child's condition. Clearly now the process of resolution is in progress, the two surfaces of the pericardium have approximated, and the exudation upon their surfaces has become more viscid.

The sequelae of pericarditis are beyond the scope of this article, but we have to remember that in the convalescence from acute pericarditis, provided there is no gross external adhesion, our attention must be shifted from the pericardium to the damaged myocardium.

Endocarditis is almost invariable, though occasionally we find no evidence of its occurrence. This, however, is so unusual as to suggest that the pericarditis may be the result of some other infection—for example, the tubercular rather than the rheumatic—although I have convinced myself that this event may occur also in the rheumatic form. It does not follow that because endocarditis is present we may at first be able to detect it, for the louder pericardial friction may entirely hide the softer valvular bruit.

The course of an attack of acute pericarditis varies not only in virulence but with the resistance offered by the patient. There are exceptional cases in which the friction disappears in less than a week and the temperature reaching normal remains at this level. The dilatation rapidly subsides and the recovery may reach in three weeks the period of steady convalescence. Eventually recovery may be complete and even the mitral valve may have escaped involvement.

Far more frequently the active period is at least three weeks, during which time the friction may appear, disappear, and again become audible. There are pain and breathlessness with orthopnoea, a rapid pulse and irregular fever.

A close watch must be kept for increasing dilatation, progressive pallor, and increased frequency of the pulse-rate. Vomiting and restlessness are alarming symptoms warning us that the circulation is much enfeebled; a view confirmed by the appearance of slight enlargement of the liver, a scanty sometimes albuminous urine, and some oedema of the lungs. The physical signs over the chest posteriorly are often important. When there is great dilatation or an unusual degree of exudation, pressure upon the left lung and its bronchus will produce a condition of collapse of the lower lobe which may be mistaken for pneumonia or effusion. The note is impaired at the base behind and the breath sounds are intensely tubular at the level of the lower border of the scapula. No crepitations need, however, be detected, and as the condition subsides the breath sounds become at first harsh and finally, in favourable cases, again normal.

It will greatly assist in the realization of this result on the left lung if an opportunity is obtained of seeing a necropsy upon a case of severe pericarditis with great cardiac dilatation. In such hardly any part of the lower lobe of the lung will be visible from the front, for it has been crowded back by pressure into the left axilla, and the condition of collapse will be very evident and the pathological signs produced easily understood.

I have only met with one case in childhood in which there has been an extreme effusion, producing embarrassment of the heart by its bulk and death by syncope. This was the case (No. 3) alluded to under acute carditis, and although operative measures, as the event proved, would have been of no avail, there was no escape from the fact that my interpretation of this case was a mistaken one. In this instance there was fullness of the intercostal spaces on the left side over the precordial area, which should have led to a correct interpretation when coupled with muffling of the cardiac sounds and the extreme distress.

A very remarkable coincidence followed this case in the admission of another child with severe pericarditis, muffling of the sounds, and an extreme area of cardiac dullness mounting as high as the second space on the right side. I was so unsteadied by my previous experience that I seriously considered surgical interference, but was checked by the very grave condition of the patient. The necropsy showed here that there was no fluid in the pericardium but a very much thickened parietal pericardium with recent adhesion to an enormously dilated heart. I record this case here as a warning of the care that is needed before deciding upon paracentesis of the pericardium, and of the extreme value of the guiding rule not to hasten to assume the presence of a large effusion.

ACUTE PERICARDITIS, INTERNAL AND EXTERNAL, WITH MEDIASTINITIS AND PLEURIS.

This group is a dangerous one, for it contains the cases in which the sequelae due to adhesions are the most serious. Here the pain and distress are greater, owing to the concomitant pleurisy. Pleuro-pericardial friction will be heard along the right and left margins of the cardiac dullness, and crepitations may be audible immediately under the stethoscope in the anterior mediastinum. In some cases the inflammation of the serous membrane is more extensive, and the surfaces of the liver and spleen are involved, and we hear the comparatively rare sign of peritoneal friction.

The course is a long one, extending, should the child survive the initial attack, over many weeks. The heart is greatly dilated, and remains so in spite of the greatest care in treatment. Later hypertrophy may develop, and then there may slowly supervene the signs of an adherent pericardium or of multiple serositis. To avoid any confusion by use of the term external pericarditis, I mean by it inflammation of the outer surface of the parietal pericardium.

MALIGNANT PERICARDITIS.

This may give rise to some puzzling signs owing to the thickening of the parietal layer of the pericardium. In some cases at the necropsy this layer may be found a quarter of an inch in thickness, and will be loosely adherent to the visceral pericardium by recent adhesions.

The course is protracted, but when from the first the disease implicates the entire pericardium it runs a disastrous course, which is best exemplified by the following instance:

A boy aged 7 years had a severe attack of carditis in the preceding year, and three weeks before his admission to hospital had suffered from multiple arthritis and precordial pain. His final illness lasted 8½ months. During this time there were repeated nodules, and there was irregular fever reaching to 104° F. From time to time pericardial friction appeared, and faded away only to reappear. He gradually became more anaemic and weaker, and died of cardiac asystole. The necropsy showed great thickening of the pericardium and some recent adhesions; no fluid was present in the sac.

I have termed this a malignant rheumatic pericarditis because it suggests to me a process in the pericardium closely akin to that met with in the endocardium in malignant endocarditis. There is great local change from the micrococcal infection with the formation of nodular masses containing necrotic areas surrounded by greatly swollen and damaged connective tissue. There is also considerable persistent pyrexia. We must not, however, expect to meet with the widespread dissemination of foci of infection that occur in malignant endocarditis, for the pericardium does not bear the same relation to the general circulation as does the injured valve. Numerous infarctions, aneurysms, and such like phenomena will not occur, but the likeness lies in the obstinacy of the infection, the fever, and the severe general symptoms.

RELAPSING CASES.

In the relapsing form we see the link between the preceding and the more usual acute pericarditis. The symptoms may never be severe, but the process advances by a series of local areas of infection, and pericardial friction may be audible at intervals for many weeks. When the rub disappears there is some degree of general improvement, when it reappears there is an exacerbation of the symptoms. The pulse remains rapid and the heart is excited and dilated. Considerable thickening of the pericardium may result, and the heart itself is much damaged by chronic inflammation.

This course is likely to supervene in fragile, weakly patients who have little power of thoroughly destroying infection, and the outlook is gloomy although it may be difficult to realize the gradual sapping of the cardiac power while the child is in bed carefully nursed and guarded.

The thickening of the parietal pericardium, which occurs with the deposit of thick exudation upon the opposed surfaces coupled with the cardiac dilatation, may readily deceive those who are not acquainted with this form of pericarditis. The cardiac sounds are muffled and the area of precordial dullness is greatly enlarged, and may precisely resemble the outline that is met with when there is a large exudation. Further, the interpretation of an x-ray examination needs caution. The report may support the view of a large effusion based upon the outline of the shadow, and yet, as I have confirmed, the necropsy has proved the contrary to be the case.

If we can clearly discern the outline of the heart separated by a lighter area from the outline of the pericardium this interpretation of effusion is justified, but in these particular cases no such distinction between the two outlines will be found. An attempt in such a case to drain the pericardium can only lead to failure and possibly to disaster.

In these instances, in which the pericardium is so much swollen and injured by disease, there is a serious danger of the incomplete healing of the foci, and, with the persistence of lurking infection, of the development of the malignant form of pericarditis.

NOTE.—A kindly critic has directed my attention to two badly expressed sentences in my first article. On p. 250, col. 1, lines 33 and 34, for "small follicular deposits" read "small deposits between the follicle"; line 49, "for internal ear" read "middle ear."

OBSERVATIONS ON SHELL SHOCK AND NEURASTHENIA IN THE HOSPITALS IN THE WESTERN COMMAND.

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SINCE December, 1916, I have been actively engaged, *inter alia*, as inspector of shell shock and neurasthenic patients in the general, sectional, auxiliary, military, Red Cross, and V.A.D. hospitals of the Western Command. The extent of this command may be judged from the fact that it reaches from Gretna Green to Milford Haven, and embraces the Isle of Man, Cumberland, Westmorland, Lancashire, Cheshire, Shropshire, Herefordshire, Monmouthshire, and all Wales. Having examined and taken notes of more than 800 cases of shell shock and neurasthenia in these hospitals, it has occurred to me that my observations thereon might be of interest and of some slight value in the treatment of these diseases.

The symptoms of shell shock have been fully analysed and described by many neurologists, and the painful picture of the acute sufferer drawn by able hands; but while great stress has been laid upon the disorders of the cerebro-spinal system, hardly enough attention seems to have been given to the altered functions of the sympathetic ganglia and nerves. I have been impressed by the large number of these patients with hysterical or pithiatric symptoms. When brought before me several—mostly young men between 19 and 25 years of age—have exhibited intense suffusion of the face, free perspiration, widely dilated pupils, rapid heart's action with weak pulse and cold clammy extremities, terminating in a hysterico-epileptic seizure with marked clonic spasms of comparatively short duration. The fine tremors have continued after the clonic spasms have passed off. I have met with several cases of hyperthyroidism with slight enlargement of the thyroid gland, one of which exhibited nearly all the symptoms of Graves's disease—palpitation, enlargement of thyroid, shortness of breath, anaemia, and protrusion of eyeballs. In one or two cases I have suspected hyperadrenalism from excessive functional activity of the suprarenal bodies under emotion. In these there has been slight cardiac hypertrophy, with rapid pulse and hysterical symptoms.

It is unnecessary for me to describe the coarse and fine tremors of shell shock patients. They may affect the arms and hands, legs, neck, and body generally, but I have seldom observed fine tremor of the tongue in a purely functional case. If this symptom exists it is generally found in the man who has reached or passed maturity and who has been addicted to the abuse of alcohol or excessive smoking. In testing patients for fine tremors I make them face me and extend the arms, one at a time, at right angles to the body and square with it, with the hands vertical and the fingers spread open, the head being turned to the opposite shoulder. Fine tremors are always more marked in the hand which is most used. The coarse tremors are often simulated by the malingerer or skrimshanker; the fine they cannot affect.

I examined a man recently who was called up as a recruit in January last, and who three weeks later, after inoculation, exhibited continuous coarse tremors of the upper extremities until three weeks ago. He had never been exposed to shell shock, or shock of any kind. It appeared to be solely a case of "funk" at "having to do his bit." He had no fine tremors of the hands or exaggerated reflexes. I recommended daily faradism, varied by galvanism if necessary, to the upper extremities. He has steadily improved, and a week ago absented himself from the hospital without leave, to be brought back a day later.

I have seen quite a number with all the tremors of shell shock who have never been near the fighting line, and many who have never been out of the country. Their symptoms have arisen from fright, worry, and nerve tension self-induced. Several of these men were old alcoholics of about 40 years of age who had been called up.

The symptoms of shell shock in wounded soldiers are often latent for a period after the wound is sustained. Hence the man arrives at the base labelled wounded only, and as such is sent to the general hospital on this side. Owing to the pressure on the home general

hospitals after a "push" many patients are quickly passed on to the sectional and auxiliary hospitals, and it is in these the shell shock symptoms are first manifest. The wound heals, but the shell shock symptoms remain. To ensure that such cases are properly treated we early last year gave instructions in the Western Command that these men should be removed as speedily as possible to the special neurasthenic hospital at Maghull. This has necessitated a considerable extension of that hospital, and the equipment of a second neurasthenic hospital in the southern portion of the command is to be undertaken at an early date.

The cases of hysterical or pithiatric paralysis, the hemiplegias, paraplegias, monoplegias, contractures, and men with halting gait and limps have been sent to the special neurasthenic hospital, Maghull, or to the special sectional nerve hospitals for treatment. I have not noted any ties, and I think they are comparatively rare in shell shock cases. The cephalalgias are mostly frontal and intertemporal, occasionally occipital in the hysterico-epileptic cases, never vertical. The pain is worse in the morning and increased by excitement or brain fag. Pains in the lower limbs are more usual than in the upper, and pains in the viscera and spine are not uncommon. A few of my cases have been deaf-mute or mute, a good number have spoken only in whispers, and many stammered or had blurred and hesitating speech. I have not had any patients blind through shock, although some had lost their sight but regained it before they came under my notice. A number suffered from periodic vomiting, and two or three had glycosuria.

The mental symptoms noted have occurred in the following order of frequency: Confusional, melancholic, delusional, stuporose, and maniacal. I have been struck by the relatively few cases of mania to melancholia which have occurred in this war. General paralysis of the insane also has been rarer than I expected. In many patients the memory is impaired for recent events and day to day actions and happenings, and there is a blank in regard to the incidents of their shell shock period. Memory for recent events of daily life, however, improves as the case progresses to recovery. I would here allude to the possibility of "altered character" resulting from shell shock. The moral tone of the individual may be changed for the worse, and this change of character may be out of all proportion to the severity of the original shell shock. With it there may be altered feelings, affections, temper, and habits generally. From the medico-legal standpoint this morbid mental state is very important in regard to responsibility, and must be duly recognized. I have seen such cases during the past twelve months, and no doubt there have been many of them.

TREATMENT.

It is now fully recognized that the various shell shock neuroses are very curable in the early stages, but much more difficult to deal with if allowed to drift, and, moreover, they can only be successfully treated by specially skilled neurologists, who have the entire confidence of the patients. Many letters have appeared in the general and medical press recently condemning the congregating of shell-shock patients and their association for treatment under a common roof. Such statements are misleading and wrong, for if these patients are associated for skilled treatment in a special hospital they are greatly assisted to recovery by contact with those patients whom they see are improving daily, and who will encourage them to persevere in the treatment so as to regain their self-control and self-confidence. That it is bad to congregate shell shock patients with others who are suffering similarly and are not improving through want of special treatment, I readily admit; and the non-improvement of the cases in sectional, auxiliary, and voluntary aid detachment hospitals under excess of sympathy, encouragement of auto-suggestion, and want of special treatment, has, I fear, been the cause of the statements alluded to.

In the early days of the war the treatment of shell shock—the outcome of the terrible explosives now used and the continued mental and physical strain of trench warfare—was not understood, and by some many of the symptoms were attributed to fear. This was soon corrected when it was found that many of the indubitably bravest men fell victims to it. Then came a complete

revulsion of feeling. The terrible picture presented by the acute sufferer appealed most forcibly to the finer sentiments of all, and an excess of sympathy and indulgence followed quickly. The patients were nursed with the tenderest care, surrounded with luxury, and considered in every way. Nerve tonics and sedatives were freely given, and when the milder cases improved somewhat, these patients were sent on sick leave to their friends, who said: "He is very low spirited; we must have a few people in and a merry evening to cheer him up. He wants a little stimulant, whisky or wine. We will take him for a motor ride. He shall go and stay with So-and-So at X (a large town, low-lying and relaxing), and be taken to the theatres and cinemas." All bad for the patient! So he did not improve, and a relapse frequently followed.

Now the treatment which has been found most efficacious is very different. The patients with acute symptoms are kept in bed, but made to get out and walk a few steps every day, when able, and are transferred to the Neurasthenic Hospital for special treatment as soon as possible. In the meantime, if sleepless, they are given medinal, trional, or bromide and chloral at night. Absolute quiet and fresh air (verandah life if weather permits) are essential, and no stimulants can be allowed. These acute cases are mostly treated at the base, at Netley, and in the special nerve hospitals of the command. I have seen patients, however, who have been kept in bed for weeks and weeks, petted and favoured in every way, who made no effort to help themselves, and consequently made no progress whatever. These were speedily moved to other surroundings, for treatment elsewhere.

The milder cases with tremors and those with hysterical or pithiatric, and mild hystero-epileptic symptoms improve under bromide and valerian, nux vomica, arsenic, and other nerve tonics, but environment and habits of life play an even more important part than drugs. Convinced of this I drew up last November the following "rules of health" for these patients, to be specially applicable to those in the sectional, auxiliary, V.A.D. and Red Cross hospitals, and to convalescents on sick leave. These were approved by the Deputy Director of Medical Services and issued.

Rules of Health to be Observed by Shell Shock and Neurasthenic Patients.

1. Live as much as possible in the open air by day and night. Always have a window open at night.
2. Exercise both of body and mind is essential, but it must be carefully regulated and never taken to exhaustion. When the legs tire, sit down. When the head swims or aches and you cannot collect your thoughts, put the book down.
3. Avoid crowded rooms, cinemas, and theatres. Excitement and close rooms are harmful.
4. Avoid all alcoholic stimulants; they are most injurious in shell shock cases, as also is the excessive indulgence in tobacco, especially in the form of the cigarette.
5. Keep early hours. To bed before 10 p.m.
6. Let the meals be regular and the dietary simple, liberal, and highly nutritious. Rest for an hour to an hour and a half after the midday meal.
7. Avoid cold baths until you can get the afterglow. Prolonged hot baths are enervating. Tepid are best.
8. Electricity and massage are of no use, except for wasted muscles or stiffness of joints.*
9. Exercise self-control to re-establish self-confidence by re-education, recognizing all the time that your condition is one which should result in complete recovery.
10. When on leave and your movements are under your own control: (a) Be in the country rather than in a town. (b) Avoid all worry, noise, and excitement, all raided areas, proximity to training camps, and the jar of explosives and gunfire. (c) Never travel by train, motor car, or tram if you can avoid it. (d) Stay at a high altitude where the air is bracing in preference to a low level, where it is generally relaxing. This does not apply to bracing seaside resorts.

Carefully controlled employment of mind and body is most necessary to expedite recovery and divert the patient's thoughts. He must be out of doors whenever the weather permits, engaged in gardening, wood-cutting, and outdoor sports and games, and, when indoors, in workshops, and in taking part in the various amusements of home life. Clear, bracing air is very important. A number of our neurasthenic officers who were not doing at all well in a palatial low-lying residence were moved to a castle at a higher altitude a few miles away, and they improved at

once. Patients moved from large towns to bracing seaside resorts have made similar progress.

For the severe neuralgic headaches we give aspirin and phenacetin, and, to those who have been in Mesopotamia and Salonica, quinine. The man who stammers needs re-education. I tell him to read aloud to himself for half an hour, morning and afternoon; then to read to one or two of his fellow-patients, one of whom, if possible, should have had the same trouble and got the better of it. Treatment of functional paralyses and hysterical symptoms by hypnosis and psychotherapy has given excellent results with a high percentage of permanent cures. Psychotherapy is the chief method of treatment adopted at the Neurasthenic Hospital, Maghull. It embraces suggestion, persuasion, therapeutic conversations, re-education, and exercise of the functionally paralysed limbs. The physician, as it were, masters the patient, gains his entire confidence, analyses his troubles and morbid ideas, and sets his mind at rest.

A Special Neurasthenic Invaliding Board under the Ministry of Pensions deals with shell-shock cases, and most difficult are these patients to adjudicate upon, for many will recover completely when they are once out of the army, and have lost all fear of ever again being in the fighting line. It is doubtful whether any of the many I have examined in this command will be fit for active service in the fighting line during this campaign, but I believe nearly all will ultimately recover, and many of them are brave fellows (there are V.C.s among them) who have given of their best in the service of their country.

WAR PSYCHOSES OCCURRING IN CASES WITH A DEFINITE HISTORY OF SHELL SHOCK.

BY

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THE opinions here expressed have been formed from the examination of over 4,000 cases of soldiers admitted to the Mental Division of the Lord Derby War Hospital from the Expeditionary Forces. The symptoms have been all quoted from personal records and observations on cases where the history showed definite proof of actual close proximity to shell explosion.

The following were by far the commonest: Amnesia, melancholia, mental confusion, delusions, and hallucinatory disturbances. The condition of stupor was also met with, but was not so common as the aforementioned, and in some instances the sequence of events showed that cases which had been admitted to hospital originally as definite cases of "shell shock" have subsequently passed into a neurasthenic condition, which again has not improved, but drifted into states closely resembling dementia praecox. Retardation of thought was a pronounced symptom in the majority of cases; mutism and deafness were also met with. Associated with the above symptoms were headache, insomnia, terrifying dreams, general nervousness, and varying strange sensations in the head. As regards the physical signs, the deep reflexes were always very much increased, tremors were present almost universally in the tongue and outstretched hands, and the pupils were generally dilated. Frequently patients complained of throbbing sensations in the precordia, clamminess of the skin, and appeared before one as highly strung and emotional.

Amnesia.

This, in my experience, is by far the most common symptom; the cases that have come under my review have covered periods of very varying duration. I will give a few of the very many instances:

CASE I.

Pte. L., admitted with the history that after leaving the trenches he had absented himself from his unit, and when found could not state where he had been or what he had done with his belt or bayonet. He appeared generally strange, and on this account was evacuated to England as a mental case. The period of absence in this case seems to have been only a few hours, but on recovery from his accompanying mental symptoms in this hospital he sternly denied that he had any recollection of what happened or where he had been during

* This rule requires qualification. It means electricity and massage in unskilled hands, and not in those of the skilled physician, to whom electricity is most useful in demonstrating to the patient that his muscles will act if he has confidence and will make the effort.

this time, and excused himself on the grounds that he had been recently subjected to a very heavy bombardment and felt "done up" when he left the trenches owing to loss of sleep.

CASE II.

Gnr. P. was serving the gun when he was knocked over by the recoil. Shells were bursting around him and he was carried to the dressing station. He remembers nothing till he found himself on a hospital ship coming to England. Documents accompanying the case showed that upon August 18th, 1916, he was found wandering away from his unit, and as he did not reach England until August 21st, it is certain that his period of amnesia must have lasted over two days at any rate, and perhaps longer. He could recall nothing from the time he went to the dressing station till he was on the boat.

CASE III.

Pte. H. was admitted to a casualty clearing station on September 17th, 1916, with a report that he had been buried by a shell. He could give no information about himself in the various hospitals he had passed through, and was eventually admitted to the Lord Derby War Hospital on October 4th as unimproved. Upon recovery, which was gradual and indefinite, he stated that he recollected something happening in the shape of a shock to his head when in the trenches, but nothing more. He did not remember going into hospital, and until October 12th did not seem to be able to remember anything.

Many other instances could be quoted, but it is thought that the above typical instances will suffice.

Melancholia.

All grades of this condition were met with and were often associated with active suicidal promptings. I quote the following as examples:

CASE IV.

Pte. D. was admitted to hospital in France in July, 1916, as a case of shell shock, for which he was sent down to the base; after being a week there he was returned up the line again as an officer's servant. After having been again under bombardment in the trenches he became strange in his manner, and the officer to whom he was servant noticed that he was very depressed. He was again admitted to hospital on this account on August 19th of the same year, and eventually transferred to the Lord Derby War Hospital, where his most prominent symptoms on admission were those of melancholia and complaints of great pains in the head.

CASE V.

Gnr. C. had been three months under considerable trench and shell experience when he noticed that he was unable to sleep at night and felt "queer." He carried on for another four weeks, when he mentioned it to his corporal, but asked him to say nothing to the doctor. Two months later he was reported sick owing to the fact that he was quite unable to do his duty and had refused anything to eat or drink for several days, and would not answer questions. He was admitted to hospital, where he was found to have several sticks of cordite in his pocket. He was evacuated down the line, where he is described as being in a depressed mental condition, seldom saying anything more than "Yes" or "No," and eventually admitted to the Lord Derby War Hospital in much the same condition, presenting all the features of melancholia.

CASE VI.

Pte. F., on July 1st, 1916, when in a dug-out, was hit on the head by shrapnel splinters. He was admitted to hospital, apparently with superficial wounds, and remained there ten days. He was then discharged to convalescent camp; whilst there, he felt his head bad, and was eventually found walking about with an open razor in his hand in a dull, depressed condition. He was evacuated to England, and admitted in the middle of September to the Lord Derby War Hospital, showing still a good deal of depression, and answering all questions in a melancholic voice. He said he felt worried about what he had seen in the trenches, and this kept him awake at night. He was in a typical melancholic condition.

Confusional States.

The symptoms under this heading varied from general muddled feelings in the head to a complete disorientation of time and place, and attacks of complete amnesia.

CASE VII.

Pte. R. was knocked out by shell explosion at Albert on July 12th, 1916, and appears to have been buried also. He was evacuated to the base, and was admitted to the Lord Derby War Hospital early in August, when he presented a dull, heavy, far-away look, with general confusion of thought, and difficulty in concentrating his attention. He stopped in the middle of replies to questions, as if muddled and unable to express what he wanted to say. He complained of a dizziness in the head, as well as severe occipital and vertex headache, and also of buzzing in the ears. He often repeated the last word in reply to questions—for example, asked when he went to France for the second time, he said, "May, 1916, 16, 16, 16." His mentation generally was slow, and there was considerable difficulty in obtaining

from him any history of his experiences. He said, in fact, that he "could not think," but that he had been all right until the shell came.

CASE VIII.

Pte. M. was buried by shell about the middle of August, 1916; he tried to carry on, but was noticed acting strangely. He was brought before his R.M.O. on this account on September 5th and evacuated to the base. He was eventually admitted to the Lord Derby War Hospital in the middle of September in a very confused condition, completely disorientated in time and place, and apparently thinking that he was still in France. Otherwise, in answering most questions he was sensible, and could give a good account of his experiences prior to being buried. His memory for recent events, however, was very defective.

CASE IX.

Spr. J. He describes two shells dropping about the end of June, 1916, one on each side of him, in a front line trench. He said he had the sensation as if his head were off, and he felt very much shocked but did not lose consciousness. He returned to his billet, and the next morning complained of pains in his head and a shivering feeling all over him. On this account he was evacuated to the base. He was admitted to the Lord Derby War Hospital on August 25th complaining of severe pain in his head, especially at night, which prevented him from sleeping, that he had a muddled feeling in his head, and could not concentrate his mind on anything. There was some degree of melancholia also, but the prevailing symptoms were those of confusion and inability to give any details of his illness, associated with extreme nervousness, amounting even to fear when spoken to.

Delusional States.

All forms of delusion were met with, some taking even the grandiose type, which, associated with the tremors and markedly increased deep reflexes, led to the erroneous diagnosis of general paralysis in a few instances. The commonest delusions met with, however, were of the persecutory type. The three following examples will suffice:

CASE X.

Pte. D., at the end of April, 1916, after having been ten months on and off in the trenches and subjected to heavy bombardments, complained of pains in his head and noises in his ears. During the night he began roaming about, and was sent sick to a field ambulance. He was described as being, when there, in a dazed condition; he was thought to be suffering from severe nervous exhaustion, and was passed down the line. He was eventually evacuated to England and admitted to the Lord Derby War Hospital, where it was elicited that, in addition to other symptoms, he had the idea that the hospital was mined, was apprehensive that some commotion was going on outside the building, and stated that he often heard the sound of rifles going off.

CASE XI.

Another man thought the men of his regiment were plotting against him and were trying to get him into trouble, that they sneered at him and made insulting signs at him, that they talked outside his billet and called him filthy names.

CASE XII.

A third man seemed to think that he had done something wrong and that other people thought that he had committed some crime for which he was going to be shot.

Instances in which the patient had the idea that he was being looked upon as a German spy were so common that they deserve mentioning on this ground alone.

Hallucinatory States.

Both aural and visual hallucinations were met with, but the former were more common. The following are cited as examples in which the hallucinations were the predominant feature.

CASE XIII.

Pte. D., after service in the Dardanelles, where he contracted dysentery and was invalided back to England, rejoined his regiment and was sent to France. There he was subjected to very heavy bombardment in the trenches, and said that he absolutely could not stand it and had to put his fingers in his ears—it so frightened him. He was sent from his regiment to a field ambulance towards the end of April, 1916, complaining of pains in the head and noises in the ears, and on examination was found to be in a very lost mental condition. He was evacuated to the base and subsequently transferred to England and admitted to the Lord Derby War Hospital, where he was found to have passed through an attack of complete amnesia. He described a heavy bombardment going on and that the next thing he was aware of was finding himself in hospital. He was very depressed and acutely hallucinated, saying that he heard "the voice of God" reprimanding him for his past misdeeds. This condition remain fixed, and he subsequently developed the delusions that his bed was affected by electricity and that he was the subject of magnetism. This condition still persisted after eighteen months' residence.

CASE XIV.

Another man who was found wandering from his unit after heavy bombardment was admitted to hospital in a dull, listless, and apathetic condition. On admission to the Lord Derby War Hospital he stated that he had distinctly seen a vision of his mother whilst he had been in bed at night. There was also a period of complete amnesia in this case from the time he was found wandering till shortly before his admission to this hospital, covering a period of about twelve days.

Many of the symptoms above quoted were, of course, associated in the same case, and the following *précis* of the history and progress of such cases will now help further as illustrations:

CASE XV.

Pte. H., aged 23, gave no history of any nervous or mental trouble in his family. He left school, aged 13, Standard VI, and assisted his father, a furniture dealer, in which work he was occupied at the outbreak of war. He had had no illnesses of any importance up to the time of his enlistment in November, 1915. He went to France in April, 1916, and was in the Somme advance. He was admitted to hospital in France as a case of "shell shock" in August, 1916. He complained of very severe headache, and was unable to give his number, name, or regiment. The day after his admission he was found wandering along the road about half a mile away from hospital in a confused condition. He was returned to the hospital and kept for a further period under observation, during which time some suspicion was aroused as to his being a malingerer. It was finally decided, however, that he was "weak-minded," and he was evacuated to England as a case of "dementia."

When admitted to the Lord Derby War Hospital in the first week of September, 1916, he complained of "feeling funny in his head," and that he could not sleep at night owing to the thoughts of his experiences in France. He was unable to give a clear account of how he reached hospital, but had some hazy recollection of being in a base hospital in France. The last thing he recollected clearly, however, was being with a machine-gun section in the trenches. No hallucinations could be elicited, and although he was somewhat slow in his reply to questions he showed no signs of being a mental defective. Physical examination revealed no wounds or signs of injury and no stigmata of degeneration. No marked neurological signs were present. The case progressed satisfactorily under treatment; he regained his full memory for both recent and remote events, and on November 21st, 1916, was sufficiently well to justify his being discharged from hospital to duty for home service.

CASE XVI.

Gnr. G., aged 22. No nervous or mental trouble could be traced in the family. He left school, aged 13, Standard ex-VII, and started work as a cabinet maker, which trade he worked at up to the time of his enlistment. He had had no previous illnesses and was a teetotaler. He joined the army in July, 1915, and went to France the following month. On August 9th, 1916, about 2 p.m., he asked a lance-corporal of the Military Foot Police if he could assist him in getting to England; as he appeared strange in his manner he was detained by the police and taken to hospital. Here he is described as "an idiot," and could not account for how he got there. He said that "Flo came to him yesterday and told him to go home." He was eventually evacuated to the base and transferred to England.

When admitted to the Lord Derby War Hospital, early in September, 1916, he appeared quite rational, but stated that he did not know what had happened to him, and thought he had had shell shock, but that he now felt quite fit except for occasional feelings of nervousness. He remembered going to sleep in a cellar near the firing line when some shelling was going on in the neighbourhood, but could recall nothing more till he "woke up" and found himself coming over to England. Before this he had on one or two occasions felt as if a rifle had gone off between his two ears, which had startled him very much and made him very dizzy. He had had no leave since he had been in France, and had felt considerably exhausted. Intellectually he was well up to the average standard, and his memory, apart from the above described period of amnesia, was quite good, and his power of retention unaffected. Physically he presented fine tremors of his outstretched hands, but no other marked neurological signs. He progressed satisfactorily, and on October 3rd, 1916, was considered fit to be discharged to duty for home service.

CASE XVII.

Cpl. B., aged 23, gave no family history of any nervous or mental trouble. Was up to the average standard at school, and employed helping his father as a confectioner up to the time of his enlistment. He went to France about July, 1916; in August he was blown up by shell and evacuated to England and admitted to the medical division of the Lord Derby War Hospital as a case of "shell shock." He was discharged to duty in May, 1917. On his arrival at his unit he appears to have been considered unfit for duty and immediately sent to hospital again. While under treatment there he appears to have been subject to attacks of excitement, during which he was described as a danger to bystanders, and it was on this account that he was sent back to the Lord Derby War Hospital on September 17th, 1917, and admitted to the mental division.

He was a somewhat pale, apprehensive-looking youth, who replied to all questions in a whisper. He stated that he had been dumb for several months, and that his voice had returned

of its own accord, though never more audible than it was then. He said he could not sleep owing to noises in his head, and he appeared to be in a very highly strung, nervous condition and easily upset. He admitted having attacks in which he had lost his self-control, and said that at times he seemed to have lost consciousness. At the time of examination no evidence could be obtained of visual or auditory hallucinations. He stated that during his attacks of excitement he seemed to visualize that he was out in the trenches fighting again. Physical examination revealed tremors in the upper extremity, increased deep reflexes and somewhat dilated pupils, which, however, were active to light and accommodation. On laryngeal examination no evidence of any paralysis could be found, and the aphonia was considered to be purely functional.

After three weeks' active treatment by suggestion his voice returned to normal for the first time for twelve months, and he said he slept better and felt improved in every way. The improvement was maintained, his tremors passed off, and on August 29th, 1917, he was discharged from hospital to his home to resume his former occupation.

CASE XVIII.

Pte. J. gave no history of any nervous or mental trouble in the family. He left school at the age of 15, well up to the average standard, and had since been employed in clerical work. He had also devoted a good deal of time to gymnastics, besides being an assistant scoutmaster two years and a half prior to enlistment. He joined the army in August, 1914, and went to France in 1915. Towards the end of June, 1916, up to which time he had been subjected to considerable shell and trench experience, he was reported as strange, and wandering about aimlessly, frequently speaking of spies, and wishing to search for them. It was on this account that he was admitted to hospital, where he is described as being in a continuous state of tremor, and to walk about like an old man. He asked to be allowed to make an expedition into the woods to find spies he knew to be hiding there. He was evacuated to the base, and transferred to England. When admitted to the Lord Derby Hospital about the middle of July, 1916, he was conscious, and aware of his position and surroundings, but stated that he could not recall leaving the trenches; that during the whole of his passage through the different hospitals he seems to have been in a confused condition, and not able to explain himself. He still felt that he had not the same control over himself as formerly, but said that he was feeling better and stronger. He had a difficulty in concentrating his attention, and when people were talking to him he often found that he had to ask them what they were saying; his mind was continually wandering to the sights he had seen in the trenches; on one or two occasions he had found himself crying, and did not know what he was crying for. The apex beat was heaving, and the heart sounds were very much accentuated. He complained of a throbbing sensation over the precordia. There were marked tremors in the tongue and upper extremity, and the deep reflexes were all increased; the pupils were dilated, though normal in reaction. The case progressed favourably, and on November 18th, 1916, he was well enough to be returned to duty for home service.

Many more cases could be quoted, but the above seem to be fairly characteristic examples. Before concluding I should like to emphasize the present-day importance of the differential diagnosis between all shell-shock cases and general paralysis of the insane. I have met with quite a number of cases in which the latter was diagnosed as shell shock, and vice versa, and have been particularly struck with the remarkable similarity of symptoms in many cases. In quite a number in which there was a definite history of being blown up by shell patients have presented confusional states with considerable loss of memory associated with tremors of tongue, facial muscles, tremors in the outstretched hands, increased deep reflexes, syllabic stumbling in the speech, and even delusions of grandeur. Careful examination of the pupil reactions, together with ophthalmoscopic examination of the fundi and Wassermann reaction of the blood and cerebro-spinal fluid, however, has corroborated or negated the diagnosis.

I have seen a few remarkable cases in which shell shock and general paralysis were associated in the same patient.*

Hyperthyroidism is another condition which requires to be carefully excluded in the diagnosis of "shell shock."

In reviewing the family histories of cases it was found that the number in which there was definite admission of any nervous or mental trouble in the patient's family history was comparatively small. On going through the histories of fifteen cases, one showed that the patient's maternal cousin and maternal grandmother had been inmates of an asylum; another that his paternal uncle had

* Since recording these opinions a summary of Dr. Ramsay-Hunt's observations whilst employed in the routine neurological examination of 1,500 men in an American officers' training camp has been published in the *Medical Review* of March, 1918, to which I must refer the reader.

been in an asylum; a third that his brother was a ne'er-do-well, and that his mother died of a "stroke"; and in a fourth case the patient's mother was a doubtful epileptic. In the remaining eleven cases the family was free from nervous or mental trouble. In dealing with the question, however, one has a feeling that these histories are by no means always reliable, and in dealing with men coming from all parts of the world it is impossible to corroborate them.

In conclusion, I should like to state my agreement with other writers on the subject that the predisposing causes of these conditions has no doubt been "fear." The fear of being afraid is now commonly recognized as a very important factor in the production of all functional conditions, but want of sleep, cold, wet, and the appalling sights at the front have all no doubt contributed their share to the climax which has been brought about by the shell explosion, when each individual reacts to emotions according to his personality.

THE EARLY STAGE OF HYSTERIA.

BY

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For three years I have been interested in the diagnosis of functional nervous disorders, and I have observed certain facts which seem to me of fundamental importance.

Three classes come up for consideration:

A. The *malingeringer*, who has determined to attain a definite end by the simulation of disease. This is not a large group and does not call for special attention here.

B. The man who goes sick with *feigned or exaggerated symptoms* without any more definite object in view than, say, to avoid a route march or an unpleasant fatigue. A patient of this class at the time when he reports sick may be suffering from that feeling of tiredness which at times comes to all of us, and which is called by the French soldier "*le cafard*." This word was rendered into English by an official interpreter as "the hump." "To swing the lead" is a well-known phrase, and, like all successful slang, expresses a *nuance* which no other set of words conveys. It is of nautical origin, and when used by a soldier signifies "to plumb the stream of consciousness of the medical officer." The man who "swings it" is not a pure malingerer and has not set out deliberately to carry a deception through to an end; he is only "trying it on," and if he fails he returns to duty with but a small grievance against his medical officer.

C. The *hysteric*, who differs from the members of Groups A and B in that he has a belief in the reality of his disability. In addition to this belief there may be other manifestations showing that the disability is associated with a change in the personality of the patient.

Between these three groups, members of which when typical are easily distinguished, intermediate and doubtful cases occur, and although in theory Groups B and C should be quite distinct, yet I have seen many cases in which I could not make the distinction.

Of cases falling within Group B numberless examples are admitted to hospital with the most varied diagnoses—"cerebro-spinal fever," "appendicitis," "peritonitis," "laryngitis," "tabes," "internal derangement of the knee," "pleurisy," "myalgia," "rheumatism," "gastritis," "D.A.H.," etc., have all within my knowledge been credited to patients who were suffering only from "*le cafard*," and the men have gone back to duty after a single interview, satisfied to be given the chance of escape from a false position without undue loss of self-respect.

The importance of Group C is realized by few. With the single exception described below, I have never watched the development of hysteria *ab initio*, nor apart from so-called "shell shock" can I find such a case described in the literature; nor have I met a medical man who has watched a case from the beginning. Neurologists, as such, never see one until it is fully developed. So far every case of hysteria I have seen in the army, again excluding examples of "shell shock," had been diagnosed and treated as organic disease. This, with the fact that I have seen from its origin only a single example of hysteria, though I have been watching for cases for three years, explains why

we never find them described. The officer who is able to diagnose and describe such a case never allows it to progress.

In my wards a man recovering from a wound has always been encouraged to use his limbs as soon as possible, but many patients are seen in whom a hysterical paralysis or contracture has followed a more or less trivial injury.

The history of my one case is as follows: A soldier sustained a fall and was admitted to hospital with a bruise over the ilium. He complained of severe pains, increased by pressing apart the iliac spines. I suspected a fracture of the pelvis, put on a tight binder, and had the bones radiographed. Then he began to complain of pains down one leg, where I found alterations in sensibility and a loss of power which puzzled me considerably, I being for the time off my guard. Ten days later the foot on the affected side began to assume a varus position, which I recognized as hysterical. Energetic treatment removed all the manifestations. He returned to duty, and was seen by me some months later, when he was quite fit. Looking back upon this case, I have no doubt that if I had applied those tests for superficial hyperaesthesia which I have described in a previous article,¹ I should have found that the original pains were largely of mental (psychical) origin, and I should have missed a valuable but unintentional experiment.

I have returned to duty scores of men diagnosed as "myalgia," "sycovitis," "arthritis," and what not, whose symptoms I have proved to my own satisfaction to be not of organic origin. What can be the result if such patients are solemnly treated as if they were suffering from real disease? The answer is given in the introduction by Colonel Aldren Turner, C.B., to the translation of *Les Psychoneuroses de Guerre*, by Roussy and Lhermitte, where he writes, "It is not exceptional to find paralyses and contractures preceded by more or less vague pains in the joints of limbs which have been bruised."

The conclusion is forced upon me that Group C is largely derived from Group B; in other words, the "lead-swingers" diagnosed as suffering from organic disease becomes, frequently at any rate, a hysteric.

This conception, which makes the phenomenon of disability precede the hysteria, is a reversal of that usually held; but it is based upon observations which have been inaccessible to pure neurologists. The only investigations I have been able to discover upon early cases were those carried out by Babiński and his co-workers, and they resulted in the overthrow of the classical description of hysteria, and the relegation of stigmata into the background.² If we go still nearer the fountain-head, and work for a while in the duty room of a home hospital to which the local sick are brought, a series of cases will be found there in which all manner of paraesthesias can be elicited and demonstrated.

It is often possible before examining a patient of this class to prophesy what the findings will be. Thus, in a patient who knows his complaint is diagnosed "arthritis of the knee" one can practically always demonstrate "pain" to pressure upon the adductor tubercle when this is approached by the examining hand from above downwards; a light touch with the point of a pin will be said to be painful over an area corresponding to the adductor tubercle, and similar reactions may perhaps be obtained over the head of the fibula. The reason for this is, as I believe, that the patient does not know what are the symptoms of the disease, and therefore watches for what the examining doctor is seeking, and takes care that the doctor is not disappointed.

When I first saw the patient whose case is related above I searched for evidence of pain on separating the iliac crests, and naturally therefore I found it; but when at a later date I examined the leg my mind was open as to what I might find, with the result that I only succeeded in puzzling myself. Had I examined for a stocking anaesthesia I might, and probably would, have found it.

In another case I looked only for the ordinary symptoms of a chronic appendicitis, found them, and removed the appendix. Disability persisting for a long time, I looked for extraordinary and absurd symptoms, found them, and returned the man to duty.

It is not uncommon to prick a "weak" or "paralysed" upper extremity and see the patient flinch. Then, if one asks the question, "Did you feel that?" he answers "No,"

and for the rest of the examination never flinches again. This phenomenon I have noted in three cases where there was extrinsic evidence of malingering.

Babinski demonstrates the rarity of "hysterical anaesthesia" by blindfolding the patient and telling him to point to the spot touched. This method avoids hinting at anaesthesia, but conveys a different suggestion, and I have found that the patient sometimes fails to localize the spot correctly. For either of these methods to yield instructive results a "virgin subject" is necessary.

That the blessed word "suggestion" is not a sufficient explanation for these phenomena I satisfied myself recently during a month spent in the receiving room of a London civil hospital. I examined many cases in search of suggestibility, and found it but twice—once in a nervous girl suffering from acute appendicitis, and once in a man upon whose foot a barrel had fallen whilst he was at work.

The objection will certainly be raised that those patients who become definite examples of Group C, and therefore fall amongst the hysterics, were hysterics from the start; and seeing that the differential diagnosis is, apart from extrinsic evidence, only a matter of judgement upon the part of the examining medical officer, and cannot rest upon signs or symptoms, the objection is hard to answer. I can only say, "Go and look"; make your own observations, and see if they do not lead to the opinions to which I myself have been forced.

The number of cases sent to hospital depends largely upon the medical officer. One medical officer may send five a month, another in similar circumstances may send in fifteen a month, or even fifty a month, all nicely diagnosed. If the extra ten, or forty-five, or whatever the number may be, are all claimed as hysterics I cannot contradict, or if they are "lead-swingers" I cannot prove that any would become hysterics if they were treated as suffering from real disease. I can only point to a steady influx of one type of case, to the presence of intermediate types which I myself can never differentiate, and to the increasing numbers of the finished product—the hysteric who gives a history of having been diagnosed and treated as a case of organic disease. The transition from one to the other can be explained according to modern conceptions of psycho-pathological processes, but for the present I refrain from theory.

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MEDICAL ASPECTS OF THE FOOD PROBLEM.

ABSTRACT OF A PAPER READ BEFORE THE WEST
LONDON MEDICO-CHIRURGICAL SOCIETY
ON APRIL 5TH.

By ROBERT HUTCHISON, M.D., F.R.C.P.,
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THE present shortage of food as it affects health may be considered in various aspects:

I. The Effects of a Diminution in the Diet as a Whole.

The needs of the body in terms of energy under different conditions have been determined by physiologists with great accuracy. Thus a patient at rest in bed requires an intake of about 1,800 calories, an ordinary man engaged in sedentary or intellectual work about 2,450, and a man doing an average day's muscular work about 3,450. For really laborious work about 4,000 calories or more are required. The contention that brain workers do not require much food is not a mere scientific theory as some writers in newspapers would have us believe, but is a thoroughly established scientific fact.

If the intake in energy in the form of food falls below these figures weight is lost owing to body fat being consumed to make good the deficiency. Thus a reduction in the fat ration of $\frac{1}{2}$ lb. a week would entail a loss of a stone in weight in seven months. The loss, however, is not progressive. After a time the individual "touches bottom" and is able to maintain a lower weight on the diminished diet. This result is rendered possible by the lessened output of energy required for transporting a smaller body weight and also, according to Lusk, by an economy in

"fundamental metabolism." The loss of fat, also, means a lesser body surface with diminished heat loss, though this may be to some extent set off by the removal of some of the blanket of adipose tissue.

Most people have lost weight in this way during the last few months, but if the loss be not out of proportion to the total body weight they may be reassured. A 10 per cent. loss is probably not excessive, and is often accompanied by a real improvement in health. The loss of weight may be retarded by warm clothing, by avoiding unnecessary exertion, and by liberal hours of sleep. There is, of course, a danger point below which the body weight must not be allowed to fall, but it is impossible to state exactly where it is. Probably it is represented by the point at which the body begins to lose nitrogenous tissue as well as fat. Beyond this point energy suffers, and there is apparently a greater liability to disease, especially to tuberculosis. The tendency to functional nervous disorders seems also to become greater. It must be remembered that, as Greenwood has recently pointed out, many conditions of disease which have been attributed to underfeeding are really not due to too little food as a whole, but to a shortage of the specific constituents called vitamins. Hence the scantier the diet the more important it is that it should be varied in character.

2. Effects of an Altered Ratio of the Chief Nutritive Constituents (Protein, Fats, Carbohydrates).

The present restrictions tend to make the diet poorer in protein and fat and richer in carbohydrate than is usual in this country. The normal protein content of a freely chosen diet is about 100 grams or more, but there is no doubt that physiological needs can be met by much less. It is not likely, therefore, that health will suffer from a restriction of this constituent, but whilst growth is going on, during childhood and adolescence, and during pregnancy, care should be taken to maintain the protein intake at a high level. Extra rations of milk are allowed to children and pregnant women, and the needs of adolescents can be met by a free use of unrationed nitrogenous foods, such as fish, eggs, and the pulses, etc.

It should be remembered in this connexion that the proteins of meat are of specially high biological value, and it requires a relatively larger amount of most vegetable proteins to replace them. Fortunately, however, the biological value of the nitrogenous matter in the potato is peculiarly high. Meat has also a special power of increasing heat production, and its diminution in the diet is therefore less felt in summer than in winter. It will be interesting to see whether the present compulsory semi-vegetarianism has any effect in lessening the incidence of such conditions as gout, epilepsy, and migraine. It should also be beneficial to sufferers from chronic vascular and renal troubles.

On the other hand, there is reason to believe that diminished intake of protein, and especially of animal protein, increases liability to tuberculosis. The comparative immunity of the carnivora to tuberculosis is of interest in this connexion.

The proportion of the total energy which is taken in as fat or carbohydrate respectively varies greatly in different individuals, 100 grams of fat to 400 of carbohydrate being perhaps a fairly common ratio. From the point of view of heat and energy production in the body it is a matter of indifference which is consumed, one part of fat being equivalent to two and a quarter of carbohydrate. It is an interesting question whether there is any part played by fat in metabolism which cannot be taken by carbohydrate. Rickets, for example, has been attributed to deficiency in fat, although on rather uncertain evidence, and it is generally believed that fat has a specific power of preventing tuberculosis. On the other hand, a diet relatively rich in carbohydrates may bring out a latent tendency to diabetes, although this is not likely to happen so long as sugar is as scarce as it is at present.

It is, however, on the digestive organs that the effects of a disturbance in the normal ratio between fat and carbohydrates is most likely to be felt. A relative excess of starch tends to favour gastric hyperacidity. The present diet also is undoubtedly bulky and flatulent, mainly because it is rich in cellulose. It is chiefly in the intestine that flatulence results, owing to the production of marsh gas, but the bulk of the diet may be trying to an atonic

stomach. This may be obviated by careful chewing and by not drinking at meals. Flatulence in the colon is usually not troublesome unless associated with constipation. Care should therefore be taken to regulate the bowels with a mild laxative, if necessary, although some patients find the present diet itself rather laxative, and if the colon be irritable it may even lead to diarrhoea, which a little bismuth or chalk will correct. In all these cases green vegetables should be avoided as they are rich in cellulose and do not add much to the nutritive value of the diet.

Carbohydrates have, of course, to be avoided by diabetics for metabolic reasons and by children with so-called coeliac disease, possibly because of defective pancreatic secretion, but for both these classes of patients special provision has been made in the rations.

3. Effects of Alterations in Quality of Staple Foods.

The chief staple food the quality of which has altered since the war is bread. The present bread contains more of the husk of the wheat grain than the pre-war bread, besides added cereals such as maize, barley, rice and oats. Chemically it is superior to white bread, and experiments have shown that it is as well digested (in the physiological sense). Patients, however, often complain that it is "indigestible" (in the popular sense). Most of these complaints are imaginary, and should be disregarded. Those with whom it is most likely to disagree are old persons with defective teeth and feeble stomachs, especially if the heart's action is also defective. Patients with any form of colitis, too, may find the bread irritating. Thorough toasting and careful chewing will get over the difficulty in most cases without having recourse to the undesirable practice of sending in a demand for white flour.

The only other staple foods which have altered in quality are meat and butter. Meat is less fat than it was, but this is not a matter of much moment, as much of the fat of meat used to be wasted. Butter, of course, has largely been replaced by margarine. The food value and digestibility of this substitute are practically the same as that of the genuine article, but there is reason to believe that margarine is deficient in certain vitamins which are present in butter. Where the diet is varied, however, this is not likely to affect health, although it might be detrimental to children fed almost entirely on bread and margarine.

Although milk has not deteriorated chemically in consequence of the war it is worth considering whether it is not more impure bacteriologically than formerly. There is some reason to believe that there has been a substantial increase in tuberculosis—especially of the abdominal form—amongst children in recent months, which may perhaps be attributable to milk. This is a matter deserving further attention and inquiry.

CONCLUSION.

Reviewing the whole question, it may be said with confidence that there is no reason to suppose that the food difficulties of this country, so far as they have gone at present, have had any adverse effect on health; if anything, their tendency has been perhaps in the opposite direction.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

COLLOID COPPER AND CANCER.

On August 3rd, 1914, a lady suffering from scirrhus of the right breast was sent to me by Dr. Hinds of Chillingham, near Canterbury. A complete operation was performed, and the patient returned home. On February 17th, 1916, she came to consult me again with a recurrent growth at the lower end of the scar over the cartilages of the ribs. This was excised down to the perichondrium. In March, 1917, Dr. Hinds sent her to see me again, as she was losing flesh, and there was a nodule in the liver. Of this there could be no doubt. There was a distinct nodule, slightly tender when pressed upon, on the lower edge of the right lobe of the liver, outside the region of the gall bladder,

obvious to the patient herself, who indeed had been the first to discover it.

Injections of colloid copper were commenced at once. I saw the patient again on June 15th after thirty-four injections had been given, and made a note to the effect that the nodule was decidedly smaller. In March, 1918, I saw her again. There was no trace of the nodule to be felt. The liver was not enlarged in any direction, and the patient had put on half a stone in weight. The injections, which had been continued once a week, were left off.

I am fully aware of the many sources of fallacy in such a case as this. *Post hoc* is not *propter hoc*. There is no proof that the nodule was cancerous. Even if it were, secondary deposits of cancer in a far more advanced stage have been known to disappear without any treatment at all. But the fact remains that this nodule, about the nature of which three medical men who saw it, besides myself, had no reasonable doubt, disappeared under injections of colloid copper, and that the diminution in size began immediately after the injections were begun. The unmistakable improvement in the health of the patient, which was coincident with the disappearance of the nodule, must be associated with it, but in what way, whether as consequence or cause, will depend upon the view that is taken as to the effects of the copper.

It is to be noted that liver cells appear to have a special affinity for copper salts. It does not follow, therefore, that if the colloid copper were the cause of the disappearance of the growth in this case it would of necessity have an equal degree of influence upon cancerous growths in other organs.

C. MANSELL MOULLIN, M.D., F.R.C.S.,

Colonel R.A.M.C.(T.), Consulting Surgeon to the London Hospital.

SHELL WOUND OF THE PANCREAS CAUSING PANCREATIC PSEUDO-CYST.

I was much interested in the case reported by Mr. John Morley in the JOURNAL of March 23rd, p. 341, as I saw an example of this rare condition in France last year.

The patient was a French soldier who had been wounded ten months previously (August 1st, 1916) by an aerial torpedo. In addition to various other wounds he had one in the left loin, but repeated x-ray examinations showed no sign of retained shell fragments. When first seen by me the abdomen was greatly distended and respiration and digestion much embarrassed. The swelling was most marked in the upper part of the abdomen, forming a rounded prominence in the epigastric, umbilical and left hypochondriac regions; the dullness over the tumour was continuous with that of the liver; the stomach, recognized by succussion, was displaced into the left iliac and hypogastric regions. On June 5th, 1917, a median supra-umbilical incision was made and a large tense cyst found, covered above by the linned-out margin of the liver. One litre of yellow, slightly turbid fluid was aspirated; the cyst was then partly drawn out of the abdomen and freely opened, when two more litres of thicker fluid, more like thin pus, were evacuated. The cyst was so large that the boundaries could not be definitely determined by the exploring finger. The cyst was marsupialized and drained for about three weeks; as there was then no further discharge the wound was allowed to heal up, and the patient, whose general condition had enormously improved, was sent to a convalescent hospital.

R. ATRINSON STONEY, F.R.C.S.I.,

Dublin.

Médecin Major 2^{me} Classe.

THE VALUE OF THE WASSERMANN TEST.

RECENTLY I attended a pregnant woman who came to me with a chancre of seven weeks' duration; in spite of its typical and obvious appearance it was said not to be syphilitic because the Wassermann test was negative. In December, 1917, a patient attended for an obvious tertiary lesion; he had been discharged from hospital some few years ago as cured, because his blood was negative. In 1917 a lady went to a well-known surgeon for diagnosis: syphilis was suspected, and blood was sent to two different institutions; the report from one was negative, from the other positive; she had syphilis. Blood was drawn off, and sent to a well-known hospital, in two tubes and under two names; the report on one was negative, on the

other positive; the tests were made by the same man and on the same day; the patient had syphilis. A man attended in December, 1917, for a sore and gonorrhoea; spirochaetes were not found and his blood was negative, but he was deemed suspicious; he was only given mercury. In March I gave him novarsenobillon 0.6 gram at once, and the result was striking; the sore is now practically healed.

The Wassermann test carried out in the usual way—not with cerebro-spinal fluid—is useless; if negative it gives patients a false sense of security. Whether the result be negative or positive it means nothing as to a patient's future; whatever the result, the treatment must be carried out thoroughly.

All patients should know that one course of salvarsan does not cure; they must have more, and not large doses of mercury. My opinion is that marriage should not take place until three years at least have elapsed, irrespective of the test.

JAMES S. ROBERTSON,
Late House-Surgeon, the London Lock Hospital.

Reports of Societies.

TREATMENT OF MALARIAL RELAPSE.

COLONEL SIR RONALD ROSS, Consultant in Malaria, War Office, contributed to meetings of the Society of Tropical Medicine on February 15th and March 15th the results of an investigation started under his direction on February 15th, 1917, with regard to the treatment of malaria. It was founded upon the work done at the four hospitals for which he was from the first Consultant in Malaria—namely, in Aldershot, London, Oxford, and Epsom. A number of officers were concerned with the treatment and pathological work, including Lieut.-Colonels A. D. Milne, C.M.G., E.A.M.S., S. P. James, I.M.S., R. McCarrison, I.M.S., and Major J. B. Stephens, R.A.M.C. The number of cases dealt with was 2,460; the large majority were infected during 1916 on the Salonica front, and were examples of benign tertian. Nearly all were relapses, but a few were original infections. The word "relapse" was taken to mean the relapse of fever clinically like malaria, whether asexual parasites were found or not. Rare cases, in which a sudden increase of asexual parasites without fever occurred, were noted as relapses. Relapses occurring in malaria wards during or after a given course of treatment were always verified by the special malaria officers. Cases, however, could not be detained indefinitely, and it was therefore necessary to issue notification cards with all cases discharged from the malaria wards, with instructions to report relapses to the special malaria officers. These instructions were largely obeyed, but it was impossible to guarantee that every relapse had been reported. Further, the number of relapses given is not final, partly because some of the cases are likely to relapse in the future, and partly because further examination of records may disclose the occurrence of relapses hitherto overlooked. For these two reasons the number of relapses recorded was probably below the true figure.

Frequency of Relapses without Treatment.

Before studying the effects of different treatments it was thought advisable to obtain statistics as to the frequency of relapses occurring among men who had been taking quinine but in whom the drug was stopped. Accordingly, 193 men admitted to the Oxford hospital either for attacks in progress or for recent attacks were watched carefully, but given no quinine; 88 relapsed within twenty-seven days after quinine treatment was stopped, 76 were not sufficiently well to allow quinine to be withheld any longer, and only 29 were considered well enough to be discharged from hospital without treatment. Thus during the month this part of the inquiry lasted only 15 per cent. of the men who remained untreated by quinine escaped either relapses or illness, so that 85 per cent. of such untreated cases remained ill, and 45.6 per cent. actually suffered from relapses during the period.

Treatment of Relapsing Cases.

The trials with various forms of quinine treatment continued from March 23rd to October 17th, 1917. The various

treatments tried were of four classes: (a) Anti-relapse quinine prophylaxis given, to 1,040 old cases of malaria; comparatively small doses, amounting to about 60 grains a week, distributed in various ways, reduced relapses to about 10 per cent. of the cases a month, and also diminished the severity of the relapses that occurred; 5 grains daily were less effective than 10, but 15 grains daily were no more effective than 10 grains daily, and were less well borne; (b) short sterilizing treatments; (c) long sterilizing treatments; and (d) mixed treatments, given to 1,420 cases.

The trials showed the difficulty of sterilizing cases entirely, and that success tended to vary directly with the magnitude of the daily dosage. The best treatment for old cases of malaria was thought to be a system carried out by Captain Meredith Harrison, R.A.M.C., at the Connaught Hospital, Aldershot. It was used by him between July 10th and October 6th, 1917, for forty-nine chronic cases of malaria, mostly of benign tertian, and mostly arrived from Salonica. Of these, only five had relapsed after the cessation of the treatment in October until the end of February, 1918. Three-fourths of these cases were examined after their original treatment at the Connaught Hospital once a week as regards clinical condition, blood, and weight; as most cases of malaria in the Aldershot Command were closely in touch with the Connaught Hospital, it is thought that the number of cases given as relapsing is accurate. The percentage of cases relapsing was therefore only 10.2. The time which elapsed between the end of the treatment and the beginning of the relapse (in the five cases which did relapse) varied from sixteen to seventy-two days and averaged 34.5 days. Captain Harrison reports that with this treatment the fever was reduced within from twelve to twenty-four hours, and that no asexual parasites could be found after forty-eight hours. The effect of the treatment as regards general improvement of health was good. The treatment was well borne by the patients, except for deafness and tinnitus, and there was very little vomiting. But the patients always object to stopping in bed for twelve days; and we are informed that this line of treatment is not yet to be definitely recommended until its effect on the sight and hearing has been more exactly measured.

The treatment was as follows: The patient was put to bed for twelve days and given daily throughout this period 15 grains of quinine bihydrochloride intramuscularly in each deltoid muscle, together with 10 grains of quinine hydrochloride in anticachexia mixture No. 1 thrice daily, totalling 60 grains of quinine daily for the twelve days. After this the patient was allowed up, and given for three days anticachexia mixture No. 2, four times a day (60 grains of quinine daily by the mouth). After this the patient was given anticachexia mixture No. 3, four times daily for fourteen days (20 grains of quinine daily). He was allowed to do light work all this time. The prescriptions were as follows:

Anticachexia Mixture No. 1.

Quinin. hydrochlorid.	...	...	gr. x
Tinct. ferr. perchlorid.	...	...	℥ v
Liq. strych. (B.P.)	...	...	℥ v
Liq. arsenio. hydrochlor.	...	...	℥ v
Acid. nitrohydrochlor. dil.	...	...	℥ v
Magnes. sulphat.	...	...	5 ss
Syrup. tolu.	...	...	5 ss
Glycerin.	...	...	℥ x
Aque	...	...	ad 5 j

For a dose, to be given as directed after food.

Anticachexia Mixture No. 2.

As No. 1, but add

Quinin. hydrochlorid.	...	...	gr. v
Acid. nitrohydrochloric. dil.	...	...	℥ v

to the dose.

Anticachexia Mixture No. 3.

As No. 1, but reduce

Quinin. hydrochlorid.	...	...	gr. v
Acid. nitrohydrochloric. dil.	...	...	℥ v

in each dose.

The mixed treatment included the use of tartar emetic, acid arsenoids, sodium quinine sulphate, ethyl quinine hydrochloride, and collosol quinine, but the results were not satisfactory.

Experiences in Macedonia.

Sir Ronald Ross also gave particulars of the results of inquiries addressed by the D.M.S. Salonica to a number of

medical officers serving there. (1) Out of 111 officers who expressed definite opinions 71 considered that 10 grains of quinine given twice a week as a prophylactic measure were of no value or were objectionable. (2) In reply to a question as to the optimum dosage for relapses in regimental aid posts, where patients may be retained for treatment for a period not exceeding three days, 63 per cent. of the medical officers were in favour of 30 grains daily. (3) In reply to a question as to the optimum dosage for recurrent cases doing duty after being kept in regimental aid posts for a few days, the majority of the 107 officers who replied recommended fixed doses of quinine for periods varying up to three and a half months. The dose recommended varied from 10 to 30 grains daily, but some of the officers recommended the gradual reduction of the dose as the course progressed. (4) In reply to a question as to the optimum dosage for recurrent cases of malaria returned from hospital, 65 out of 105 officers advised the continuance of the same daily dose of quinine, and of these 33 advised 10 grains daily for from one month to three and a half months, twelve 20 grains daily for similar periods, and sixteen 30 grains daily. Others advised the gradual reduction of the quinine as the course progressed. Subsidiary treatment was recommended by many officers.

Elimination of Quinine.

Acting Staff Sergeant M. Nierenstein made a large number of chemical examinations, and in an interim report states: "It seems more or less apparent that there is a tendency for the excretion of the quinine passed to reach a concentration of 7 to 11 grains per litre of urine. This appears to be the case for all salts experimented with (except the lactate), and the fact does not appear to be altered by the different methods of administration. Thus, these results flatly contradict all statements to the effect that quinine given intramuscularly or intravenously is more or less readily excreted than quinine given orally. Moreover, no one quinine salt appears to be more readily eliminated in the form of its base than another salt. These results have been obtained from 1,366 analyses made on 624 different specimens; and have since been confirmed in quite a number of estimations accumulated during January and February, 1918."

Reviews.

EXOPTHALMIC GOITRE.

PROFESSOR G. ROUSSY's well illustrated monograph on the changes in the thyroid gland in Graves's disease,¹ destined to be read at the Twenty-fourth Congress of the Alienists and Neurologists of France and French-speaking countries, planned to be held at Luxemburg on August 3rd to 7th, 1914, has just come into our hands, and it is perhaps curious that a discussion on a disease rendered more frequent by wars should have been arranged for a congress made impossible by the outbreak of hostilities. The subject was considered at the congress in 1895, when the thyroid changes had comparatively recently been described by Professor W. S. Greenfield and Renaut; and Brissaud, who introduced the discussion, hesitated about abandoning the nervous origin of the disease. Since then fresh data and methods have established the part played by the thyroid, and raised the question as to the significance of the persistent or enlarged thymus. As at that time exophthalmic goitre was regarded rather as a syndrome than as a disease, Roussy now separates off the rather rare cases of false exophthalmic goitre—for example, those due to the simple goitre compressing and irritating the sympathetic and those due to reflex causes—and then tabulates the following forms: the characteristic disease, the forms due to tuberculosis, to syphilis, to malignant disease, and to goitre of the thyroid gland, and the large group of the *fruste* cases, including those due to thyroidism and thyro-toxic factors. A full study of the morbid anatomy shows that there is first of all an inflammation of the thyroid, which is often overlooked, and that the presence of lymphoid collections in the gland itself and

the enlargement of the thymus and the neighbouring lymphatic glands are perhaps relics of this thyroiditis. These lymphoid areas in the thyroid, found by Roussy in 14 out of 15 cases of Graves's disease, in 2 out of 50 ordinary goitres, and in none of 60 normal thyroids, are well reproduced in the figures. The thyroid changes are those of a compensatory parenchymatous hyperplasia, and as a result the secretion is altered.

The problem of the thymus is thoroughly discussed; the first reference to its persistence and enlargement given is that by the late Sir James Goodhart in 1873, but it may be pointed out that it was noticed as early as 1858 by Markham. While admitting that the significance of the thymic change is not yet settled, Roussy believes that it probably has some influence on the symptoms and complications, if not on the establishment, of the disease.

The various methods of treatment are discussed, and a preference for x rays rather than surgical interference definitely expressed. The subject is so systematically considered that this monograph constitutes a valuable source of reference.

INJURIES OF THE FACE AND JAW.

In translating MARTINIER and LEMERLE's little book on *Injuries of the Face and Jaw*,² Captain LAWSON WHALE has done surgery an opportune service. Surgeons have had, or should have had, appreciative admiration of the great perfection to which dental surgeons have brought their mechanical skill, but it has been reserved for the conditions of war to give a complete demonstration of the extent to which prosthesis may be applied. Moreover, those dental surgeons who are also surgeons in the ordinary sense have rapidly exhibited a transference or extension of their mechanical skill to the realm of plastic repair and reconstruction, which has led to results surpassing anything in the whole literature of the past. It requires but a glance at the communications of the author himself, of Valadier, Kazanjian, and Burrows in the *British Journal of Surgery*, to give one example, to realize what is being done. It is indispensable for those who take up this work that they should be familiar with what has already been done by French surgeons to perfect preventive, restorative, and permanent prosthetic apparatus. The present work deals only to a limited extent with the plastic branch of the art, but it affords an invaluable record of what can be done for the prevention of deformity in injuries of the jaws, for the repair of distortion and defect, and for the amelioration of facial, nasal, and palatine destruction or deformity. One merit of the book for the purposes of the surgeon who must call the expert orthodontist to his aid is its brevity.

The contribution to the treatment of gunshot wounds of the jaws published by the Austrian journal of stomatology,³ under the editorship of Dr. EMIL STEINSCHNEIDER, is a well illustrated monograph by many contributors, and indicates that enemy dental surgeons are dealing with their war problems on much the same lines as our own. They have little if anything to teach us. Their apparatus is derived from original French models, but has the appearance of not being quite so delicate; consequently it must be less comfortable for the patient. The plastic work gives good cosmetic results, but there is no indication of the more difficult achievements, such as the making of new noses. The radiograms are good, well planned, and well analysed. It is surprising to see Lane's plates used in the treatment of suppurating wounds of the lower jaw with loss of substance. The book will interest those engaged in similar work.

SURGICAL APPLIED ANATOMY.

TREVE'S *Surgical Applied Anatomy*⁴ has long been a favourite, but even the most popular books must keep abreast of the times. If there was one man who could

¹ *Injuries of the Face and Jaw, and their Repair; and the Treatment of Fractured Jaws.* By P. Martinier and Dr. G. Lemerle. Translated by H. Lawson Whale, M.D., F.R.C.S. London: Baillière, Tindall, and Cox. 1917. (Cr. 8vo, pp. 345; 168 figures. 5s. net.)

² *Beiträge zur Kieferschuss therapie, herausgegeben von der Osterr. Zeitschr. f. Stomatologie.* Redigiert von Dr. Emil Steinschneider. Berlin and Vienna: Urban und Schwarzenberg. 1917.

³ *Surgical Applied Anatomy.* By Sir Frederick Treves, Bt., G.C.V.O., C.B. Revised by Arthur Keith and W. Colin Mackenzie. London: Cassell and Co., Ltd. 1913. (Fcap. 8vo, pp. 702; 153 figures, 74 in colour. 10s. 6d. net.)

⁴ *Les lésions du corps thyroïde dans le maladie de Basedow.* By Gustav Roussy, Professeur agrégé à la Faculté de Médecine de Paris. Paris: Masson et Cie. 1914. (Roy. 8vo, pp. 135; 2 coloured plates and 10 figures. Fr.3.)

work the miracle of rejuvenating a classic without sacrificing the divine spark, it was Professor ARTHUR KEITH. He has done more. In its present form this little volume teems with pleasant surprises; apt illustrations of the importance of anatomical bearings upon surgery are culled from literature and from sources unexpected, with a constant recurrence of names that produces a living atmosphere. It is not to be criticized: it is to be enjoyed, and with the enjoyment student and master will both absorb valuable information and reminder. Dr. COLIN MACKENZIE, whose name appears on the front page, is fortunate in inheriting a great tradition which, if the changes in the seventh edition be due to him, he has known how to value.

NOTES ON BOOKS.

THE fourth volume of the *British Journal of Surgery*⁵ for the year 1916-17 does credit to the editorial secretary, Mr. Hey Groves, and to the large editorial committee who direct it. Judged in volume form, from the point of view of a permanent place on book-shelves already tending to be overburdened, the opinion may be ventured that articles such as those on contemporary surgery in other lands, interesting as they certainly are, are a little out of place, at any rate at the present time. The greatest value attaches to contributions such as that of Mr. Cope, based, it is true, on a few personal cases, but giving a complete summary of recent work on the surgery of the pituitary gland, and illuminated by an excellent anatomical study; the series of papers on gunshot wounds of the abdomen; on arterio-venous aneurysms, and on diverticula of the intestine; and the papers by Bashford on the histology and general pathology of the tissues in war wounds. These and others like them are permanent contributions to surgical literature and progress. Congratulations to our contemporary.

Mr. CANDY'S *Manual of Physics for Medical Students*⁶ is a little book written especially to help candidates through the physics of the preliminary or first medical examination. It is well arranged and clearly written, and appended to each chapter are written exercises.

Dr. MALONEY'S book on *Locomotor Ataxy*⁷ has been written to show, first, how this disease is the microcosm of all nervous disorders, and secondly, how amenable it is to special forms of systematic treatment on the lines of mental therapy. The volume should be of interest to specialists in nervous disorders, as it expounds a new idea.

Professor ANDERS'S *Textbook of the Practice of Medicine*,⁸ now in its thirteenth edition, is one of the standard volumes upon which medical students and practitioners on the other side of the Atlantic rely. It is well written, full of information, up to date, and, above all, practical. Want of space forbids us to say more of its merits; it is a book that may be warmly commended.

Miss BEATRICE GOODALL-COPESTAKE has written a sound and comprehensive handbook on the *Theory and Practice of Massage*,⁹ which, while imparting a knowledge of the various procedures—as far as it is possible to do so in a book—also introduces the nurse and massage pupil to the rudimentary knowledge of those conditions in the treatment of which she may be required to help the physician or surgeon. The book is well illustrated, and includes an index and a glossary. The term "anterior poliomyelitis" is not derived from "anterior pole," as is stated on p. 196.

⁵ *The British Journal of Surgery*. Bristol: John Wright and Sons, 1917. (Vol. iv. 30s.)

⁶ *A Manual of Physics, Theoretical and Practical, for Medical Students*. By Hugh G. H. Candy, B.A., B.Sc.Lond., F.I.C. Second edition, enlarged. London: Cassell and Co., Ltd. 1918. (Fcap. 8vo, pp. viii + 451; 280 figures. 7s. 6d. net.)

⁷ *Locomotor Ataxia (Tabes Dorsalis)*. By William J. M. A. Maloney, M.D. Edin. London and New York: D. Appleton and Co. 1918. (Med. 8vo, pp. xxi + 299; 97 figures. 15s. net.)

⁸ *A Textbook of the Practice of Medicine*. By James M. Anders, M.D., Ph.D., LL.D. Thirteenth edition. Philadelphia and London: W. B. Saunders Co. 1917. (Roy. 8vo, pp. 1259; 89 figures. 25s. net.)

⁹ *The Theory and Practice of Massage*. By Beatrice M. Goodall-Copestake. London: H. K. Lewis and Co., Ltd. 1917. (Demy 8vo, pp. xvi + 251; 56 figures. 8s. 6d. net.)

A VEGETABLE MILK.

[From a Correspondent.]

IN these days of agalactia any reasonable substitute for milk is certain of a welcome, so that particular interest attaches to the soy bean, an alimentary plant grown on a very large scale in China, and imported into this country by hundreds of thousands of tons annually for the sake of the oil it contains, which is utilized in the manufacture of soap, margarine, etc. More interesting from the alimentary point of view is the fact that it can be made to yield a substitute for milk, which in respect of appearance and composition so nearly approximates the familiar article as to be wellnigh indistinguishable therefrom. The process is simple. Five ounces of the bean are soaked overnight in a quart of cold water; it is then coarsely ground, mixed with the water in which it has been soaking, and filtered through muslin. The result is a milky fluid with a rather strong smell of haricot bean, which disappears after it has been raised to boiling point. Infants take it readily, and, mixed with tea or coffee, the taste is imperceptible. Fresh soy bean milk has a faintly acid reaction; it is quite homogeneous under the microscope, and its physical properties are those of cow's milk; rennet causes it to curdle, lactic acid germs cause it to undergo lactic acid fermentation. When boiled it "rises" like ordinary milk and forms a pellicle on the surface. Its composition is: Casein 3.13 per cent., fats 9.89, but it lacks carbohydrates, a shortcoming which can easily be remedied. As the fatty constituent is an oil, butter cannot be made from soy bean milk, but it can be made to provide cheese (120 grams of the bean yields 184 grams of cheese), and the cheese can be made to resemble any of the popular cheeses in the market; it is merely a question of employing the proper flavouring ferment. Soy-bean milk can be retailed at 3 centimes a litre. The residue, after making milk, is still very rich in alimentary principles, and can be worked up into very palatable "almond" cakes or biscuits. Being practically free from starch, these cakes are specially suited for consumption by diabetics. Roasted, the bean provides a colourable imitation of coffee, just as do barley and oats, to what a satisfactory degree only those who make use of these substitutes will understand. The soy bean and its derivatives are very rich in phosphates, so that infants reared on the milk are never likely to develop rickets.

Unfortunately the soy bean does not take kindly to the English climate, but it grows freely in China, where it is indigenous, in southern France, in Algeria, and in many parts of the United States, where the plant is used extensively for fodder. There are a number of varieties possessed of special qualities according to climate and the object in view—for example, oil, or milk, or cattle food. A practical idea of its alimentary value may be formed by contrasting the cost of this as compared with other albumins: 100 grams of albumin, at before-the-war prices, would cost—from egg 1s. 8d., from meat 1s. 4d., from pork 8d., dried peas 3d., and from soy bean 2d. The bean contains four times as much mineral constituents as meat, and is twice as rich in phosphoric acid. Here is an analytical table showing the comparative values of soy beans and some of the pulses in common use as food in this country:

	Water.	Nitrog. Constituents.	Fats.	Starch.	Cellulose.	Ash.
Lentils—						
Maximum	13.50	24.64	1.45	62.45	3.75	3.45
Minimum	11.00	19.36	0.50	56.07	2.88	1.75
Haricot beans—						
Maximum	20.40	26.46	2.46	63.23	6.00	5.65
Minimum	8.50	13.80	0.40	52.04	1.95	2.20
Peas—						
Maximum	14.20	26.63	1.65	61.10	3.52	3.70
Minimum	9.80	18.88	0.85	56.18	2.38	2.00
Broad beans—						
Maximum	15.30	26.51	1.50	58.03	7.86	3.26
Minimum	10.60	20.87	0.80	50.89	5.24	2.06
Soy beans—						
Maximum	11.30	38.41	14.80	32.11	6.20	5.20
Minimum	10.00	34.85	12.95	26.74	3.60	4.35

British Medical Journal.

SATURDAY, APRIL 13TH, 1918.

THE NEW MILITARY SERVICE BILL.

THE introduction of the new Military Service Bill and the special provision which it contains with regard to medical men makes it opportune briefly to recall the steps by which the present situation, so far as it specially affects the medical profession, has been brought about. The annual general meeting of the British Medical Association in Aberdeen had ended a few days before the outbreak of war, so that the Association had no special machinery in existence for dealing with the emergency. The War Office immediately called up the medical officers of the Special Reserve, and the medical officers of the Territorial Force belonging to the combatant units were mobilized with those units. Medical officers *à la suite* of the Territorial general hospitals were mobilized as those hospitals were got ready. With the regulars and re-employed regular officers the total number of medical officers obtained from these sources was about 4,000, and nearly three-fourths of them were withdrawn completely or in part from the civil profession. At the same time an appeal was made for volunteers, one of the terms being that the volunteer undertook to serve if required for at least twelve months, with the right then to relinquish his commission. The response to this appeal produced about 1,140 by the end of 1914, and about 2,700 by the end of 1915. The first step spontaneously taken by the organized body of the profession to meet the emergency disclosed by the German advance into Belgium and Lord Kitchener's appeal to the manhood of the country was taken at the instance of the late Dr. Hamilton of Hawick by the Scottish Committee of the British Medical Association. By September the Scottish Medical Service Emergency Committee, consisting of representatives of Scottish universities and medical corporations and the British Medical Association, had been formed. In England and Wales preliminary arrangements were undertaken by committees of the British Medical Association, which reported to the annual meeting in 1915, when the Central Medical War Committee was constituted. It was instructed "to organize the medical profession in such a way as will enable the Government to use every medical practitioner fit to serve the country in such a manner as to turn his qualifications to the best possible use, and to deal with all matters affecting the medical profession arising in connexion with the war." Local Medical War Committees were set up throughout England and Wales to act with the Central Medical War Committee and to advise it as to local conditions and as to practitioners in the localities who could most easily be spared. The Committee of Reference of the Royal Colleges in England was set up early in 1916 to consider cases of doctors on the staffs of hospitals and medical schools in the metropolis, and such other special cases in England and Wales as might be referred to it. An Irish Medical War Committee was also established. Schemes were instituted by the Central Committees in England and Wales, and in Scotland, for the enrolment of all medical men up to the age of 45, the limit for general service in the R.A.M.C. The enrolled

person gave an undertaking to accept service when called upon by the Committee, and the Army Council undertook to apply to him the principle that a medical man thus offering himself should not be called upon to fulfil his obligation of commissioned service for more than twelve months consecutively.

The passing of the second Military Service Act, 1916, had the effect of imposing compulsory service on all medical men under 41. The central medical committees, thereafter called "professional committees," were recognized by an Order in Council, and were entrusted with the duty of selecting at the right time in each case the particular medical men who could be spared from their civil work with least injury to the civil population, and of retaining in their civil work those most needed there in the public interest. The Army Council undertook to refrain from applying its compulsory powers as to combatant service to a doctor of military age if, and so long as, he was enrolled and undertook to serve, and if required did serve, as a commissioned officer in the R.A.M.C. whenever this might be found necessary by the central professional committee. When called upon he was given the right of appeal to the central professional committee. If at the end of the first or any twelve months' service a medical man relinquished his commission, he, if under 41, remained liable to the Military Service Acts, but if he then enrolled he reverted to the position in which he was before he took a commission; that is to say, he went back amongst those from whom the central professional committees selected doctors for commissioned service in the R.A.M.C., subject to due consideration of the needs of the locality and his personal circumstances. The enrolment scheme continued to apply to doctors over military age, especially those from 41 to 45, and in June, 1916, shortly after the passing of the second Military Service Act, the War Office announced that it was prepared to give commissions in the R.A.M.C. to medical men between 45 and 55 willing to undertake whole-time general service in the United Kingdom. Incidentally it should be noted that newly qualified medical men automatically passed into the Reserve, and were commissioned in the R.A.M.C. (S.R.), subject only to their being pronounced physically fit on medical examination.

On the establishment of the Ministry of National Service recruiting in all its branches was transferred from the War Office to that Ministry, and medical recruiting became especially the care of its medical department, with which the professional committees have been in communication throughout.

At present temporary R.A.M.C. officers of military age on expiration of their contract are required, if they renew, to engage for the duration of the war. If an officer, however, does not wish to renew he retains his right of appeal to the professional committee, which, in deciding whether or not he should rejoin, takes into consideration the needs of the civilian population of the locality in which he practises and his personal circumstances. It is to be noted that medical officers of military age intending to relinquish their commissions after October 31st, 1917, were warned that they would probably be recalled shortly.

The first clause of the new bill fixes the military age at from 18 to 51, but there is a proviso that by an Order in Council the upper limit of age may be raised to 56 as respects men generally, or as respects any class of men, and it shall be so fixed "as respects any person being a duly qualified medical practitioner." Clause 4 gives power to make regulations by an Order in Council to establish "special tribunals, committees, or panels for dealing with particular

classes of cases," and to determine the grounds on which application may be made to the tribunals and the rights of appeal.

The Central Medical War Committee, at its meeting on April 10th, decided, after full discussion, not to press for the insertion of any amendment in the bill now before Parliament in so far as it relates to registered medical practitioners. It is felt that the older men who will now become subject to military service will in most cases serve their country best by placing themselves at the disposal of the central professional committees for medical work, in a military or civil capacity, which will release younger practitioners for active service. The method, no doubt, will vary according to local and individual conditions, but it would seem that schemes for local arrangements would produce less dislocation of practice than any general plan of long-distance substitution between the areas which are relatively understaffed and those which are more plentifully supplied with doctors. Although the total number of medical men who may be made liable to military service under the bill is large—between 6,000 and 7,000—it is unlikely that any considerable proportion would be called upon; if this is so, only a minority would be directly affected.

In the altered situation which will be brought about by the enactment of the bill, the Ministry of National Service will, doubtless, desire to remain in the closest collaboration with the Statutory Professional Committee. But it is probable that henceforward the decision on the indispensability of individual practitioners, or on questions of priority, will rest ultimately in the hands of the Ministry. The fullest use will, no doubt, be made of the advice and opinion of the professional committees, but, as in the case of all other tribunals, the last word will be said by the Ministry of National Service. In this respect the legal position will be changed, though it is not anticipated that in practice any conflict will arise between the professional committees and the Ministry.

THE TEACHING OF ANATOMY.

In Edinburgh, as in other medical centres, there is a growing feeling that our modern medical curriculum stands in need of revision, nor is it difficult to understand how this feeling has arisen. Every decade that comes along finds the medical student saddled with a new subject and a new professor, until at the present time he has to run the gauntlet of some fifteen of them. The student finds that as new professors appear the old ones extend their subjects both in scope and in detail. He finds, too, that instead of co-ordinating their collective efforts so as to make him an efficient medical man, his professors insist more and more in teaching their subjects as if their particular branch of knowledge was the sole object of study. The present discontent, then, relates not to the nature and number of subjects included within the medical curriculum, but to the fact that their professors seem apt to forget that they are members of a common team whose sole duty should be the production of efficient medical men.

During the past winter session this matter has been the subject of serious and instructive debate in Edinburgh. The members of the Pathological Club of that city invited Sir James Mackenzie to initiate the discussion; it was continued by the professor of chemistry. Now has come the turn of the anatomist—who, in the eyes of many, is regarded as the chief delinquent. It was a happy choice which led to the invitation of Professor Elliot Smith of the University

of Manchester to open the discussion on "the teaching of anatomy."¹ He has made additions of the utmost importance to the subject he professes, but has never permitted his anatomical research to obscure his medical vision. In Professor Elliot Smith's opinion "anatomy should be regarded as an integral and intimately co-ordinated part of the whole medical course, and it should be the business of the teacher to give expression to this broad view in his teaching . . . ; the teaching, in other words, should be directed towards the needs of the practice of medicine; and it should be the business of the teacher of anatomy to keep sufficiently in touch with the progress of medicine as a whole to direct his teaching towards the right aim." Therein we believe Professor Elliot Smith enunciates a very important truth; no man is qualified to teach anatomy rightly unless he follows closely the progress made in all departments of medicine. "No man," he says, at another place, "can be a really efficient and stimulating teacher unless his own mind is kept constantly alert by original investigation. Unless this is so, he is merely a purveyor of second-hand goods. The man who is actually engaged in research, and can give the student first-hand information, can also describe from his own experience the difficulties that have to be overcome, and the way progress is actually achieved." In the teaching of anatomy, as in the teaching of every other medical subject, the first essential is to find the right man. Having found such a man, the scope and manner of his teaching become secondary matters.

Professor Elliot Smith had stringent things to say about the manner in which osteology is taught. Descriptive osteology! The amount of mental effort which has been wasted over committing to memory the identification marks and multiple surfaces of the bones of the hand and foot! "I have the most vivid recollection," he says, "of the manner in which those first two terms of osteology rapidly killed all interest in the subject. It was not merely that I ceased to learn anything from the lectures, but a positive and intense repugnance to the business of acquiring a knowledge of the bones took possession of me." His opinion is that the bones are as much a part of the body as the muscles, the blood vessels, and the nerves, and should be studied as the student makes his dissections. In the dissecting room the student can see for himself the various factors which mould and shape a bone. He speaks of the osteology class as a "wicked and sterilizing farce which is still permitted to waste the student's time and kill his natural interest in the subject of anatomy."

The late Professor Franklin Mall, who did more than any one to raise anatomy to its present high position in the United States of America, abolished lectures as a means of teaching anatomy. We entirely agree with Professor Elliot Smith that in this he was in error. "I agree with Mall to this extent," he said, "that taking into consideration the limited amount of time at the disposal of the student and the excellence of his textbooks, the attempt to deliver a systematic course of lectures is wholly indefensible. . . . Instead, however, of employing the time in expounding to the student information which he can more usefully acquire in the dissecting room or in the study of his textbooks, the teacher should make it his business in the lectures to deal with aspects of anatomy which the student is unable adequately to learn in the ordinary work of the dissecting room—such, for example, as the lymphatic system, certain parts of

¹ See *Edinburgh Medical Journal*, March, 1918, where there are full reports of the papers read by Professor Elliot Smith, Professor David Waterston, Professor Arthur Robinson, and of the discussion which followed.

the nervous system—for instance, the clinically important but much neglected sympathetic system—and the anatomy of the viscera.” We entirely agree with Professor Elliot Smith that the constant use of a living model is absolutely essential for the right study of anatomy; in his own arm, leg and body, or on those of his working partner, the student can identify and study the dissected part in its living condition. X rays and skiagrams have given the anatomist, as well as the physician and surgeon, a new means of studying the anatomy of the living body. “The primary value of dissection,” says Professor Elliot Smith, “is to enable the student to find his way about the body. Much of the knowledge which he acquires is of a subconscious nature, but none the less real on that account. By a limited experience I have learnt to find my way from Princes Street to the University, but I cannot name a single street or landmark, nor give more than the vaguest description of the route; yet I have the essential knowledge which meets my needs. The vital knowledge of anatomy that it is essential for the student to acquire is of a similar nature.”

There is one grave defect in the teaching of anatomy which neither Professor Elliot Smith nor those who followed him in the discussion in Edinburgh referred to—one which exerts a particularly prejudicial influence in London. In metropolitan schools the teaching of anatomy is paralysed by the conditions which candidates have to face in the examination room. When the teacher ought to be directing his efforts to instilling the knowledge which will help his student in the recognition and treatment of disease he has to teach him to pass examinations—examinations which have become fossilized under the influence of hoary tradition. We cannot have rational teaching in anatomy, or in any other subject, until we obtain a rational method of examination. Without exception all written examinations in anatomy—at least, all questions in descriptive anatomy—lead to the accumulation and perpetuation of barren knowledge. If students were subjected to practical examinations on the living as well as on the dissected body, we should soon hear the last of the complaints often urged by physicians and surgeons—that the anatomy taught to students is useless for clinical work.

INTERALLIED SCIENTIFIC FOOD COMMISSION.

At an interallied conference, which was held last November in Paris, it was agreed that a Scientific Food Committee should be formed containing two delegates from each of the following countries:—Great Britain, France, Italy, and America. This committee was to have its permanent seat in Paris, and was to meet periodically in order to examine, from the scientific point of view, the interallied programme for food supplies. It was empowered to make any propositions to the allied Governments which it thought fit. The delegates appointed from the various countries were:—Great Britain: Professor E. H. Starling and Professor T. B. Wood; France: Professor Ch. Richet and Professor E. Gley; Italy: Professor Bottazzi and Professor Pagliani; America: Professor R. H. Chittenden and Professor Graham Lusk. The first meeting of this Commission was held in Paris on March 25th, 1918, and the following days. At their first sitting the Commission was received by M. Victor Boret, Minister of Agriculture and Food. In his opening address M. Boret pointed out that the object of the conference was to study the best means of utilizing the very small food resources at the disposal of the allies so as to effect an equitable distribution of the available food supplies among the allies, having proper regard to the facts of physiology and

political economy. He sketched shortly the work of the Commission, and his suggestions were embodied later in a series of questions which were adopted by the Commission as the problems that would immediately occupy its attention. The Commission agreed to establish a permanent central secretariat in Paris, M. Alquier being appointed secretary. In addition to the central secretariat it was agreed that a secretary to the Commission should be appointed in each of the allied countries. At its meetings, which lasted till March 29th, the Commission considered many important questions relating to the minimum food requirements of man, and to the production and distribution of food supplies. The Commission will reassemble at intervals, in Paris or in some other of the allied capitals. Professor Gley has stated that it will probably meet next at Rome towards the end of this month.

ARMY MEDICAL ADVISORY BOARD.

The Army Medical Advisory Board, established in 1901, has been in abeyance since the beginning of the present conflict. It has now been considered advisable to appoint a new Advisory Board somewhat differently constituted and with a smaller number of members. The Director-General, Lieutenant-General T. H. J. C. Goodwin, C.B., C.M.G., D.S.O., is president, and the other members are Major-General Sir Bertrand Dawson, G.C.V.O., C.B., M.D.; Major-General Sir Berkeley Moynihan, C.B., F.R.C.S.; Colonel W. H. Horrocks, C.B., A.M.S.; Colonel Sir Robert Jones, C.B., F.R.C.S.; and Lieutenant-Colonel Sir Harold J. Stiles, F.R.C.S. Sir Bertrand Dawson, who is physician to the London Hospital, is a consulting physician with the British Expeditionary Force in France. Sir Berkeley Moynihan, who is surgeon to the Leeds Infirmary, is consulting surgeon to the Northern Command. Sir Robert Jones is the Inspector of Military Orthopaedics, and Sir Harold Stiles of Edinburgh is Assistant Inspector of Military Orthopaedics for Scotland and was a member of the commission of inquiry in France. Colonel Horrocks, who was a member of the old board, again serves on the new board as sanitary expert. The secretary is Mr. A. T. Gann, who was the secretary of the old board. It will be observed that the new board does not contain, as did its predecessor, representatives of the India Office and of the directorates of military operations and of fortifications and works.

DIGESTIBILITY OF BREAD.

The report (3206), completed on March 11th, of the Food (War) Committee of the Royal Society on the digestibility of bread, has been issued this week. Some of the conclusions of most general interest were mentioned by Professor F. G. Hopkins in his lecture at University College, reported in our columns on February 2nd, p. 157. The questions the Committee set itself to answer were: (1) What gain, if any, in food value to the nation would accrue from a rise in the milling standard from 80 to 90 per cent., and whether the dilution of wheat flour with other cereals modified the food value of the bread? (2) What would be the effect on the health of the population of the consumption of such breads? and (3) How far would such breads prove acceptable to the population in general? The first set of experiments were made with undiluted wheat flour, extracted to 80 and to 90 per cent., on three groups of individuals—in Cambridge, Glasgow, and London; and the analytical work was done in the biochemical department of the University of Cambridge and in the Physiological Laboratories of the universities of Glasgow and London. The diet consisted of 800 grams of bread with butter, cheese, minced or potted meat, fruit jelly, milk and sugar, tea or coffee, and in one case beer was taken as a beverage. The dietary yielded about 3,680 calories a day. The effects

were remarkably uniform in the different individuals. During the use of bread made from the 80 per cent. flour there was extracted for the purposes of nutrition 96.1 per cent. of the energy contained in the diet; wheat bread made from 90 per cent. flour was used 94.5 per cent. was extracted. The loss of energy with the second bread was greater (5.5 per cent.) than with the first (3.86 per cent.); it is considered that the secretions of the gut contributed largely to this. The faeces with the 90 per cent. bread were more bulky, and the coarser particles of this bread produced a greater stimulation of the secretion of the gut. The increase in the bulk of the evacuation is considered not in itself an evil, and in the case of many individuals even an advantage. As to the nitrogenous constituents, it was found that the average digestibility was 89.4 per cent. in the case of bread made from flour extracted to 80 per cent., and 87.3 per cent. in that extracted to 90 per cent. In most of the cases there was a slight gain in body weight with both breads. The reply to the economic question is founded on the fact that a greater proportion of the energy of the grain is available for human consumption when flour is milled at the 90 per cent. scale than on the 80 per cent. scale. The increase was so considerable that it would extend the cereal supply of energy for the country for more than a month. Against this is to be set the loss of protein in the offal as food for pigs, but an allowance is made for this. Another set of experiments were made with bread made from flour consisting of four-fifths wheat extracted at 80 per cent., and one-fifth maize. In this series the original group of ten adults and two youths was increased by two boys and two young children, and a man considerably older than any of the original subjects. At first the flavour of the maize was commented on, and there was in some cases disturbance of digestion, attended sometimes with diarrhoea, but more often with constipation. These symptoms passed off. The general conclusion is that the bread made with the addition of maize flour was as digestible as bread made from the same wheaten flour without that mixture; it was well digested by children even when eaten in proportionately large quantities. The addition of maize made practically no difference in the utilization of energy and nitrogen. The report also contains observations made at a canteen on the dietetic effect and on the palatability of bread made from flour containing four-fifths of wheat extracted to 90 per cent., and one-fifth other permitted cereals. The cereals used were 10 per cent. barley, made up to 20 per cent. with maize and rice, or rice alone. This bread was consumed for two months by 20 men, 9 women, and 2 children. It was also taken for a month by 12 individuals—9 men, a woman, and 2 children. In no instance did it cause digestive trouble, and in certain cases the health seemed to improve. All considered the bread palatable, no one became tired of it, and the subjects of the experiment at its end drew up a memorial expressing their appreciation of the whole-meal bread, stating that they derived great benefit from its use and asking that a further supply should be obtained. A few observations were also made with bread made in the same proportions as in the factory experiments on patients in two sanatoriums for consumption—one for males and the other for females. The results were similar in the two sexes. Of 10 cases in the early stage 9 gained weight and 1 showed no change. Of 6 cases in the intermediate stage 4 gained and 1 lost weight, and in 1 the weight remained unchanged. Of 9 cases in the advanced stage, 6 gained and 3 lost weight. No evidence of digestive disturbance was noticed. All the patients preferred the special bread, with the exception of two men who said they had no preference and three who preferred ordinary bread. Dr. Robert Hutchison, in his paper on the medical aspects of the food problem, points out (p. 426) some practical conclusions to be associated with these scientific investigations.

THE PROBLEMS OF RADIOACTIVITY.

In the first Silvanus Thompson Memorial Lecture, delivered before the Röntgen Society on April 9th, Sir Ernest Rutherford, F.R.S., reviewed the various lines of scientific investigation opened up as a result of the discovery of α rays. In a tribute to the first President of the Society, in whose honour the lectureship was instituted, he mentioned that on the morning that the late Silvanus Thompson read of Röntgen's discovery he set to work, and by nightfall had succeeded in producing what was probably the first α -ray photograph taken in this country. The outbreak of war, Professor Rutherford said, had caused an almost complete stoppage in the great tide of advance in pure science, but the lull afforded a suitable opportunity for looking back with some degree of perspective over the ground covered during the last twenty years. Undoubtedly the discovery of this new type of radiation marked the beginning of an epoch in physical science and had brought about a revolution in ideas of the nature of matter and electricity almost as marked as that produced in biology by the theory of evolution. The two decades from 1895 to 1915 had been a period of pioneer advance over a new and fertile territory, with the almost daily discovery of interesting facts and the gradual unfolding of fundamental ideas. The directions of advance which had been stimulated by the discovery of α rays included investigation on the ionization of gases, electrons, the diffraction of α rays by crystals, and, most important of all, the phenomena of radioactivity, which was an even more direct consequence of the discovery of α rays than the work on the electron. The sequence of changes in uranium, radium, thorium, and actinium had now been followed out, not indeed completely, but in the main part. No doubt there would still be in the future considerable developments as the result of investigations of the multiple transformations of the atom, but as a whole, apart from a few outstanding difficulties, like the origin of actinium, the transformation of radioactive bodies was fairly well understood. A fundamental discovery, which had been completely verified just before the investigation was broken off by the war, was that certain radioactive elements were inseparable from one another—mesothorium and radium, for example—and this opened up a conception which must of necessity exercise a profound influence on all work on atomic weights, and lead to a close examination as to whether any of the ordinary elements were a mixture of "isotopes." Professor Rutherford went on to refer to the titanic violence of the explosion in the radioactive atom, shown by the expulsion of a particles at great speed and the ejection of electrons with nearly the velocity of light, accompanied by intense α rays of much greater penetrating power than any that could be excited by an α -ray tube. He believed that there was very little hope at present of obtaining tubes which could compete with radium or thorium in providing a source of α rays of very short wave length (and accordingly of great penetrating power). The γ rays of radioactive substances had proved to be of much shorter wave length than was previously supposed.

THE VALUE OF THE WASSERMANN REACTION.

When the complement deviation test devised by Bordet was applied to syphilis by Wassermann, Neisser, and Bruck it was received with enthusiasm as a method which would remove all difficulties in the diagnosis of this disease. Unfortunately this contributed to the exaltation of laboratory diagnosis at the expense of clinical experience—a state of affairs which persisted even after it was shown that the reaction was not a true antigen-antibody phenomenon, that it was not absolutely specific, that it was not always obtained in cases with clinical evidence of syphilis, and that it did not necessarily prove that the lesion under consideration was syphilitic. The Wassermann reaction, like other laboratory tests, is a valuable aid to the clinician, but a diagnosis based on the

evidence of this reaction alone is open to many sources of error. Some instances will be found in a memorandum on the subject at p. 427. A comparison of the *post-mortem* findings, with the results of the Wassermann reaction during life, carried out on 331 cases at the Bellevue Hospital, New York, by Symmers, Darlington, and Bittman,¹ is of interest. In 204 cases the results corresponded, one or both antigens (cholesterinized and alcoholic) giving a negative reaction, and no signs of syphilis being found at necropsy. In the remaining cases, however, the reaction was positive in about 30 per cent. in which no *post-mortem* signs of syphilis were found, and negative in 31 to 56 per cent. (depending on the antigen used) with characteristic *post-mortem* signs of syphilis. In more than half of the latter cases the lesions are described as active, the remainder being indolent or healed. The value of these results is diminished by the fact that naked-eye changes alone were depended upon, no microscopic examinations being made. It is quite possible for syphilis to be present without changes visible to the naked eye. The converse category of cases, in which the reaction was negative during life, but signs of syphilis were found after death, carries more weight; but here again the results are incomplete, for the period that elapsed between the Wassermann tests and the deaths is not stated, nor is the cause of the deaths stated. Owing to these omissions, the results of this research cannot be accepted as conclusive, although it indicates that syphilis may be found after death where the Wassermann reaction was negative during life.

THE AMERICAN MEDICAL RESERVE CORPS.

SUNDAY last (April 7th) was the first anniversary of America's entry into the conflict, and the official statement put out as to what has been accomplished in the year contains a number of interesting figures. A year ago the army numbered 212,000; it now numbers 1,650,000. The navy's strength a year ago was 82,700; to-day it is 351,000. The number of medical men who have passed through the army medical training schools is 6,000, which is at the rate of about 4.2 per 1,000 newly enlisted men. The number of medical officers in the navy is 1,675, which is at the rate of 4.8 per 1,000. We cannot fail to admire the manner in which members of the medical profession in the United States have set themselves with enthusiasm to learn their new specialty of military medical practice and administration. We gave some account last November of the three large training camps which were then in full swing. Their number has been increased, and recently in one camp in Georgia there were 1,500 doctors, and the energy they showed in the work was very satisfactory. In addition to instruction in purely military duties, refresher courses in all branches of medicine and surgery specially applicable to military life are given. The course through which each cadet officer passes lasts three months, and he is at work for about eight hours a day. During the first month he learns the ordinary work of the enlisted man of the Medical Department, so that he may be fitted for duty as an instructor; the second month is given to the special duties of medical officers as such, and the third to instruction in work in the field, such as the conduct of ambulance companies and field hospitals. In addition selected officers are sent for special training to laboratories for instruction in bacteriology and x-ray work.

FATS AND OILS IN B.P. PREPARATIONS.

THE General Medical Council has now announced the alterations and amendments to the *British Pharmacopoeia* 1914, which, as mentioned three weeks ago, the President was authorized to make in consultation with the Pharmacopoeia Committee in response to representations from the Food Controller and the Home Office

Committee on Drug Supply with regard to the necessity for discontinuing the use of various edible fats and oils in the official preparations. The following preparations are withdrawn until further notice: *Linimentum camphorae*, *linimentum chloroformi*, *linimentum hydrargyri*, *linimentum terebinthinae aceticum*, *liquor cresol saponatus*. In the United Kingdom certain specified substitutes for prepared lard and prepared suet may be employed in making official preparations; arachis (pea-nut) oil or sesame oil may be substituted for olive oil in official liniments, ointments, plasters, and soaps; and the use of the modified castor oil of commerce commonly known as "neutralized seconds castor oil" is permitted in making the official preparations for which castor-oil is directed to be used.

We are glad to learn that Lieut.-General Sir Arthur Sloggett, D.G., A.M.S., has received news that his only son, Lieut.-Colonel A. J. H. Sloggett, D.S.O., Rifle Brigade, who had been presumed killed, is alive and a prisoner at Karlsruhe. Colonel Sloggett was in command of a battalion of the Rifle Brigade which on March 21st was known to have been carrying on a desperate fight in holding up a German division, and had been reported missing.

Medical Notes in Parliament.

Military Service Bill.

Premier's Review of the Present Battle.—The New Proposals for more Man Power.—Provisions Affecting Medical Men.

MR. LLOYD GEORGE on April 9th introduced the new (third) Military Service Bill in the House of Commons with a grave and compendious statement of the situation.

He devoted a large part of his speech to a review of the war events in France during the past fortnight. At the beginning of the German great offensive the combatant strength of the whole of the German army on the Western front was, he said, approximately equal, but not quite, to the total combatant strength of the allies. In several respects the Germans were inferior, but they had several important advantages. One was the initiative, which gave a large margin to surprise, in spite of our superiority in the air. They had the very great advantage, further, of having a united command. Incidentally, too, they had an important advantage in the weather. It was dry and misty. Thus the attack succeeded where in ordinary spring conditions the ground would have been almost impossible; the warmth increased the mist, and thus they were able in some parts to come within a few yards of our lines before their approach became known. After a eulogy of the splendid services of the French reserves, and after a warm tribute to the valour of our army, Mr. Lloyd George referred to the measures adopted by the Cabinet to meet the emergency. No such large numbers of men had ever before crossed the Channel in so short a time. The Ministry of Munitions had replaced lost guns and ammunition, and still had a very substantial reserve. The number of our aircraft, too, was greater now than it was before the battle. Secondly, President Wilson without the smallest hesitation consented that the fighting strength of the American army should be immediately brought to bear on this struggle. Thirdly, the Premier called attention to the decision taken to secure unity of command—a decision which he assured the House had the fullest concurrence of all concerned.

The battle proved that the enemy had definitely decided to seek a military decision this year. There was still seven or eight months during which the fighting would continue, and everything depended upon keeping our strength to the end. With American aid we could do it, but even with that we could not feel secure unless the further sacrifices the Government proposed were made. The Premier acknowledged frankly the limitations—for use in the army—of the remaining man power in this country. He recognized also that the claims of the navy and of shipping must stand first, and that we had to supply coal largely to the allies as well as steel. There was still, however, a reserve of men to be obtained without impairing the striking power of the country for war.

¹ *Journ. Amer. Med. Assoc.*, February 2nd, 1918.

During the first quarter of this year there had already been raised for the armed forces more than that quarter's proportion of the original number of men estimated as the minimum required for the present year. There had been also a very strict comb out of some of the essential industries. Very large levies had been taken from the munition works; they would amount, he thought, to something like 100,000 Grade 1 men. That had been done this year. A call for 50,000 had been made on the coal industry and these men were being rapidly recruited; a call for another 50,000 men was to be made from this industry. It was proposed that no fit men below the age of 25 should be retained in the Civil Services; that would be a clean cut. Beyond that there would be a comb out. The clean cut was also to be applied to other industries in another way. Under the Act passed in January this year orders would be issued cancelling all occupational exceptions by age blocks in specified occupations. That would be a clean cut. The first of these orders was being laid on the table that day and other orders would follow. As it was necessary not only to have men but to have them quickly, the Government had shortened the length of the calling up notice from fourteen days to seven, and had authorized the serving of the notice by whatever method was most convenient. It might be necessary even to curtail right to appeal on medical grounds, but for the moment it was not proposed to do this. There had been a great many frivolous appeals which had wasted much time, and if that went on it would be absolutely necessary in the interests of the country that the right to appeal should be curtailed in this respect. There was another consideration: the strain upon the medical profession had been great already. They were very short of medical men, and they might be driven to take the course he mentioned for the hard necessities of the case.

Then the Premier brought the House to the new proposals actually embodied in the new bill. The first was to raise the military age to 50, with powers to raise it in special specified cases to 55. That last provision was to apply only where men with special qualifications were needed. For instance, it might be necessary to do this in the case of medical men. The raising of the age to 50 did not mean that men between 42 and 50 were necessarily to be put into the fighting line. It might be that there were men of that age just as fit as men of 55, but that would be the exception. There were a good many services in the army, however, which did not require the best physical material, and it would be very helpful to get men of this age in order to release younger and fitter men to enter the fighting line. They had also to prepare for home defence, so as to be able to release men from this country, and to fill their places by men between 42 and 50. The proportion of men from 42 to 50 that it was expected would be available for the line was not very high—something like 7 per cent. Only a small percentage of the men within the years named would be likely to come under the provisions of the Bill.

The next consideration was the question of exemptions. Under the Act passed this year the Minister of National Service already had power to cancel certificates granted on occupational grounds. It was proposed to make free use of this power, and several of these exemptions would be cancelled (under power already conferred on the National Service Ministry) by means of proclamation. This was another means of arriving at the clean cut. Any existing exemptions granted to such men would be superseded, and the men would be taken or left on medical grounds only. The provision would not be used to set aside pledges given to discharged soldiers. It was further proposed in the bill to take power by Order in Council both to reconstitute the tribunals and to regulate the areas in which they should work; to standardize the grounds of exemption and limit the rights of appeal. The areas within which tribunals might act would be reconsidered and in some cases adjusted. Local tribunals, like the appeal tribunals, would become nominated bodies and would be reduced in size, but existing members of tribunals who had rendered admirable service would be retained, and the tribunal staff and officers would be preserved. Touching the inclusion of ministers of religion in the bill for non-combatant purposes, Mr. Lloyd George said there was a shortage of fit men for the service of the sick and wounded, and he thought that ministers would be able especially to render services of this kind in the battlefield.

Finally, the Prime Minister stated the reasons for including Ireland in the scope of the bill. The point he made most emphatically was that it would be indefensible to ask young men of 18½ years of age and men up to 50 in England, Scotland, and Wales to fight whilst young men of 20 to 25 in Ireland were under no obligation to take up arms for the common cause. But as there was no

machinery in existence for applying the measure to Ireland and no register had been completed, it might take some weeks before actual enrolment began. Meanwhile it was intended to ask Parliament to pass a measure for self-government in Ireland. He wished it to be understood, however, that each question must be taken on its merits. While speaking on this matter Mr. Lloyd George was challenged by Mr. Devlin as to whether he was aware of the recommendation of the Irish Convention on this subject. The point of Mr. Devlin's interruption, which he brought out later, was that a Subcommittee of the Convention, consisting of the Duke of Abercorn, Lord Desart, Mr. Powell (three Unionists), and Captain Gwynn and Captain Doran (two Nationalist members who were soldier members of the Convention), had reported that it would be impracticable to enforce conscription in Ireland except with the approval of the Irish Parliament, and that the Convention had adopted this view as part of their report. Mr. Lloyd George said that he understood that the Convention reported by a majority, and the Government would have to accept responsibility of submitting to Parliament, with such guidance as the Convention report afforded, such proposals as it thought could be carried without violent controversy. In the subsequent debate Mr. Asquith spoke very gravely of the military situation, but with confidence in the army and the country's patriotism. He suggested that with the object of getting legislation in a form that would meet reasonable objections, a little more time than had been suggested should be given for the consideration of the bill.

Irish Nationalist members spoke in hostility to the inclusion of Ireland in the measure. Sir Edward Carson, on the other hand, expressed his pleasure that Ireland would be called upon to give her due share to the military forces. The Nationalists challenged division on the first reading, which was carried by 299 votes to 80, a minority almost exclusively composed of Nationalists.

In the second reading debate on April 10th Sir Donald Maclean, Chairman of the London Appeal Tribunal, gave the reasons why he and his colleagues held that it would not pay to raise the age beyond 48. The men between 39 and 41 who had come up lately, had been mostly subjected to grading under the new medical system. In the great majority of cases men graded A or Grade 2, had, on this medical test, been brought down to Grade 3. He assumed it was not intended to lower the medical standard. On such experience his belief was that not more than 3 per cent. of the men above 48 would have military value. This would mean a fresh avalanche of Grade 3 men, mostly unfit. Soldiers resented more the entrance of the unfit into the army, and commercial interests would suffer seriously without advantage to the country. Then, too, having regard to the real shortage of doctors, it should be remembered that this type of men would carry a much larger percentage of sickness and add to their difficulties. The Minister for National Service would agree that the result of the experience for the last two years was to show that sickness casualties among men between 35 and 41 were two and a half times greater than the casualties of men between 35 and 41. The businesses of these men would be paralysed to get slight returns. In the opinion of himself and his colleagues to raise the age so high would mean adding to the pension list materially, ruining physically thousands of men, and burdening the army unnecessarily. Later in the evening Mr. Asquith supported this view. He thought it undesirable also that there should be a contingent power for the executive without any reference to Parliament to raise the military age to 56. It would place many business men in great uncertainty. Mr. Bonar Law in his reply announced that the decision of the Government to apply conscription to Ireland was definite. He promised careful consideration to the question of the age limit as regards the high years. The test of the War Cabinet would be a necessity. Mr. Law emphasized the gravity of the situation. Sir Auckland Geddes, in winding up the debate for the Government, said that Clause 3, whereby it was intended to make clean cuts, was really the most important part of the bill. It was necessary to have all the resources which under the bill it was proposed to use.

The second reading was carried by 323 votes to 100, the minority being mainly composed of Nationalist members.

The first clause of the bill fixes the age of compulsory military service at from 18 to 51, subject to provisos as follows:

(a) If it appears to His Majesty at any time that it is necessary so to do for the defence of the realm, His Majesty may by Order in Council declare that the foregoing provision shall, as respects men generally, or as respects any class of men, have effect, as from a date to be specified in the Order, as if any age specified in

the Order not exceeding fifty-six years were therein substituted for the age of fifty-one years; and

(b) As respects any person being a duly qualified medical practitioner, the foregoing provision shall have effect as if the age of fifty-six years were therein substituted for the age of fifty-one years.

Clause 2 gives power to declare by proclamation that a national emergency has arisen, and that any certificates of exemption to any class or body of men shall cease to have effect. Clause 4 provides for the constitution of tribunals and for the establishment of special tribunals, committees, or panels for dealing with particular classes of cases, for regulating and limiting the making of applications to such tribunals, and for determining the grounds on which applications, or any particular classes of applications, may be made, and the right of appeal.

THE WAR.

THE MEDICAL SERVICE IN THE FIFTH ARMY.

The object of the great German attack on March 21st and following days seems to have been to break through the point of junction between the extreme right, or southern end of the British forces and the extreme left, or north, of the French. The course of the battle from that date to March 26th can now be traced, and in the following brief account we follow an admirable summary by Commandant de Civrieux.¹

General Character of the Retreat.

The British 3rd and 5th Armies were on a line from the Scarpe, the river which runs due west from Arras towards Douai, on the north and the Oise, on which La Fère and Noyon are situated, on the south. The country between is traversed about midway by the River Somme; from Peronne to Amiens the Somme runs nearly due west, but in its course from St. Quentin to Peronne it makes a deep bend south through Ham. The junction between the 5th Army and the French was a point near La Fère, just north of the Somme. Opposed to them from north to south were the armies commanded by Prince Rupprecht of Bavaria, the Crown Prince, and Generals von Below, von Marwitz, von Kathan, and von Gontard. The attack was on a line of about 70 kilometres (about 43 miles). The preliminary bombardment began at 2 a.m. on March 21st; the German infantry attacked at 8 a.m. on the same day by massed waves. On the 21st and 22nd the British 5th army fell back to the line Peronne-Ham; the 3rd army maintained its position in great part, but on March 23rd conformed on its right to the retreat of the 5th army, retiring to the line Bapaume-Peronne. It was on this day that the French took over the right of the British 5th army. On March 24th the enemy got across the Somme to the south and north of Peronne, and the 5th army retired to the line Bapaume-Combles-Maurepas, but in the evening forced the enemy back over the Somme. Meanwhile the French, to the south, had generally kept their ground. On March 25th the Germans reached Nesle, Peronne, and Bapaume, and the 5th army retired again, the Germans continuing to push towards Amiens by the roads Bapaume-Albert, Nesle-Chaulnes. The French, who had stood north-east of Noyon, evacuated the town on that night; fighting in this region continued to be severe, but northward the British line was for the time left comparatively quiet. The general effect of the five days' fighting had been to force the British 5th army westward with an inclination north, with the result that a great part of its back areas was lost, and it is in such areas in the second line that casualty clearing stations and the machinery for the evacuation of the wounded from them to the base is established.

The Withdrawal of the C.C.S.

Further details which reach us this week bear out very closely the information we were able to give in our last issue with regard to the medical services, more particularly the forward casualty clearing stations, during the rapid retirement at the end of last month. The German attack was expected, and the more advanced clearing stations were moved back at once without much difficulty, but as

the other medical units arranged in series at varying distances behind became threatened under the rapid and sustained advance of the enemy, the difficulties of evacuating the wounded became increasingly great. One after another the clearing stations had to be evacuated; sometimes a unit, after opening up in a new site, was obliged to clear its patients at the end of forty-eight or even twenty-four hours, and then fall back itself, losing each time more of its equipment. Occasionally the last cases were got away whilst the infantry were preparing to make a stand in the clearing station grounds, with the field guns firing over their heads from new positions behind. In one or two instances a few desperate cases were left behind under the care of a medical officer and some orderlies, but even these were eventually moved to safety. Under such conditions deliberate surgery such as is practised when behind a more or less stationary line was out of the question; all that could be done was to dress and feed the patients and perform a few urgent operations, evacuation meanwhile proceeding by ambulance train, or car, and fresh cases accumulating in large numbers from the field ambulances. At some points the most that could be done was to establish an improvised collecting station beside the railway and load the patients on trains as they came up. There were moments when it seemed that it would be impossible to get all the wounded away, but in every instance this was accomplished successfully, though sometimes the lightest walking cases, through lack of transport, had to be marched to the rear. Notwithstanding every sort of difficulty no officer, sister, or man of the clearing station personnel was lost, nor was a single patient left behind by these units to fall into the enemy's hands.

The Field Ambulances.

More remarkable even than this was the fact that while the clearing stations were moving backwards the field ambulances were able to evacuate cases in a steady stream and without hitch all through; it is believed that no patients even in the field ambulances were taken prisoner during the retreat.

Such results leave no doubt as to the organizing ability and resourcefulness of those in charge of the medical arrangements throughout a most trying and anxious period. Although the battle went hard for our troops in a military sense, the medical services seem to have come magnificently through an ordeal which can only be compared with the retreat from Mons.

Sisters and Nurses.

The gallantry of the sisters during the evacuation and removal of the forward clearing stations was alluded to last week. One group of nurses, we learn, stood quietly beside the railway line whilst their station was being shelled, waiting for a train which might or might not succeed in reaching them; yet next day they were at work in a new place as though nothing had happened. The officers and men of the R.A.M.C. showed the courage, coolness, and devotion which were expected of them during such critical times.

WAR OFFICE STATEMENT.

The Secretary to the War Office has issued the following statement:

In the recent retirement on the Western front a number of medical units, such as casualty clearing stations, fell into the hands of the enemy. All the medical and nursing personnel of these units, and the patients, were safely evacuated, none being captured. The equipment and material were replaced immediately, and large reserve supplies have, in addition, been sent to France. All deficiencies in personnel, officers, nurses, and other ranks have been made good.

The Canadian and Australian medical authorities have generously come to our help by lending us medical officers and nurses.

It is regretted that in the process of evacuating casualty clearing stations a number of casualties occurred among the medical and nursing personnel. This was inevitable, as the units had to be cleared out at short notice, under, in many cases, heavy fire. A surgical team which had generously been lent to one of our casualty clearing stations by a Philadelphia hospital was heavily bombed, and two officers and one nurse were wounded.

The consulting surgeons of the administrative medical staff in France report that the care and attention which the wounded are receiving leaves nothing to be desired.

¹ *L'Illustration*, March 30th.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Wounded.

Surgeon J. J. Keatley, R.N.

Surgeon T. D. McEwan, R.N.V.R.

Surgeon Probationer F. Hussey-Anderson, R.N.V.R.

ARMY.

Killed in Action.

CAPTAIN J. W. ANDERSON, M.C., R.A.M.C.(T.F.).

Captain Jonas William Anderson, M.C., R.A.M.C.(T.F.), was killed in action during the recent fighting on the Somme. He was the son of Mr. D. C. Anderson, of Southport, and was educated at Liverpool University where he graduated M.B. and Ch.B. in 1898. After acting as house-surgeon of the Liverpool Royal Infirmary, and of Southport Infirmary, and as surgeon of H.M. transport *Orotava* during the South African war (medal), he went into practice at Llanfair Caereinion, Montgomeryshire. He took a commission as lieutenant and medical officer in the 4th Territorial (Denbighshire) Battalion of the Royal Welsh Fusiliers on March 24th, 1906, was called out for service on September 3rd, 1914, and promoted to captain after six months' service. He received the Military Cross on January 14th, 1916.

CAPTAIN H. W. BATCHELOR, R.A.M.C.

Captain Henry Washington Batchelor, R.A.M.C., was killed in action on March 24th, aged 30. He was the eldest son of the late Dr. H. T. Batchelor, of Queenstown, South Africa, and was educated at the London Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912. After filling the posts of clinical assistant in the cardiac department at the London Hospital and of assistant house-surgeon at the Poplar Hospital for Accidents, he took a temporary commission as lieutenant in the R.A.M.C. on August 7th, 1914, three days after war was declared, and was promoted to captain after a year's service.

CAPTAIN W. BROWNLIE, R.A.M.C.

Captain William Brownlie, R.A.M.C., was killed in action on March 25th. He was the youngest son of Mr. William Brownlie, of Invercargill, New Zealand, was educated at the Universities of New Zealand and Edinburgh, graduating M.A. and B.Sc. at the former, and M.B. and Ch.B. at the latter. He held a temporary commission in the R.A.M.C.

CAPTAIN D. C. CROLE, R.A.M.C.

Captain David Clement Crole, R.A.M.C., was killed in action on March 23rd, aged 33. He was the only surviving son of the late Dr. Angus Fletcher Crole of Leven, Fife, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1905. He held a temporary commission in the R.A.M.C. and was attached to the Hussars when killed.

CAPTAIN E. C. CUNNINGTON, R.A.M.C.

Captain Edward Charles Cunnington, R.A.M.C., was killed on March 23rd, aged 27. He was the only child of Captain B. H. Cunnington, Wiltshire Regiment, and was educated at Cambridge and at St. Bartholomew's Hospital, took the M.R.C.S. and L.R.C.P.Lond. in 1915, and held a temporary commission in the R.A.M.C.

CAPTAIN E. H. GRIFFIN, D.S.O., M.C., R.A.M.C.

Captain Ernest Harrison Griffin, D.S.O., M.C., R.A.M.C., was killed in action on March 21st. He was the only surviving son of the late Mr. John Griffin of Walsall, and was educated at Cambridge, where he graduated B.A. in 1898, and at St. Bartholomew's Hospital, taking the diploma of L.S.A. in 1902. He subsequently took the diploma in tropical medicine and hygiene at Cambridge in 1914. He had filled the posts of clinical assistant at the Samaritan Free Hospital, of assistant physician and pathologist at Camberwell House Asylum, and of surgeon to the Venezuela Goldfields; and served as surgeon to the British Red Crescent Society in Tripoli in the Turco-Italian war. He took a temporary commission as lieutenant in the R.A.M.C. on August 16th, 1916, and was promoted to captain after a year's service. He had been mentioned in dispatches, received the Military Cross on August 25th,

1916, and the D.S.O. on November 26th, 1917; and also held the Venezuelan Order of the Liberator.

CAPTAIN S. E. McCLATCHY, R.A.M.C.

Captain Samuel Edward McClatchey, R.A.M.C., was killed in action on March 25th. He was educated at Victoria University, Manchester, where he graduated M.B. and Ch.B. in 1911. After acting as junior house-surgeon at Preston Royal Infirmary, he went into practice at Buxton. He took a temporary commission as lieutenant in the R.A.M.C. on September 10th, 1914, was promoted to captain after a year's service, and was attached to the Welsh Regiment when killed.

CAPTAIN C. H. G. PHILP, R.A.M.C.

Captain Claude Hastings George Philp, R.A.M.C., was killed in action on March 26th, aged 32. He was educated at Cambridge, where he graduated B.A. in 1907 and M.B. and B.C. in 1912, and at St. Thomas's Hospital. After acting as assistant casualty officer at St. Thomas's and as resident medical officer of Herefordshire General Hospital, he went into practice at Hereford, where he held the appointment of honorary anaesthetist to that hospital. He joined the R.A.M.C. as a temporary lieutenant in 1916, and was promoted to captain after a year's service. He was attached to the Manchester Regiment when killed.

Died of Wounds.

CAPTAIN F. SIMPSON, R.A.M.C.

Captain Frederic Simpson, R.A.M.C., died at Templeton House, Roehampton, on March 31st, of wounds received on January 1st, aged 33. He was the second son of Mr. Sidney Simpson of Erith. He took a temporary commission in the R.A.M.C. in the middle of 1916, and was promoted to captain after a year's service. He received his medical education at Charing Cross Medical School, and took the diploma of L.M.S.S.A., and immediately after received a commission in the R.A.M.C.

CAPTAIN H. H. TAYLOR, R.A.M.C.

Captain Herbert Hampden Taylor, R.A.M.C., died of wounds in a Canadian stationary hospital on April 3rd, aged 35. He was the third son of the late Mr. Robert Taylor, solicitor, of Bedford Row, and was educated at St. Mary's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1907, and at Cambridge, where he graduated M.B. and B.C. in 1908; after which he acted as house-physician and house-surgeon at St. Mary's Hospital, and as assistant medical officer at St. George's Infirmary. He took a temporary commission as lieutenant in the R.A.M.C. on April 24th, 1915, and was promoted to captain after a year's service.

CAPTAIN G. H. D. WEBB, R.A.M.C.(T.F.).

Captain George Harvey Duder Webb, R.A.M.C.(T.F.), died of wounds on March 29th. He was the second son of Mr. J. Collier Webb, and was educated at University College Hospital, London, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914. He took a commission as lieutenant in the 3rd London General Hospital on August 20th, 1914, and was promoted to captain after a year's service.

Accidentally Killed.

CAPTAIN T. L. ENRIGHT, R.A.M.C.

Captain Thomas Louis Enright, R.A.M.C., was accidentally killed recently at Salonica. He was the third son of Mr. James Enright, of Listowel, and took the diplomas of L.R.C.S. and L.R.C.P.Irel. in 1914. He joined the R.A.M.C. as a temporary lieutenant on February 1st, 1915, and was promoted to captain on completion of a year's service.

Died on Service.

LIEUT.-COLONEL R. BIRD, C.I.E., M.V.O., I.M.S.

Lieut.-Colonel Robert Bird, Bengal Medical Service, died at Wellington, Nilgiri Hills, Southern India, on March 30th, aged 51. He was born on December 4th, 1866, educated at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1888, the M.B. and B.S.Lond. in the same year, with honours in physiology, materia medica, and organic chemistry at the intermediate examination, the M.D. in 1889 and the M.S. in 1891, and also the F.R.C.S. and the D.P.H.Camb. in 1891. Entering the I.M.S. as surgeon on July 28th, 1891, he

became major on July 28th, 1903, and lieutenant-colonel on July 28th, 1911. After three years in the army he was posted in September, 1894, to civil employ in Bengal, where he spent the rest of his service. From March, 1895, to September, 1903, he was resident medical officer of the Calcutta Medical College Hospital, and in May, 1908, was appointed professor of surgery. Some fourteen years ago he was deputed on special duty to Kabul to treat the Amir of Afghanistan for an injury, and in the winter of 1911-12 was on special duty on the staff of the King-Emperor during his visit to India for the Coronation Durbar. He received the C.I.E. on January 1st, 1905, and the M.V.O. on January 4th, 1912.

Wounded.

Colonel A. D. Sharp, C.B., C.M.G., R.A.M.C.(T.F.).
Lient.-Colonel H. E. Fawcus, D.S.O., C.M.G., R.A.M.C.
Lient.-Colonel J. McMillan, M.C., R.A.M.C.(T.F.).
Lient.-Colonel R. T. C. Robertson, D.S.O., R.A.M.C.(S.R.).
Captain G. S. Clancy, R.A.M.C. (temporary).
Captain P. E. Earnshaw, Australian A.M.C.
Captain E. C. T. Emerson, R.A.M.C.(T.F.).
Captain H. L. G. Hughes, D.S.O., R.A.M.C. (temporary).
Captain J. W. Hunt, Canadian A.M.C.
Captain W. J. Knight, M.C., R.A.M.C. (temporary).
Captain W. F. Maclean, R.A.M.C.(S.R.).
Captain V. H. Mason, M.C., R.A.M.C. (temporary).
Captain S. A. W. Munro, R.A.M.C. (temporary).
Captain P. J. O'Shea, Australian A.M.C.
Captain F. E. L. Phillips, R.A.M.C. (temporary).
Captain R. N. Porritt, R.A.M.C. (temporary).
Captain H. E. S. Richards, R.A.M.C. (temporary).
Captain R. S. Ross, R.A.M.C. (temporary).
Captain T. J. Ryan, R.A.M.C. (temporary).
Captain L. M. Webber, R.A.M.C. (temporary).
Lieutenant H. Daw, R.A.M.C. (temporary).

Missing.

Major J. S. McConnachie, R.A.M.C.(T.F.).
Captain M. T. Ascough, M.C., R.A.M.C.(T.F.).
Captain T. E. H. Carr, R.A.M.C. (temporary).
Captain W. M. Christie, R.A.M.C. (temporary).
Captain P. P. Corbett, R.A.M.C.(S.R.).
Captain S. Cross, R.A.M.C. (temporary).
Captain C. E. P. Husband, R.A.M.C. (temporary).
Captain G. R. Lipp, R.A.M.C. (temporary).
Captain A. T. I. MacDonald, R.A.M.C. (temporary).
Captain D. Macnair, R.A.M.C.(T.F.).
Captain C. Mearns, R.A.M.C.(T.F.).
Captain E. J. Storer, R.A.M.C. (temporary).
Captain G. Torrance, R.A.M.C. (temporary).
Captain D. A. Wilson, R.A.M.C. (temporary).
Lieutenant W. H. Rawdon, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Barton, John Francis Sinclair, Sublieutenant R.N., youngest son of Dr. F. Alexander Barton, killed March 13th, aged 24.

Glendinning, James Graham, Second Lieutenant Monmouthshire Regiment, attached Royal Flying Corps, only son of Dr. Glendinning, late medical superintendent Monmouthshire Asylum, Abergavenny, killed in action in France on December 2nd, 1917, aged 20. He was educated at King Henry VIII's Grammar School, Abergavenny, and at Epsom College, where he keenly interested himself in sports, winning the MacFarlane Cup for his House in 1916 and the Blande prize. He was Head Prefect for his House, and had just begun medical studies when he joined the Monmouthshire Regiment in July, 1916.

Cummins, Thomas Coote, Second Lieutenant York and Lancs Regiment, only son of Dr. Wm. MacAlister Cummins, of Renishaw, Chesterfield, killed in action on March 25th, 1918, aged 19. He was educated at Chesterfield Grammar School, and King Edward VII School, Sheffield, and was about to enter Sheffield University when he was called to his military duties. He received his commission in September, 1917, and proceeded to France on November 4th, 1917.

Hall, Wilfred Rodenhurst, M.C., Lieutenant Suffolk Regiment, fourth and youngest son of Dr. H. S. W. Hall, of Hertford, killed March 27th, aged 20.

Haynes, John Eustace Tarleton, Second Lieutenant 1st Worcestershire Regiment, killed in action on March 23rd, only child of Dr. and Mrs. Sydney Haynes of Edgbaston, aged 19. He was educated at the West House School, Edgbaston, Berkhamsted, and Sandhurst, and got his commission in May, 1917. Both his grandfathers were medical practitioners.

Mackintosh, Ian Keith, Second Lieutenant Black Watch, only son of the late Dr. W. A. Mackintosh of Montrose, killed March 21st.

O'Keeffe, Marcus Manus, M.C., Captain Royal Field Artillery, only son of Major-General M. W. O'Keeffe, M.D., C.B., D.M.S. 4th Army, killed April 2nd, aged 21. He was educated at Cheltenham College, got his commission on February 10th, 1915, and gained the Military Cross in July, 1916.

Purdy, R. G., Major New Zealand Military Forces, was killed in action, together with his Brigadier-General, by the bursting of a shell. Major Purdy was the son of Colonel J. R. Purdy, M.B., C.M.Aberd., D.M.S. New Zealand Army, nephew of Colonel J. S. Purdy, commanding the Third Australian General Hospital, and a grandson of Captain Johnbarns, of Aberdeen, an officer with a distinguished record in the Crimea and Indian Mutiny. He was educated at Wellington College, New Zealand, and entered the New Zealand Permanent Defence Force in 1912. He had received the Military Cross and bar, and the Croix de Guerre. He married shortly before leaving for the war, and his widow survives him.

Skrimshire, Herbert Eric, Second Lieutenant Royal Garrison Artillery, younger son of the late Dr. Skrimshire of Morpeth, died of wounds on March 29th, aged 27.

Willans, Alan James, Captain King's Royal Rifle Corps, youngest son of the late Dr. Willans of Much Hadham, Herts, killed on March 24th, aged 21.

MEDICAL STUDENT.

Scott, Harvey Alexander, Lieutenant Gordon Highlanders, son of the Rev. Thomas Harvey of Edinburgh, died of wounds at a casualty clearing station on March 29th, aged 21. He was educated at Daniel Stewart's College and at Edinburgh University, where he was a medical student before the war. He got his commission from the O.T.C. on January 8th, 1916, and had twice previously been wounded.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SUPPLEMENT to the *London Gazette*, published on April 6th, contained statements of the services for which the decorations announced in the *Gazette* of November 26th, 1917 (BRITISH MEDICAL JOURNAL, December 1st, 1917, p. 738), were conferred. The following officers of the medical services received the awards indicated "for conspicuous gallantry and devotion to duty":

Bar to the Distinguished Service Order.

Major (temporary Lieut.-Colonel) Patrick John Hanafin, D.S.O., R.A.M.C.

For nine days he was continuously under heavy shell fire while supervising the evacuation of the wounded in the most adverse circumstances. Finally, although wounded in passing through a heavy barrage, he continued on duty until the last man had been brought in. The successful evacuation of the wounded was largely due to his gallant conduct.

Temporary Captain Robert McCowan Hill, D.S.O., R.A.M.C.

While on the way to battalion headquarters his party was caught in an enemy barrage, and four of them were wounded. He at once dressed their wounds on the spot in a most exposed position and under heavy fire. On arriving at the aid post he was informed that a whole machine-gun team were casualties in an advanced position. No stretcher-bearers were available, and he at once went forward and attended to them on the spot under heavy fire. He then returned and worked at his aid post under intense shelling, often attending to cases in the trench outside when the aid post was full. Casualties were being caused all round him, and he was wounded himself, but, though suffering severely, he remained at duty for sixteen hours until the battalion was relieved. He set a most inspiring example of courage and devotion to duty to all ranks.

Distinguished Service Order.

Major William Bannerman Craig, A.A.M.C.

After the aid post had been blown up during an attack, he attended the wounded and organized bearer parties in the open. Though wounded he persisted in his work until disabled by another wound.

Temporary Captain James Churchill Dunn, M.C., R.A.M.C.

He worked with untiring energy in the open in the front line, searching for and dressing the wounded and constantly exposing himself to machine-gun and rifle fire. His medical orderlies were both wounded, and the greater portion of his work was done without any assistance. He set a magnificent example to all of courage and devotion to duty under continuous heavy fire and enemy counter attacks.

Temporary Captain Ernest Harrison Griffin, M.C., R.A.M.C. (killed in action, March 21st).

He established his dressing station well forward during an attack, and went up to the front line through a storm of artillery and machine-gun fire utterly regardless of personal safety. He moved about in the open for thirty-six hours without food or rest, attending to the wounded, often leading parties of bearers through heavy barrages until every wounded man had been carried back. He remained behind after the battalion was relieved, still searching for wounded, under heavy fire, though he was several times badly shaken by the explosion of shells. He set a most inspiring example of courage and devotion to duty.

Major William Allan Hailes, A.A.M.C.

His example in attending to four wounded men in the open under heavy fire and conveying them to cover stimulated the stretcher-bearers to great efforts under most trying circumstances.

Major Harrie Bertie Lee, M.C., A.A.M.C.

He was in charge of the organization of bearer reliefs during an action, and hearing that the officer in charge of the forward bearer parties had been killed he at once went forward under heavy fire

and took charge. He located the new regimental aid posts forward of the former front line, and with absolute disregard of danger arranged for the evacuation of the wounded from these new posts through a heavy barrage. His quick grasp of the situation and prompt and courageous action were of inestimable value.

Major Kenneth MacCormick, C.A.M.C.

When in charge of the evacuation of the wounded during an action he remained at duty for forty-eight hours without rest, visiting the advanced posts, searching shell holes and bringing in many wounded. When one of his bearer posts was heavily shelled, with great coolness he got all the wounded away, staying behind himself until the last had left. He set a splendid example of courage and untiring energy.

Major Robert Maxwell McMaster, A.A.M.C.

He tended the wounded continuously for ten hours under shell fire. Several of his bearers were killed and wounded, and it was only with the greatest difficulty that he was able to save the wounded from being killed or buried alive.

Captain and Brevet Major Henry Forbes Pantou, M.C., R.A.M.C.

The evacuation of casualties, amounting to 60 officers and 1,100 men, after an advance of 3,000 yards was most successfully carried out, chiefly owing to the initiative and sound judgement displayed by him. He spent twenty-four hours in the forward area, visiting every regimental aid post and sending back hourly reports until the battlefield was completely cleared of wounded.

Bar to the Military Cross.

Temporary Captain William Thomson Brown, M.C., R.A.M.C.

He acted as bearer officer during an action, and was continuously in the open under heavy fire of all kinds. Though several times blown up by shells he remained at work, and set a most inspiring example of courage and gallantry.

Temporary Lieutenant (temporary Captain) Henry Alphonsus Harbison, M.C., R.A.M.C.

He was in charge of divisional stretcher-bearers during several days' operations. For seventy-two hours he never slept, and was continually on the move under intense shell fire, establishing connexion with the regimental aid posts and leading and directing the bearers. The entire success of the evacuation of stretcher cases from the forward area was due to his magnificent example. His coolness, courage, and endurance had a wonderful influence on his bearers. He has rendered conspicuous and valuable service on many other occasions.

Temporary Captain Reginald Ralston Huxtable, M.C., R.A.M.C.

This officer worked for three days and nights under the most appalling conditions helping the wounded, being continually in the greatest danger. He finally collapsed on reaching camp.

Captain Charles Herbert Leedman, M.C., A.A.M.C.

He worked for four days in the open attending to the wounded, in the course of which he dressed 300 cases. Seven intense barrages were put down by the enemy, but he went on with his duties, showing a total disregard for danger. His courage, devotion to duty, and endurance greatly inspired all ranks, and undoubtedly saved many lives.

Captain George Reginald Edward Gray Mackay, M.C., R.A.M.C.

He personally supervised the evacuation of the wounded, making several journeys through a heavy barrage. On many previous occasions he has performed similar acts of gallantry.

Temporary Captain Charles Joseph O'Reilly, M.C., R.A.M.C.

He personally supervised the evacuation of wounded, passing and repassing through heavy barrage fire. When a neighbouring M.O. was killed, he attached himself to the battalion and dressed and supervised the evacuation of the wounded.

Captain Patrick Joseph Francis O'Shea, M.C., A.A.M.C.

He dressed the wounded in the open after the aid post had become congested, and organized stretcher parties under heavy fire. His resource and courage saved many lives. He afterwards went round the shell holes with a party of bearers, dressing and collecting the wounded with a fine disregard of personal danger.

Temporary Captain John Finlayson McGill Sloan, M.C., R.A.M.C.

He worked continuously for two days, dressing over 150 cases in the open under heavy fire, three or four of the wounded being hit by snipers. He showed a fine example of coolness and sense of duty.

Temporary Captain Gideon Walker, M.C., R.A.M.C.

He worked for twenty-four hours after an attack in an advanced area, getting in the wounded of two battalions, and remained in the line after his own battalion was relieved. He showed the greatest contempt of danger under heavy shell fire.

(To be continued.)

The Sultan of Egypt has conferred the Order of the Nile (4th Class) upon Captains William Edward Marshall, M.C., and William Hubert Milligan, both of the R.A.M.C., for distinguished services rendered during the course of the campaign.

The following are among the decorations conferred by the Allied Powers on officers and men of the British naval forces for distinguished services rendered during the war:

Croix de Guerre (conferred by the President of the French Republic): Surgeon Alfred G. Williams, R.N.

Order of the Rising Sun, 4th Class (conferred by the Emperor of Japan): Fleet Surgeon Samuel Conner, R.N.

Order of the Redeemer—Commander (conferred by the King of the Hellenes): Staff Surgeon Ernest D. Rutherford, R.N.

England and Wales.

CEREBRO-SPINAL FEVER IN 1916.

THE annual report of the Registrar-General for 1916 contains some statistics of the incidence of cerebro-spinal fever during that year. London and the South of England generally again suffered far more than the rest of the country as measured by the death-rates. The notification figures bring out very clearly the degree to which the disease specially affected the metropolitan area. The civil notifications from the county of London numbered 428, and from Croydon, West Ham, and East Ham 32. Two hundred more civil notifications came from Essex, Middlesex, Kent, and Surrey, making altogether 660 notifications from the London area out of 1,306 for the whole country. For the civil population the recorded case mortality rate amounted to 59 per cent., as against 53 in the previous year. It was lowest in London—52 per cent.—“as was perhaps to be expected in view of the fact that London practitioners have been officially instructed to notify cases of posterior basal meningitis, while no similar instruction has been issued elsewhere. If, in view of this fact, deaths from posterior basal meningitis are included in calculating the case-rate for London, it comes to 58 per cent., or nearly as high as elsewhere. The rate in the county boroughs was 61 per cent., in the smaller towns 63, and in the rural districts 60. These figures may have very little bearing upon the real fatality of the disease, as many slight cases are doubtless overlooked, and notified cases are not always confirmed on verification, but they do form some measure of the prospects of recovery of cases sufficiently typical to be recognized.” The deaths in the civil population showed a decline of 44 per cent., and the deaths of non-civilians (449 in number) were fewer by 26 per cent. than those of the previous year, but in the absence of a return of the military population these figures are largely meaningless. In 1916, as in 1915, the majority of the cases occurred in the first two quarters; 68 per cent. of the total deaths of the year were returned for the first half of 1916, as against 78 per cent. in 1915.

THE NEWCASTLE ORTHOPAEDIC CENTRE.

The Orthopaedic Centre at Newcastle-on-Tyne, to which the Army Council upon the representation of the Ministry of Pensions has arranged to make a grant of £10,000, will be an extension of the Royal Victoria Infirmary and will ultimately become part of that institution, but during the war it will be staffed by the military. Soldiers, both before their discharge and after they have become pensioners, will be treated there. After the war the Ministry of Pensions will have a claim upon the beds.

Ireland.

ENNISKILLEN GUARDIANS AND THEIR DOCTORS.

At a recent meeting of the Enniskillen board of guardians a letter was read from the Local Government Board stating that no steps seemed so far to have been taken by the guardians towards reinstating the dispensary medical staff or arranging for their resumption of duty; in face of the gravity of the situation, the Local Government Board again urged the guardians to place the doctors at once in charge of their districts and thereby make efficient provision for the medical care and treatment of the sick poor. The guardians by their resolutions and advertisements had admitted that the old salaries were inadequate, and the adoption of a new suitable scale was therefore unavoidable in present circumstances, and ought to be formulated as soon as possible and submitted for sanction. Letters were also read from Dr. T. Hennessy, Irish Medical Secretary of the British Medical Association, and from Dr. R. Marley Blake, President of the Irish Medical Association. Dr. E. Stephenson, Local Government Board Inspector, was present at the meeting of the guardians and asked them to appoint a committee to go into the matter. The guardians had exhausted their resources; they had tried everything to get doctors, but they had not adopted the most obvious plan—to go into

conference with the doctors. Although the doctors had acted a little hastily in resigning—they must forgive him for saying it—the guardians were not without blame in the matter. The salaries they had paid to their medical officers were altogether inadequate for the services rendered. The guardians themselves had since admitted that by offering a much larger remuneration when advertising for doctors to fill the vacancies of their former medical officers. The *Fermanagh Herald*, in an editorial article headed "The Poor Law Scandal," says that the action of the Enniskillen board of guardians in again ignoring the request of the Local Government Board to make immediate and efficient provision for the medical care and treatment of the sick poor in the union is a grave scandal, and is deserving of the condemnation of all classes of the community. For six weeks the union has been without dispensary doctors, and were it not for the kindness of the medical men who have voluntarily treated a number of serious cases free of charge, the deadlock would have been productive of serious, and perhaps tragic, results. Any one who has read the speeches made at the meetings of the board of guardians for the past few weeks must come to the conclusion that the attitude taken up by the majority of the members was actuated by a feeling of wounded pride and vanity, because the doctors tendered their resignations, and that no attempt was made to consider the question on its merits. On two previous occasions the medical officers applied for an increase of salary, and the facts stated by them in support of their claim could not be controverted, yet on both occasions the board derisively rejected their application.

Correspondence.

PRIMARY SUTURE OF WOUNDS.

SIR,—The paper by Sir Anthony Bowlby, in the *JOURNAL* of March 23rd, embodying as it does material of the highest possible value, should be widely read and carefully studied. Sir Anthony has had a unique opportunity of watching the work at the casualty clearing stations and of following the changes that have gradually come about in the treatment of wounds since the beginning of the war.

Evolution is usually so slow a process that all the steps of its advance can rarely come within the purview of a single generation. That of aseptic surgery—from Pasteur's discovery of the cause of putrefaction, through the genius, the unceasing labour, and the tireless energy which Lister brought to bear upon its application to the treatment of wounds—covered a period of many years. But during the war we have seen all the stages in the establishment of a vital principle taking place under our very eyes. It is, however, no new principle that has been evolved; it is nothing more than the vindication of aseptic surgery. I do not use the term in that narrow and trivial sense which distinguishes antiseptic and aseptic according to whether chemicals are or are not employed, as if there existed two different systems. No one who reads Sir Rickman Godlee's *Lord Lister* can fail to realize that Lister saw clearly the vital principle which underlies all modern surgical technique—namely, that if microbes could be excluded from wounds no suppuration would occur; that if their presence could not be altogether avoided, then the fewer there were the better chance would the tissues have of dealing with the infection. He realized that chemicals could so damage the tissues as to make them more vulnerable to microbic attack, and that foreign bodies were harmful in wounds which were not germ-free. The problem to which Lister chiefly devoted his attention was the exclusion of microbes from clean wounds, or the prophylactic treatment of wounds deliberately made by the surgeon. The technique built upon the foundation laid by Lister had reached a high, indeed, an almost perfect state of development by 1914, and what the respective advocates of "aseptic" and "antiseptic" surgery were disputing was really a matter not of principle, but of detail.

What surgeons were confronted with in 1914, however, was the problem of the already infected wound. Some, instead of seeking to vindicate the principles of aseptic

surgery under this supreme test, ransacked the chemists' shops in the vain endeavour to find some germicidal panacea. But whilst this was going on Sir Almroth Wright was demonstrating that it was to nature that we must look for the solution of the problem. The re-discovery of this fundamental principle came from the laboratory, and justice requires it to be acknowledged that once again the practical surgeon is indebted to the pathologist. Neither brilliant colours nor pungent odours can replace an efficient surgical technique.

Sir Almroth Wright told the surgeon to look to surgery and not to chemistry for the solution of the problems raised by the wounds of war. The advocates of the various antiseptics which have from time to time been put upon the market have themselves admitted the truth of this doctrine, the directions for their employment being almost invariably prefaced by the statement that the preliminary opening up and thorough cleansing of the wound, together with the removal of all foreign bodies and dead tissue, are essential for success. "Bipp" affords a good illustration. Here was an ointment compounded of paraffin, bismuth, and iodoform, which, placed in a wound, was to exercise a continuous antiseptic action during the healing process. Assuming such action to be possible, then the cleaner the wound can be got by mechanical means, the less paste will be required; and if the quantity used is an index of the state of the wound at the completion of the primary operation, it follows that those wounds must be the cleanest, and will heal best, from which the paste is altogether omitted. Moynihan¹ writes that: "It is almost certain that in the perfect mechanical cleaning of the wound lies the secret of the (Morrison's) method." The truth of this conclusion is established by the practical results which Sir Anthony Bowlby quotes. The greatest good that has resulted from this preparation, as well as from others, is a demonstration of the paramount importance of efficient surgery.

One of the points in Sir Anthony Bowlby's paper which calls for criticism is his opinion of the chronological order in which primary closure of wounds came to be employed. Colonel Gray was, I feel sure, advocating the excision and suturing of cranial wounds long before the closure of wounds of the knee-joint was being practised, and the following quotation from a paper by Harvey Cushing,² written after his experiences in France in 1915, has a bearing upon the question:

"What is," he writes, "of paramount importance is to make a most thorough exploration and repair at the first sitting, usually with a flap incision away from or circumscribing the wound. . . . This reflected flap of scalp should be accurately closed . . . in order to ensure primary healing with scalp protection for the denuded dura or brain; and if drainage is advisable, it should be from the distant angles of the wound. . . . This, I am aware, is quite contrary to the generally accepted method of local enlargement of the wound with subsequent direct drainage. . . . This principle of exploration through a distant or flap incision, with subsequent closure, has been put into practice by a number of the more successful operators."

Sir Anthony Bowlby says:

"Injuries" (that is, of the skull and brain) "which had been treated in the early days by drainage with bad results, were now treated by surgical excision and primary suture of the scalp with infinitely better results."

This would seem to throw the blame for early bad results upon the drainage, whereas in reality it was the lack of efficient surgical treatment at the primary operation which was responsible. From quite early days the closure of the scalp wound, after thorough surgical cleansing, was advocated both by Colonel Gray and myself (and later by Surgeon-General Wallace). The different plastic methods devised for procuring a whole scalp with which to close the cranio-cerebral wound, and the question of temporary distant drainage, are points of detail which do not affect the main proposition.—I am, etc.,

PERCY SARGENT,

London, W., April 3rd.

Lieut.-Colonel R.A.M.C.

REAMPUTATION.

SIR,—In the *BRITISH MEDICAL JOURNAL* of August 25th, 1917, a most interesting paper by Mr. W. Sampson Handley was published on a method of flapless amputation, with subcutaneous division of the bone at a higher level.

¹ American Addresses, 1917.

² *The Military Surgeon*, June, 1916.

The feature of the method was the division of the bone with a Gigli saw introduced subcutaneously. As the subcutaneous introduction of the saw proved difficult I have substituted for it an open introduction, and am now convinced that Mr. Handley's method thus modified will, if generally adopted, rob reamputation of all its terrors.

Previously I had always approached a reamputation with misgiving. There never was any satisfactory way of cutting off the necessary amount of bone to obtain flaps, and violent recrudescence of sepsis was always set up. In one case I was dividing the femur with a chisel, and when half through it the rest of the femur split up as far as the small trochanter, thereby tearing a perforating artery, haemorrhage from this on the following day requiring ligature of the common femoral.

By Mr. Handley's method the bone is got away with the greatest ease, without any risk of haemorrhage, and with a minimum of disturbance to the tissues, and consequently of sepsis. Instead of cutting back the flaps to get out the bone, he removes the bone to make the flaps, a revolutionary proceeding of inestimable value. Mr. Handley's method transforms a severe major operation into an almost trivial minor one.—I am, etc.,

London, W., Feb. 9th.

PAUL BERNARD ROTH.

THE NATURE OF THE RHEUMATIC POISONS.

SIR,—In a note on "The Variation in the Specific Gravity of Urine and its Relation to Disease" (*Lancet*, June, 1917), I endeavoured to show, as a result of twenty years' observation, that the rheumatism and chorea following scarlet fever and other infectious diseases are caused by the retention of katabolic toxins or tissue waste. I based my belief on the fact that the urine in these cases falls in specific gravity and continues in this condition long after the albumin, usually following scarlet fever, has disappeared: a circumstance plainly showing that the glomeruli, as indicated by the appearance and the early disappearance of albumin, have been the first to suffer injury from the toxins and high temperature of the preceding fever, and are the first to recover, but that the more lasting injury as shown by the continued low specific gravity of the urine has fallen upon those cells in the kidney—namely, the tubular epithelium—whose function it is to exert a selective activity on the blood and to eliminate the products or toxins of katabolism.

Much has been said of the absorption of tonsillar and dental toxins as a cause of rheumatism, chorea and cardiac troubles. It would, however, be scarcely an exaggeration to say that 25 per cent. of human beings are going about in apparent health with chronically disordered tonsils, the crypts frequently blocked with secretion in a high state of decomposition, and yet many of such cases suffer little inconvenience therefrom. But with regard to dental toxins, I am able to prove from my observations in examining recruits, that scarcely one in 500 is without one or more carious teeth, and that many cases with undoubtedly septic mouths show no symptoms whatever of rheumatic, cardiac, or nervous disease.

Rheumatism or its associates will, however, supervene so soon as the renal tubular epithelium is sufficiently injured by the absorption of tonsillar or any other toxin to lower its vitality, and thus hinder its action; the other conditions following as a consequence of the auto-intoxication resulting from the retention of the products of tissue waste: conditions which neither the tonsillar nor the dental toxin acting alone is of sufficient virulence to bring about. Otherwise, the latter poisons must exist in sufficient quantity to induce a state of sapraemia or septic intoxication, or be of such toxic intensity as to set up septic infection; but whether these poisons be sapraemic or septicæmic, they must of necessity lead to toxæmic conditions differing widely from the rheumatism resulting from the absorption of toxins from organs chronically diseased; the continued pale urine of low specific gravity constantly associated with rheumatism of this type pointing to an injured tubular epithelium and to the consequent retention of katabolic toxins as the cause of the rheumatism.—I am, etc.,

Liverpool, March 9th.

WILLIAM BRAMWELL.

Obituary.

ALFRED HENRY CARTER, M.D., M.Sc., F.R.C.P.,

EMERITUS PROFESSOR OF MEDICINE, BIRMINGHAM.

DR. A. H. CARTER, of Birmingham, well known beyond the borders of that city as the author of one of the best of the smaller textbooks of medicine, died at his residence, Abingdon, Berkshire, on April 4th.

He was born in 1849 at Pewsey, Wiltshire, where his father practised as a surgeon. He went to school at Epsom College, and received his medical education at University College, London. He took the diplomas of M.R.C.S. and L.S.A. in 1870, and at once volunteered for service with a field hospital during the Franco-German war. After his return he became house-physician at University College Hospital, and in 1871, the year in which he graduated M.B.Lond. with honours, was appointed house-physician to the General Hospital, Wolverhampton. In 1872 he took the degree of M.D.Lond., and his long connexion with Birmingham began with his appointment as pathologist to the General Hospital; he was afterwards house-physician to the same hospital. He took the diploma of M.R.C.P.Lond. in 1876, and was appointed assistant physician to the Birmingham Hospital for Sick Children; not long afterwards he became physician to the Queen's Hospital. He became a Fellow of the Royal College of Physicians in 1891, and gave the Ingleby lecture in Birmingham in 1893. He took a prominent part in bringing about the closer connexion of the medical faculty of Queen's College with Mason College, and while professor of physiology at the former institution helped materially to improve and widen the scope of the teaching. For more than thirty years he was busily engaged as a teacher of clinical medicine, and during the later years of his time at Birmingham was joint professor of medicine. Dr. Carter not only took a large part in the medical life of Birmingham, but a share also in the public affairs of the city, serving for a time on the city council, and as a member of its health committee.

He was long an active member of the British Medical Association. He was vice-president of the Section of Diseases of Children at the annual meeting at Leeds in 1889 and president of that section at the annual meetings in Birmingham in 1890 and 1911. He was president of the Birmingham Branch in 1895-96, and was at one time a member of the central Council. He was also president in 1896-97 of the Midland Medical Society. In 1901 he received the degree of M.Sc. from the University of Birmingham. He was J.P. for the county of Worcester and Lieutenant-Colonel R.A.M.C.(ret.).

He retired from practice in 1913, but when war broke out was anxious to do his share; for a time he acted as physician to the hospital established by Lady Norman at Wimereux. Afterwards he served in the hospital ships *Aquitania* and *Britannic* in the Mediterranean, and later was consulting physician at Tidworth for the troops on Salisbury Plain. He was twice mentioned in dispatches for valuable services. He had to relinquish his military work last June owing to a breakdown in health. Before he was taken ill last summer he had almost completed a valuable paper on cerebro-spinal fever founded on 93 interesting cases he had collected, but he was not able to complete his report.

We have already mentioned Dr. Carter's chief publication, the *Elements of Practical Medicine*, which reached a tenth edition in 1912. The book had the qualities which distinguished the author: it showed not only a wide acquaintance with medicine and physiology, but a well-balanced and orderly mind, which placed every fact in its logical sequence.

Dr. Carter was twice married and is survived by his second wife and a daughter. His younger son died of wounds received in Flanders in 1915, and his elder son died some time ago of illness.

The funeral took place at Abingdon on April 8th.

The death occurred on March 10th of Dr. PETER GALLOWAY, who had practised for the past seventeen years at Spalding. He received his medical education at the University of Aberdeen, graduating M.B., C.M. in 1881.

and practised for some years at Willingham, near Gainsborough. Dr. Galloway was a member of the Holland Division of the British Medical Association. He leaves a widow, one daughter, and one son, Dr. Norman Galloway, who is serving with the R.A.M.C. in British East Africa.

DR. GEORGE ROGER PARKER, the oldest medical practitioner in Lancaster, died on March 11th after a long illness. He was educated at the Royal Grammar School, Lancaster, and St. Bartholomew's Hospital. He took the diploma of M.R.C.S. in 1875 and that of L.R.C.P.Lond. in 1877. He held the post of M.O.H. for the borough and port of Lancaster from 1886 to 1910. He was the senior medical officer to the Royal Lancaster Infirmary, having been appointed thirty-six years ago, and was president of that institution in 1908. He leaves two sons, Captain G. M. Parker, Australian Medical Service, and James I. Parker, a sheep farmer in Australia, who is at present serving with the Australian Veterinary Corps at the front, also one daughter, the wife of Dr. W. A. Rail of Capetown.

AMONG the victims of the recent air raids on Padua was DR. ELIO DE AMBRIS, who continued the work of his master Lombroso. He was the author of treatises on degeneration and criminality.

Medical News.

THE maximum retail price of butter has been fixed in Paris at the equivalent of 4s. 2d. a lb.

A REVISED edition of Taylor's Tables for calculating weekly meat rations is published by Effingham Wilson, and can be obtained through booksellers, price 6d.

THE late Dr. Elizabeth Garrett Anderson left estate of the gross value of £24,098, the net personalty being £15,806.

ACCORDING to the latest estimate of the (American) National Association for the Study and Prevention of Tuberculosis, based largely on the results of the examination of recruits and drafted men for the new army, when about 2 per cent. of men of draft age in the country at large were found to be tuberculous, it is estimated that the number of active cases of tuberculosis in the United States is probably between two and three millions. At present 45,000 beds are available, but 50,000 more are needed.

ACCORDING to the *Neue Preussische Zeitung* the loss of young male life has been so large that parents of girls in Germany are looking out for careers that will render them independent of marriage. The number of women who desire to become teachers is in excess of requirements, and in Prussia alone there are about 4,000 women medical students. Schools have been established for training girls to be librarians, sick nurses, and children's nurses.

DR. CHARLES S. MYERS, F.R.S., Lieut.-Colonel R.A.M.C., Director of the Psychological Laboratory, Cambridge, will give the second of two lectures on present-day applications of experimental psychology at the Royal Institution of Great Britain, on April 18th, at 3 p.m. The first lecture dealt mainly with the results which experimental psychology has yielded, and may be expected to yield, in the selection of individuals for work requiring special skill, in the prevention of industrial fatigue, and in the application of scientific management to industrial conditions. The principal subject of the second lecture will be the application of the teachings of modern psychology to the proper understanding and treatment of cases of nervous breakdown.

DR. EMILE ROUX recently reported that of the staff of the Pasteur Institute, normally numbering 200, 126 were mobilized in August, 1914. Of these 41 were medical men, 3 chemists, 6 veterinarians, and 76 officers and soldiers. Most of the laboratories had to be closed, only those for rabies, diagnosis, cholera and typhoid vaccination, animal vaccines, and serumtherapy continuing at work. Notwithstanding this curtailment of its activities the institute has rendered enormous services to the armies. Every French army is provided with a laboratory of its own on a large scale and a hospital for contagious diseases. There are more than two hundred laboratories worked by the institute. It has supplied to the army more than nine million doses of antityphoid vaccine. It also furnished the Serbian army with vaccine. Special services were established for malaria and dysentery. At the beginning of the war only 150,000 doses of antitetanus serum were available; within a few months the amount was increased to four million doses. At the beginning the black troops were decimated by pneumonia, and the institute prepared a vaccine which stopped the epidemic.

LIEUT.-COLONEL G. A. CASALIS DE PURY, S.A.M.C. (*Paris méd.*, 1918, viii, No. 3), contributes an interesting note on the medical history of the Basutos which, besides telling the old story of the evil effects of the first contact of natives with the so-called civilization of adventurous Europeans, brings out the sequence of syphilis and malignant disease on a virgin soil. In 1830 his grandfather settled among the Basutos as a missionary, on Livingstone's advice, and was followed there by his son and grandson (Lieut.-Colonel de Pury) as medical men. Until the Kimberley diamond fields were opened up the Basutos lived a happy, healthy, patriarchal life, without prostitution or syphilis, and entirely free from malignant disease, which, however, was known among the few white settlers and the neighbouring Boers. But with the advent of the diamond industry syphilis invaded the Basutos, and then, after a time, malignant disease, especially between 30 and 40 years of age, appeared. Later, tuberculosis, particularly of the lungs, became increasingly frequent, as has often been observed in similar circumstances. Lieut.-Colonel de Pury, after quoting the familiar example of syphilis as a disposing factor in carcinoma of the lip and tongue, records a family with many instances of the two diseases combined, and expresses his belief in a hereditary syphilitic diathesis for malignant disease.

Universities and Colleges.

UNIVERSITY OF LONDON.

AT a meeting of the Senate on March 20th Professor A. D. Waller, F.R.S., and Dr. S. Russell Wells were reappointed director and treasurer respectively of the Physiological Laboratory. Dr. E. W. G. Masterman has been added to the panel of University Extension Lecturers. The Gilchrist Studentship for Women has been awarded to Mary K. F. Lander of the London (Royal Free Hospital) School of Medicine for Women.

UNIVERSITY OF DURHAM.

ARRANGEMENTS are now completed for the completion of the register of parliamentary electors of the University of Durham. All graduates, including those who have taken a bachelor's degree, are qualified to be registered. Particulars will be sent on application (enclosing a stamped addressed envelope of foolscap size) to the Registrar, University Offices, Durham.

At the Convocation held on March 30th the following degrees were conferred:

M.D.—C. E. De Silva, J. R. D. Holtby, H. D. Senior, C. R. Wilkins.
M.D. FOR PRACTITIONERS OF FIFTEEN YEARS' STANDING.—C. U. Ind.
M.B.—E. G. Anderson, J. A. Berry, J. Gilmour, H. Sterne-Howitt.
B.S.—E. G. Anderson, J. A. Berry, J. Gilmour, I. Soliman, H. Sterne Howitt.

UNIVERSITY OF EDINBURGH.

AT the spring graduation ceremony on April 4th the following degrees were conferred:

M.B., B.Ch.—Eva M. Clark, H. R. Goldberg, W. A. Gray, Martha L. Hamilton, W. G. Hughes, G. Lange, D. O. Macdonald, H. B. Mackenzie, A. R. C. McKerrow, J. S. Mann, D. J. Micah, J. C. Morris, Annie C. Roberts, G. M. S. Smith.

* With second class honours.

UNIVERSITY OF GLASGOW.

THE following degrees were conferred on April 4th:

M.B., Ch.B.—A. B. Stich, A. Kennedy, Lydia I. H. Torrance, Annetta G. T. Anderson, T. W. Carstairs, M. Chalmers, Grace Chatterton, A. E. Crochrane, Margaret O'R. Gallacher, Mary B. Gillespie, G. O. Grant, J. C. Hendrie, Alison M. Hunter, Margaret T. McGeorge, W. S. L. McLeish, D. Macqueen, J. Nicolson, Agnes P. Routledge, Dorothea H. Suttie, J. J. Treanor, W. A. Walker, J. A. White, G. Young.

* With commendation.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

THIRD EXAMINATION.—J. H. Bain, T. A. du Toit, J. A. S. Campbell, G. O. Field, D. D. Fernandes, J. Campbell, A. F. Caddell, J. B. W. Telford, A. A. Lamaletie, T. F. Kelly, A. Gold, J. Murray, S. H. Waddy. Pathology: H. A. Newton, R. McKinnon. Materia Medica: D. Mackay, W. Campbell, W. Barton, Jessie M. L. Wright, J. MacGlasheen, J. R. McCubbing, Agnes M. Hill, Janet A. A. Saug, R. Smith, Gracie O. D. Evans, Anup Singh Narula, G. M. S. Lindsay.

FINAL EXAMINATION.—H. W. Howatson, S. A. Faulkner, A. E. Hempleman, Indra-narayan Borrah, G. H. C. Harding, A. P. Robb, D. C. Howard, R. H. Malome, P. Vertannes, E. E. Bronstorph, D. M. MacLeod, J. H. Blackburn, A. Parker, T. H. J. Douglas, H. Millar. Surgery: A. S. Hughes. Midwifery: J. J. van Nierkerk, D. A. Walpole, A. H. B. Hudson, R. J. Patchett, A. S. Hughes. Medical Jurisprudence: H. McIlroy, Jatindra Kumar Sen, N. J. Patterson, I. R. MacPhail, R. J. Patchett, R. C. Bell, R. A. Cooper.

Letters, Notes, and Answers.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

"BEAT" HAND.

THE correspondent who asked a question on this subject in the JOURNAL of February 2nd criticizes the reply given and reinforces his objection by quoting various authorities. We, however, cannot accept his view. The interpretation of the law given in our answer is that adopted, we believe, by every county court judge in Great Britain and Ireland. The question is purely one of law, and the Boilermakers' Society would no doubt be able to get an opinion or raise a test case. The other alternative would be to collect evidence that "beat" hand is specific to the employment of riveters, and obtain a modification of the law.

REST IN SANATORIUM TREATMENT.

DR. EDWARD E. PREST (Ayrshire Sanatorium, New Cumnock) writes: We need not be surprised that sanatorium treatment is so often a failure, when apparently it is so little understood. In your issue of April 6th Captain Morriston Davies makes the following statement: "The avoidance of reinfection and intercurrent respiratory infections, the hygienic life, and the use of exercise, are its chief weapons." If it be remembered that rest is the most important therapeutic factor in the treatment of early cases of pulmonary tuberculosis, failures when this is not enforced are easily explicable.

TREATMENT OF LEPROSY.

WE have received the following cablegram from Dr. Emanuel Roberts of Colombo, Ceylon: "Have discovered specific for leprosy; report of cases cured and progressing will follow."

MOSQUITOS: OILING OF PONDS.

C. Y. suggests that an article by Dr. W. M. McDonald, M.O.H. Antigua, B.W.I., in the *Journal of Tropical Medicine* of November, 1916, should be consulted as to the various anti-mosquito measures, including the application of oil.

TREATMENT OF MENINGITIS.

CAPTAIN H. M. CADE, R.A.M.C. (Officer in Charge, District Cerebro-spinal Fever Laboratory, Ipswich), desires to learn from Mrs. Fysh in what forms of meningitis she recommends as treatment the application of tincture of iodine to the shaven crown (p. 416). In the three cases (out of four) which she claims to have saved in Colombo, was the diagnosis made on clinical grounds only or on the chemical, cytological, and bacteriological examination of the cerebro-spinal fluid? The diagnosis of meningitis, he says, can only be confirmed by the results of lumbar puncture, and the nature of the infection can only be decided by adopting this method. Of all forms of meningitis, that caused by the meningococcus seems to be the least fatal, especially if treated on rational grounds. He would not care to rely on painting the head with tincture of iodine in a case of meningococcal meningitis, when early lumbar puncture and the intrathecal injection of a specific serum holds out such good prospects of a cure, except in those fulminating cases which are invariably fatal.

CAUSATION OF SEX IN MAN.

DR. W. E. ROPER SAUNDERS (Backworth, Northumberland) sends the following case, which may be added to the other records elicited by the review of Dr. Rumley Dawson's book on the causation of sex in man published on January 5th: Mrs. S. was operated on when she was 16 years old for an ovarian tumour, and the ovary was, according to the operator, completely removed. She was informed at the time of the operation that whatever children she had would always be of the same sex. When 23 years of age she was delivered of a male infant, and three years later, on April 2nd, 1918, to her great surprise of a female child. I think that a case like this goes some way to prove that a single ovary—the right in this case—provides ova giving rise to children of both sexes, and that the actual factor determining sex is yet to be found.

PARIS HOSPITALS AND THE THEATRE TAX.

L'ASSISTANCE PUBLIQUE, which is responsible for the administration of Paris hospitals, has long derived part of its revenue from a tax on public performance. In 1908 it received about £200,000; in 1913 about £300,000. During the early months of

the war the theatres were closed, and the receipts fell in 1914 to about £150,000, and in 1915 to about £100,000. In 1916 they rose to £190,000, and in 1917 to £250,000.

APPEAL FOR THE FAMILY OF THE LATE DR. KITE.

DR. ARTHUR E. GILES (10, Upper Wimpole Street, W.) and the Rev. P. M. WATHEN (Welwyn, Herts) write: We shall be obliged if you will allow us, through your columns, to thank those who have so kindly contributed to this fund, and to say that we will gladly welcome any further contributions, as the amount so far received still falls a good deal short of what is required to give adequate help to Mrs. Kite and her daughters. The amounts received are as follows:

	£	s.	d.
"A Country Brother," Bridge of Allan	1 0 0
"A Nottingham Practitioner"	1 0 0
Dr. Josiah Beddow, Exeter	1 1 0
Dr. John Brown, Blackpool	0 10 6
Dr. Abraham Cohen, London	1 1 0
Dr. George Crichton, London	0 7 0
Dr. Wm. Davidson, Bournemouth	0 10 6
Dr. Arthur Giles, London	10 10 0
Mr. Cecil Graham, London	0 10 6
Dr. C. O. Hawthorne, London	1 1 0
Dr. C. F. Leslie-Splinks, Bournemouth	0 10 6
Dr. Mary Rathbone, Liverpool	2 2 0
Dr. Septimus Sunderland, London	1 1 0

THE JOINTED-POLE TRENCH STRETCHER.

MAJOR G. H. COLT, R.A.M.C. (T.F.), writes to draw attention to a jointed-pole trench stretcher (see figure) designed by him for use in narrow, traversed, or winding trenches from 18 in. to 28 in. wide, that is to say, in the type of front line trench in which all devices so far tried for moving a badly gassed or wounded man have failed. In a trench less than 28 in. wide bearers cannot pass a right-angled corner when carrying a short-poled stretcher; while owing to its irregular movements and ill-balanced weight the strain on them is great, and their hands are apt to be knocked about. Moreover, the patient is carried upright, is often badly shaken by the tilting, and may even fall out. Hence, his removal is often left until nightfall. With the jointed-pole stretcher he can be moved at once, and



most of the difficulties are overcome. He is carried comfortably in the Fowler position, he cannot fall out, and his position is the best for all injuries as far down as the knee. For injuries below the knee a splint may be used. In this apparatus the weight is evenly distributed between the two bearers, and is borne by a direct shoulder suspension without neck constriction, while the heads of the bearers are free to aid the patient or save themselves on uneven ground. The total weight of the apparatus is 22 lb. The original account of the measurements and experiments relating to the matter were published in the *Lancet* of January 22nd, 1916. In the illustration the apparatus is shown turning a right-angled corner. The chest band for the front of the chest should have been drawn horizontal. The apparatus is manufactured by Messrs. Waring and Gillow, 164, Oxford Street, W.1.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

A Clinical Lecture ON THE BAD HABIT OF VAGINAL DOUCHING.

GIVEN AT THE MANCHESTER ROYAL INFIRMARY.

BY

W. E. FOTHERGILL, M.A., B.Sc., M.D.

THE inventor of the vaginal douche-can was no friend to womankind, for the result of his ingenuity has, on the whole, been a curse rather than a blessing. Just as there was a pessary age, characterized by the haphazard use of pessaries in the treatment of the minor ailments of women, so there has been a long period of indiscriminate douching which has not yet reached its belated end. Soon after the discovery of micro-organisms as a cause of disease, the newborn infection idea began to put out of joint the nose of its little elder brother the displacement theory, and it was surmised that infection must be to blame for most of the minor pelvic troubles. Less was heard about versions and flexions, and those blessed words "endometritis" and "ovaritis" came into fashion as diagnoses. Less ingenuity was bestowed upon the adaptation of pessaries, and much trouble began to be expended on the disinfection of the vagina by douching, regardless of the fact that it was seldom infected. Not only was the douche used for the cure of supposed infection, but also for its prevention. For some time it was even the custom to swill the vagina with antiseptic lotions before, during, and after labour. The results were so deplorable that this practice was soon dropped. I well remember being told by the late Professor Sir Alexander Russell Simpson, in the year 1895, to tear down from the walls of the Edinburgh Maternity Hospital the instructions for routine douching which had been in force for a period during which the hospital had to be closed more than once on account of epidemics of puerperal pelvic infection.

For a time douching remained under the control of the medical profession; but then the general public took the bit in its teeth and began buying douche-cans on its own account. It has gone on doing so ever since, and the pernicious but apparently seductive habit of antiseptic douching is now generally begun on the advice of an elderly relative. A patient, now aged 43, began douching herself with alum water at the age of 19, on the advice of her stepmother. She had the "whites" at the time, and the alum naturally made the complaint worse. She married and went on douching, but changed from alum to Condy's fluid on the suggestion of her mother-in-law. For the last fifteen years she has douched herself night and morning; and after trying various other irritants, is now using a lysol substitute which makes her smart badly. The vulva, vagina and cervix are now "red raw" and streaming with discharge. She has had menorrhagia and dysmenorrhoea for several years, and recently has suffered continuous pelvic discomfort.

A healthy young lady mentioned to her mother-in-law that she had a slight excess of normal vaginal discharge just before and after the menstrual periods. She was provided by this relative with a douche-can, which she used every day for two years, the "whites" becoming worse and worse all the time. The discharge became constant and slimy in character, the menstrual flow was increased in duration and quantity. The patient began to have congestive dysmenorrhoea, and later there was dull aching pain throughout the intermenstrual intervals. When the douching was stopped the symptoms gradually disappeared, the last first and the first last. Cases like these are not exceptional; they crop up every day both in hospital and in private practice. Indeed, every patient who complains of minor pelvic ailments should be asked whether she douches or not; and, if she says "Yes," should be told to stop it. Nurses often douche without any instructions; sometimes because they think it is the correct thing to do, and at other times because their patients seem to expect it. This must also be stopped.

ANTISEPTIC AND MEDICATED DOUCHES.

In considering the action of douches we must remember that the vaginal surface has no glands, and is not a mucous

membrane, but is covered by stratified squamous epithelium, which, though very strong and resistant to infection, is, so to speak, not quite waterproof. Thus the vaginal secretion is simply serum which exudes from the surface of the squamous epithelium, and which acquires its normal creamy appearance by admixture with leucocytes and epithelial debris. Sliminess of the vaginal discharge is due to an excess of mucus which comes from the lining of the uterus and not from the vaginal wall. Again, it must be remembered that the normal vaginal secretion is definitely acid in reaction, and that this acidity inhibits the life of most septic and pathogenic organisms. Thus the normal content of the vagina is a barrier to ascending infections, and it is generally sufficient to protect the uterus. For instance, after the experimental introduction of streptococci, the healthy vagina has been shown to be free from these organisms in the course of a few hours. In fact, most vaginal infections quickly cure themselves if left alone, and many cases cure themselves in spite of a certain amount of vaginal douching, which, in these cases, secures the credit that should by right belong to the unaided vagina.

But douching does actual harm in more ways than one: for it washes away the normal acid secretion; it kills the acid-producing bacteria which are the normal inhabitants of the vagina; it kills the superficial layers of cells, and irritates the subjacent layers. Further, it promotes hyperaemia of the parts, and thus increases the quantity of the secretion, favours menorrhagia, congestive dysmenorrhoea, and intermenstrual congestive pain. This explains the fact that the woman who douches much never gets rid of her vaginal discharge, and generally has other complaints in addition.

The above remarks refer to chronic douching; are there any excuses for what might be called acute or subacute douching? Take septic infection of the uterine cavity after abortion or labour. In these cases vaginal douching clearly does not touch the spot at all, and intrauterine douching is positively dangerous, as it sometimes causes fatal peritonitis by forcing septic material and noxious antiseptics through the tubes into the peritoneal cavity. The proper way to treat uterine sepsis is to dry-clean the uterine cavity thoroughly, using a general anaesthetic if necessary; to apply concentrated antiseptics with no excess of fluid; and thereafter to leave the uterus and vagina severely alone. Take gonorrhoeal infection of the vulva. If it is treated by douching, the infection is very likely to be carried up through the vagina to the cervix, whence the gonococcus has a clear run over the mucous lining of both uterus and tubes. Again, when the cervical canal is once infected, douching is futile, and proper disinfection under anaesthesia is the only method likely to be effective. In fact, there is no "home treatment" for uterine gonorrhoea in women. Yet there are still some who supply their patients with the inevitable douche-can and order copious and frequent libations of Condy's fluid, while in one clinic women are actually advised to wash out their own bladders!

Though it appears that antiseptic and medicated douches might well be dispensed with altogether, there are exceptions to the rule. Thus, in the palliative treatment of cancer of the uterus, disinfectant and deodorant solutions must be used. Again, when preparing a prolapsed and ulcerated vagina or cervix for operation, the nurse will give one or two mildly antiseptic douches every day for a week or ten days, during which the patient is kept in bed and the vagina lightly packed. After vaginal operations, also, a few antiseptic douches are useful on those rare occasions in which the incisions become septic. In such cases the indication is definite. But often there is no indication at all. The patient says, "Doctor, I have a vaginal discharge." The doctor makes no examination, but says, "Get a douche-can," and orders alum, iodine, lysol, mercuric perchloride, boracic acid, zinc sulphate—anything, in short, that occurs to him. The patient begins douching, the doctor forgets to stop her, and she goes on with it for years. The idea that a vaginal discharge must be infective is very widespread and persistent, though it may be far from correct. When a woman complains of a discharge it is most frequently "the whites," namely, excess of the normal creamy vaginal discharge. This is common before and after menstrual periods in perfectly healthy persons. Its persistence throughout the intermenstrual period is often an expression of a low general condition;

but some women have more vaginal secretion than enough throughout life, and quite apart from variations in health. Any form of local treatment aggravates "the whites," but the condition often disappears with improvement in health brought about either by general treatment or by change of air and scene. When the vaginal discharge is slimy, the uterus is secreting too much mucus, and this is increased by douching or any other local treatment of the vagina. If any local treatment is required it is curettage of the uterus; but this generally fails unless the general muscular and vascular tone is improved at the same time.

HOT DOUCHES.

Hot douching is often ordered in cases of menorrhagia and other kinds of uterine bleeding. It is true that the application of water at a temperature of about 120° F. contracts the blood vessels and leaves them in a state of contraction which lasts for from half to three-quarters of an hour. But water which is hot enough to produce this effect is uncomfortably hot for the skin round the vulva and anus as it flows out of the vagina. It is possible, given a strong-minded nurse and a weak-minded patient, that really hot douches may sometimes be given for several days together. But in practice, when the hot douche is ordered, it is given warm; and water at 100° F. increases pelvic hyperaemia and so increases uterine bleeding. Thus it happens that when hot douching is ordered for menorrhagia, the patient really receives treatment by warm douching, and the bleeding gets worse instead of better. The hot douche, therefore, should probably be kept for use in obstetric haemorrhage, in which it is doubtless very useful on occasions.

WARM DOUCHES.

Under certain circumstances it is highly desirable to increase pelvic hyperaemia, and for this purpose the prolonged warm douche is useful if given under proper supervision and for a limited period. The typical case for this treatment is a patient who is recovering from pelvic cellulitis following infection of a torn cervix. There is a more or less massive deposit of inflammatory exudate in the pelvic cellular tissue. Its absorption must be favoured in order to avoid permanent fixation of the pelvic organs. The same holds true also in reference to inflammatory deposits in other pelvic tissues and organs. Thus, in the subacute phases of pelvic infection, vaginal douching is seen at its best. A slow stream of normal saline solution at a temperature of 100° F. to, say, 105° F., kept up for ten or twelve minutes once or twice a day for two or three weeks, forms a part of the proper treatment of these cases. But it must be done with the patient lying on her back, for when a douche is given with the patient sitting up the flow of water never separates the vaginal walls, but simply runs out beside the douche nozzle without even washing the vaginal surface. To act as a poultice or fomentation the water must balloon the vagina, and this it does only when the patient is on her back.

CONCLUSION AND SUMMARY.

You may have noticed that some people cannot learn at all, that some can learn only by their own experience, and that some are sufficiently astute to profit by the experience of others. To those of you who care to try the results of my experience I offer the following practical hints:

1. Do not allow patients to douche themselves at all; but, when you have a definite reason for douching, let a nurse do it.
2. Do not use antiseptic douches unless there are germs to be killed in the vagina.
3. Remember that vulvitis is common but vaginitis is rare.
4. When you wish to apply antiseptic lotions to the vulva tell the patient not to douche herself with the lotion but to put it in a large bowl and sit in it.
5. Do not order hot douches (120° F.) in cases of menorrhagia and metrorrhagia.
6. Do not douche for leucorrhoea either creamy or slimy.
7. Do not douche for aches and pains in the pelvis which are not due to pelvic infection.
8. Use warm douches (100° to 105° F.) as you would use poultices or hot fomentations, in cases of pelvic

infection which are neither too acute nor too chronic to be improved by the production of temporary local hyperaemia.

THE TREATMENT OF FURUNCULOSIS AND OTHER DEEP-SEATED COCCOGENIC INFECTIONS BY COLLOSOL MANGANESE.

By Sir MALCOLM MORRIS, K.C.V.O.

THE routine treatment of boils and other deep-seated coccogenic affections, such as ecthymatous impetigo and some cases of acne, is often most disappointing. In the treatment of furunculosis some authorities lay stress upon constitutional treatment; and in certain cases, as where the process is associated with diabetes, this is obviously important. Others rely rather upon the local application of antiseptic agents, with the view of absorbing the boils. But both forms of treatment frequently fail. In many instances boils to boils succeed, and when at last the dismal procession ends, this often appears to be less the result of treatment than because the disease has run its natural course. This is true of vaccine-therapy, as well as of the earlier methods. Sometimes the inoculations appear to arrest the disease; in other cases they signally fail to do so.

In these circumstances it seemed to me desirable to give a trial to the treatment by collosol manganese instituted at the General Hospital at Etaples by Mr. J. E. R. McDonagh.¹ The results in all my cases are so remarkable as, in my judgement, to demand publication.

It should be premised that at first the collosol manganese (Crookes) was used in the form of a single solution. Afterwards it was employed in the improved form of two solutions, which had to be mixed in the syringe; of this, much smaller doses (about one-half) suffice.

CASE I.

The patient, a medical man, came to me on November 24th, 1917, with large, deep-seated boils on the hairy part of the face, which he believed to be an infection from a carbuncle in a diabetic patient, from whom he had contracted a septic whitlow. Culture showed that the micro-organism was the *Staphylococcus pyogenes aureus*, and an autogenous vaccine was prepared, with which he was inoculated on November 30th. By this time a boil on the right cheek had enlarged to the size of a Tangerine orange; there was much oedema of the face and eyelids and great pain. On December 6th pus was discharged and the pain relieved; but during the next seven weeks boils continued to appear at intervals, usually in groups of four or five, on one or both sides of the face. By January 14th eleven injections of vaccine had been given, antiseptic lotions and ointments being also applied. On January 31st the patient consulted me again and I advised the injection of collosol manganese. The first injection was given the next day. "Improvement," to quote from the patient's own notes, "began on the third day afterwards. Subsequent boils, which continued to appear for a further fourteen days, were not painful, and many of them aborted without pus formation. In all, four injections were given—1.5 c.cm. on January 31st, 2.5 c.cm. on February 5th, 3 c.cm. on February 12th, and 1 c.cm. on February 28th; the first and second in the gluteus, the third and fourth in the flank. In the first three the old preparation was used; in the fourth the new. By March 5th I was able to report 'All clear.' From November 30th to January 31st, while the vaccine was being given, thirty-three carbuncular boils appeared; after the collosol manganese was begun there were only seven, the last appearing on February 20th, three weeks after this treatment was begun." The patient's general health also greatly improved; he began to feel better within a week of the first manganese injection.

CASE II.

The patient was an army captain who was subject to acne. When the first collosol manganese injection (0.5 c.cm. of the new preparation) was given, on March 13th, he had been in hospital four months with facial boils and acute impetigo contagiosa of the same region. During that time he had had vaccine injections, and various antiseptics had been applied, without result. Another manganese injection (0.5 c.cm.) was given on March 16th, and a third (1 c.cm.) on March 19th. By this time all the lesions had cleared up.

CASE III.

I saw the patient, a lady, for the first time on February 16th. She had extensive follicular impetigo of the scalp, which began in the preceding October, and had gradually become more severe. When she came to me she complained of great pain from small multiple deep abscesses. There was a good

deal of oedema, and the posterior cervical glands were enlarged. On February 18th 1.5 c.cm. of the old collosol manganese solution was injected. By February 22nd the lesions were beginning to clear up, the pain was nearly gone, and the general health distinctly better. A second injection (0.5 c.cm. of the new preparation) was given, and a third (1 c.cm.) three days later. By this time further improvement was manifest, and the patient was able to sleep. No further injection was required, and by March 19th recovery was complete, the only trace of the disease consisting in small bald areas on the site of the lesions.

CASE IV.

The patient, a major, came to me first on February 22nd, when he had twelve large indurated boils on the buttocks, thighs, and axilla. The infection began three months before, following scabies. A dose of the old collosol manganese solution (1.5 c.cm.) was injected into the buttock. Three days later, when a second dose (2 c.cm.) was given, the boils were subsiding, and the general health had improved. By March 1st there was further improvement; all the smaller boils had retrogressed, a large indurated lesion in the left axilla was much less painful, and the core had come away without the usual trouble. A third injection (1 c.cm. of the new preparation) was given. The next day all the boils had cleared up, but there was a fresh suppurating lesion over the right patella. Further injections (one of 0.5 and two of 1 c.cm.) were given on March 5th, 8th, and 11th. By March 14th the boil on the knee had subsided; but a fresh boil appeared on the right thigh. Three more injections followed, on March 18th, 21st, and 25th, and the case is now well.

The results of the new treatment, even in the last and most obdurate of the four cases, speak for themselves. But emphasis must be laid upon the great improvement in the patient's general health which was observable in every case within a few days of the first injection. It may have been due in part to the diminished pain and the heightened expectation of recovery; but no one who saw the patients could, I think, regard this as the full explanation. It was especially noticeable in the second case, in which the patient was suffering from shell shock. The injections, except two of those in the first case, were all intramuscular. They were followed by no reaction.

REFERENCE.

¹ *Medical Press and Circular*, December 5th, 1917, p. 431.

THE CHANCE OF RECOVERING DYSENTERY BACILLI FROM THE STOOLS ACCORDING TO THE TIME ELAPSING SINCE THE ONSET OF THE DISEASE.

EXPERIENCE AT A BASE HOSPITAL IN FRANCE.

BY

LIEUT.-COLONEL C. J. MARTIN, F.R.S., A.A.M.C.,

AND

SISTER F. E. WILLIAMS, A.A.N.S.

Prior to the war the notion seems to have been widespread that the bacteriological diagnosis of dysentery was as satisfactory as, say, that of diphtheria, and measures for the control of epidemics have been founded to some extent on this assumption. Our experience of laboratory work in the Eastern Mediterranean and Egypt in 1915 and 1916, however, led us to the conclusion that the chance of recovering dysentery bacilli from the stools was, after the first few days of the disease, a small one.

Similar experience seems to have been gathered elsewhere. Kolle and his co-workers¹ give an account of the bacteriology of an epidemic on the Russo-German front with which they dealt. They isolated *B. dysenteriae* Shiga from such a minute fraction of the samples examined that they came to the conclusion that, notwithstanding the general clinical resemblance to dysentery of this type, they must have had to deal with an outbreak from some other cause. Seligmann and Cossmann² also obtained very unsatisfactory results when working at a base hospital in Austria. They state that "they nearly always failed to recover dysentery bacilli" in undoubted clinical cases of dysentery. During eight months' work they recovered a dysentery bacillus but fifteen times out of "hundreds of attempts."

Later Seligmann was removed to a laboratory nearer the front, where he had opportunity to examine material from the recently evacuated sick. Under these conditions the results were entirely different, *B. dysenteriae* Shiga being

recovered in 38 per cent. of cases examined. Seligmann does not state the actual number of examinations which he made, but for one month (June, 1915) he gives the percentage positive findings according to the state of the illness. These were:

First week	...	70 per cent. successful recoveries.
Second week	...	53 per cent. " "
Third week	...	18 per cent. " "
Fourth week and later	...	Nil.

In the case of patients admitted to this hospital, the onset of the disease has been from one day to two months previously. The same routine has been applied in all cases, so we have a number of observations bearing on this point.

The methods employed were to plate out a suitable dilution of the stool, if homogeneous, upon a plate of MacConkey's lactose-bile-salt-peptone-agar. If the stool contained any mucus, a piece was chosen, washed in sterile water, broken up in the same, and some drops sown on the plate and well rubbed over with a glass rod. The amount chosen was so as to produce about 500 colonies on the plate. If, next day, the number of colonies was so great as to be unmanageable or so few as not to provide a sufficient sample, a second plate was made to remedy the defect, a sample of the stool having been kept in the icebox meantime to provide against the above contingencies.

After eighteen to twenty hours for growth the plates were scrutinized, and if they showed positive dysentery colonies, samples of these were picked off and sown into tubes of warm broth. Four hours later they were examined for motility and sown into tubes of peptone water containing 1 per cent. of lactose, glucose, and mannite respectively, and on the surface of an agar slope and placed in the incubator overnight.

Next morning, if the actions in the various carbohydrate media were typical, the growth on the agar slope was emulsified and its agglutinability tested against dilutions of appropriate agglutinating serums up to 1 in 1,000 by the macroscopic method.

It was rare to find *B. dysenteriae* the preponderating organism on the plates. This occurred sometimes when perfectly fresh mucopus obtained from a patient in the first or second day of the disease was the material sown. Usually when dysentery bacilli were present the number of colonies varied between 1 and 20 on a plate showing 500 to 1,000 other organisms.

To ascertain whether MacConkey plates offered any hindrance to the growth of *B. dysenteriae* Shiga or *B. dysenteriae* Flexner, we spread the same volume of a broth containing a few bacilli which had been just recovered from a dysentery stool and not subjected to a subculture upon a series of MacConkey plates and also upon plates of ordinary nutrient agar. The results on incubation were as follows:

TABLE I.

Emulsion of <i>B. dysenteriae</i> Shiga sown.		Emulsion of <i>B. dysenteriae</i> Flexner (Y).	
No. of Colonies on Nutrient Agar.	No. of Colonies on MacConkey Media.	No. of Colonies on Nutrient Agar.	No. of Colonies on MacConkey Media.
1. 530	280	1. 496	676
2. 546	584	2. 259	554
3. 236	450	3. 290	320
1,312	1,314	1,045	1,550

The inhibitory action of the bile salts in the MacConkey media evidently did not prevent the colonies of dysentery bacilli appearing. They were, however, of smaller size upon the MacConkey plates, the mean size of the Shiga colonies being 1.07 mm. and of the Flexner 0.82 mm., as against 1.2 mm. and 1.34 mm. respectively upon nutrient agar after the same interval for growth to occur.

We feel confident that whenever dysentery bacilli were present in the material plated to the extent of about 1 to 500 other organisms capable of growing upon a MacConkey plate, they were discovered. An abbreviation of the ritual sketched above does not appear to be permissible, and resort to agglutination tests without ascertaining that the

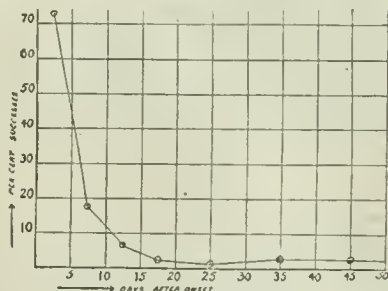
organism under examination satisfies the essential cultural and biochemical characteristics of one or other of the dysentery bacilli is dangerous, particularly in the case of the mannite-fermenting group of dysentery organisms, for high titre serums prepared against this group are not specific in moderate dilution, and will agglutinate several kinds of coliform bacteria.

Innocence of this fact has led to much confusion in some military laboratories, as witness the discussion at the Medical Society of Vienna, April 30th, 1915, upon a paper by Falta and Kohn.⁸

From June to December, 1917, we made upwards of 1,200 efforts to recover dysentery bacilli from the stools of patients at various periods of their illness. The results of these attempts are arranged in Table II, in the relation to the time intervening between the onset of the disease and the examination. We have not included in the figures thus analysed the cases in which there was not clear evidence that the patient was manifesting or had manifested dysenteric symptoms, and all cases in which *E. histolytica*, either active or encysted, were discovered have been excluded.

TABLE II.—Results of 1,050 Efforts to Recover Dysentery Bacilli from Stools at Various Stages of the Disease, June–December, 1917.

Period of Disease.	No. of Examinations.	Positive Results.	Percentage Positive.
1st to 5th day ...	153	104	68.0
6th to 10th „ ...	161	28	17.4
11th to 15th „ ...	194	13	6.3
16th to 20th „ ...	162	5	3.1
21st to 30th „ ...	205	3	1.5
31st to 40th „ ...	104	3	3.0
41st to 50th „ ...	34	1	3.0
51st to 60th „ ...	14	—	—
61st to 70th „ ...	9	—	—
71st to 80th „ ...	5	1	—
81st to 90th „ ...	3	—	—
91st to 100th „ ...	6	—	—
Totals ...	1,050	158	—



Graph representing success in recovering dysentery bacilli from the stools at different periods after the onset of the disease (1,050 examinations).

CONCLUSION.

Our chance of recovering dysentery bacilli rapidly diminished after the first few days. This appeared to be the case whether the stools remained characteristically dysenteric or not.

The muco-pus and epithelial debris discharged in the milder pathological condition, and the necrosed coagulated superficial layers of the mucous membrane in the more serious is, except in the earliest stages of the disease, invaded by hosts of intestinal organisms, which soon overwhelm the dysentery bacilli originally present. This places a serious limit on the value of a bacteriological diagnosis of dysentery. If reliance had been placed on the results of one examination but 15 per cent. would have been discovered.

REFERENCES.

- ¹ *Deut. med. Woch.*, 1916. ² *Münch. med. Woch.*, December, 1915, p. 1768. ³ Zur Frage der Variabilität von Dysenterie Stämmen der Galizien-Russischen Epidemie Herbot, 1914. *Wien. klin. Woch.*, 1915, vol. xxviii, p. 484.

TWO FATAL CASES OF ICTERUS GRAVIS FOLLOWING INJECTIONS OF NOVARSENOBILLON.

BY

LIEUT.-COLONEL P. C. FENWICK, C.M.G., N.Z.M.C.,

COMMANDING N.Z. NO. — GENERAL HOSPITAL, CORDFORD;

CAPTAIN G. B. SWEET, AND CAPTAIN E. C. LOWE,
N.Z.M.C. N.Z.M.C.

The two cases here recorded are, we think, of distinct interest at the present time, when so many cases of syphilis are under treatment by arsenical drugs.

CASE I.

A soldier, aged 26, was admitted on March 22nd, 1917, with slight jaundice. He stated that he felt well, with the exception of a slight pain in the right hypochondrium, and only reported sick because he was told he looked yellow. He gave a history of recurrent attacks of abdominal pain for three years, occurring every three or four months and lasting three or four days.

On admission his skin and corneae were stained yellow. There was no abdominal pain or tenderness and no vomiting. The bowels were constipated; the urine contained bile in considerable amount, but no albumin or sugar. Liver dullness $4\frac{1}{2}$ inches in nipple line.

He had been under treatment for syphilis. Captain Brown, N.Z.M.C., in charge of V.D. section, reported that the man was admitted on January 22nd, 1917, with a large sloughing, discharging sore on right side of foreskin and also a small penile sore. There was some inguinal adenitis, but no rash; spirochaetes were present. The blood test was weakly positive. He was treated with novarsenobillon as follows: January 23rd, 0.45 gram; February 15th, 0.6; February 22nd, 0.6; March 1st, 0.9; March 8th, 0.9; March 15th, 0.6. He received also five mercurial injections. The sore had healed on March 1st. While in hospital he developed inguinal bubo, which was tapped twice. The result of the last blood test was negative.

The jaundice steadily increased, and on March 28th the liver dullness measured three inches. Vomiting began on April 1st, the jaundice grew more intense, the urine became almost black in colour, and the pulse slow and weak. He died on April 5th.

Post-mortem Observations.

A post-mortem examination was made by Captain E. C. Lowe, from whose report it appears that the heart was normal, save for bile staining of the valves and vessel walls and small petechiae on the walls of the left ventricle. The lungs were normal, except for hypostatic congestion, which was intense on the left side. The spleen was not enlarged and appeared normal on section. The intestines were not ulcerated, but the jejunum showed small petechiae and was deeply bile stained, and the duodenum, which contained a dark greenish bilious fluid, was markedly injected. The gastric mucosa was bile stained and injected, markedly at the pyloric end; there were no haemorrhages. The pancreas was slightly congested, but otherwise normal. Both kidneys appeared normal, save for bile staining. The meninges were bile stained, but otherwise the cranial contents were normal. The note upon the liver and gall bladder was as follows:

Liver.—Smaller than normal. Weighed 2 lb. 2½ oz., and was deeply bile stained. Some mottling over anterior surface, most marked on the right lobe. No unevenness of surface; edges sharp; no inflammatory adhesions; left lobe small. On section right lobe cuts easily and shows deep yellow degeneration in irregular areas mostly confined to anterior surface and anterior border for the distance of an inch inwards. The centre of the organ comparatively free, of yellow coloration, but showing a nutmeg appearance of central congestion and periobular contrast. Left lobe shows much less sign of degeneration. Cuts normally. Slight sign of yellow degeneration. No nutmeg appearance.

Gall Bladder.—Normal. Contains a drachm and a half of bile. Ducts free and patent. No signs of gall stones or cholecystitis.

Microscopical Examination.

Captain F. L. Armitage reported as follows:

Liver.—Sections show marked excess of fibrous tissue throughout, especially round Glisson's capsule, but also spreading into the gland tubules. Islets of healthy liver tissue persist, with only a small amount of fatty degeneration in places. No active necrosis, but inflammatory changes are seen everywhere. It appears to be some variety of cirrhosis of the liver and not yellow atrophy.

Spleen.—Some excess of fibrous tissue in the trabeculae and pulp, but no gross change.

Kidney.—There is so much post-mortem change that it is difficult to say how much real lesion there may be. The consolidated tubules show marked necrosis, probably indicating a tubal nephritis. A few small cysts are present.

Note on the Histology.

By Professor F. W. ANDREWES, F.R.S. (Major R.A.M.C.T.).

The liver is partly bright green, partly deep red, and the appearances are different in the two areas.

Green Part.—Here the changes are less advanced than in the red part. There is a cirrhosis of multilobular type of fairly recent standing, but more than I should have thought possible in seven weeks. The young fibrous tissue is infiltrated with round cells. The hepatic cells show considerable degenerative change, with some fatty infiltration, but the material had been put in spirit, which spoiled it for Sudan III staining. There is a catarrhal cholangitis of the larger bile ducts.

Red Parts.—Here there is a little coarse cirrhosis, but the liver cells are almost completely degenerate, leaving only a loose fibrous stroma, with an interstitial inflammatory infiltration. Shrunken remains of the liver cells are seen. The bile ducts are better preserved. The red colour is due to extravasation of blood corpuscles in the centres of the lobules. This extravasation is extreme, masking the structure of the tissues, and is quite sharply defined, the periphery of the lobules being free. Instead of being due to dilated capillaries, as in ordinary nutmeg liver, the condition seems due to actual extravasation. I am unfamiliar with this appearance, which is very striking.

CASE II.

A soldier, aged 20, was admitted to hospital on January 24th, 1917, with left-sided pleurisy—not severe. At the end of February a suspicious ulcer appeared on the fraenum. A Wassermann test proved positive, and he was transferred to V.D. section on March 19th, when he had a round healed sore on the under side of the body of the penis, and general adenitis. The skin and mucosa were clear. The Wassermann reaction was "strong positive." Captain Brown reports that he was treated with novarsenobillon, 0.45 gram, on March 25th, and 0.6 on March 27th. He received also two mercurial injections. The blood test on March 31st was double positive. He developed a second attack of pleurisy, and on April 19th the left chest was aspirated and 60 oz. of clear fluid removed. He improved in health, and on May 2nd it was decided to continue the anti-syphilitic treatment and he was given novarsenobillon (0.60) and a second dose (0.60). On May 9th he was placed on an iodide-mercury mixture. On May 15th the Wassermann test was double positive, and on the following day another dose of novarsenobillon (0.60) was given. No further injections were given. On June 1st he was slightly jaundiced; he was kept in bed and the mercurial treatment discontinued.

On June 3rd the liver measured 5½ in. in the nipple line. There was no improvement in the jaundice. The urine (specific gravity 1015) contained no albumin, sugar, blood, bile, or arsenic (Marsh's and Reinsch's tests). On June 5th the icteric tinge had slightly increased; the urine was free from blood and arsenic, but bile was present. The jaundice and the amount of bile in the urine had increased by June 12th, and on the following day he vomited. On June 15th there was swelling of the right parotid without rise of temperature. There was some slight improvement for the next few days, but on June 22nd it was noted that the jaundice was more intense, that he vomited once or twice nearly every day, and that the liver dullness now measured 2½ in. in the nipple line. The temperature was subnormal. The urine (specific gravity 1010) contained bile, albumin, and epithelial and granular casts. It contained neither tyrosin nor leucin. The jaundice deepened, anorexia became marked, and on June 27th the breath had a peculiar rancid odour. The tongue was clean; there was no tenderness over the liver, stomach, or spleen. The area of absolute liver dullness had diminished to 2½ in. The spleen was not enlarged. The pleurisy had cleared up, but the pleura on the left side was thickened. His condition fluctuated on the following days; he passed large quantities of dark urine. On July 5th there was no absolute note of dullness on percussion over the liver; the relative dullness in the nipple line was 2 in. only. Later he became delirious and vomited occasionally but not incessantly. On July 9th he was semi-conscious. He died early on the morning of July 10th. All the urine was collected from June 22nd till death; the quantity varied from about 38 oz. during the first week to 11 oz. during the later days of his life. The daily quantity was concentrated to about 50 c.c.m., and submitted, with negative results, to Marsh's test, and on several occasions, on the advice of Mr. A. J. Ewins of the Lister Institute, to Norten-Koch's test. Arsenic was not detected in any one of the sixteen examinations, nor was it detected *post mortem* in the liver, kidney, lung, spleen, pancreas, or heart muscle. Two samples of urine were submitted to Dr. Hurtle (June 29th and July 2nd), who found no arsenic in either; he also examined a piece of liver without finding any trace of arsenic. Consultations with Colonel Davy, C.B., consulting physician in the command, were held on two occasions. Colonel Davy's note is as follows:

"I have seen — in consultation at Codford on two occasions—on June 7th and June 27th. He is suffering from jaundice, and has progressively become worse and worse, in spite of the most careful treatment. Some of his symptoms, especially first enlargement and then diminution of the liver dullness, rather look like acute yellow atrophy of the liver. Reviewing, however, the whole group of symptoms, they do not conform to the usual group found in this disease, and there is an absence of leucin and tyrosin, for which the urine has been carefully examined. It seems probable that we are dealing with a condition hitherto not recognized as any of the ordinary diseases, and the fact that he has had five injections of novarsenobillon raises grave suspicion that his condition is due to these injections."

Post-mortem Observations.

A *post-mortem* examination was made by Captain E. C. Lowe, from whose report it appears that the external surface was

deeply bile stained. The peritoneal cavity contained bile-stained fluid, and the retroperitoneal gland was enlarged, pulpy, and bile stained. The heart was normal. The right lung was normal, but the pleura on the left side was adherent throughout, and the lung compressed, semi-solid, and friable. The intestines were normal, as was the stomach, except for a few areas of deep injection. The spleen (weight 10 oz.) was enlarged, showing definite sclerotic mottling on the surface, and a puckered scar near the posterior border. Its substance was less friable than normal. The kidneys were bile stained, and the cortex appeared fibrotic and dense. The right weighed 9½ oz., the left 10 oz. The gall bladder was normal and contained normal bile. The note on the liver is as follows:

Liver (weight 36½ oz.).—Transverse diameter, 7½ in.; vertical measurement, 6½ in.; antero-posterior measurement, 3½ in. External surface shows white fibrotic linings. No external adhesions. Organ irregular and nodular to touch. Extensive greenish-brown areas of necrosis were found over the upper third of right lobe, in a few places on the left lobe, and almost entirely involving the middle lobe. On section, these areas show extensive necrosis of liver tissue of a greenish-brown colour and of soft consistency, irregularly separated by dark red fibrotic areas of very dense consistency.

Report on the Histology of Organs.

By Professor F. W. ANDREWES, F.R.S.

Liver.—Small, tough, with extensive greenish staining involving almost the whole organ, here and there red fibrotic areas. Not nodulated as in ordinary cirrhosis. There is a well-marked cirrhosis, multilobular in type, throughout the green part of the liver. The connective tissue is young and cellular, with lymphocytic infiltration. The liver cells show only a moderate degree of degeneration (much less than in the green parts from Case I), and there is very little fatty change in frozen sections stained with Sudan III. There is marked bile staining, and amorphous masses of biliverdin, bright green in colour, are present in the substance of many of the liver cells, as well as in the bile capillaries. The red areas in the liver show much more complete destruction of the liver cells and more advanced fibrosis. The red colour is due to haemorrhage. As in Case I, it is difficult at first sight to believe that such advanced cirrhosis could have occurred in six or seven weeks, but the similar change in both livers suggests that this may have been the case. The cirrhosis is not of syphilitic type.

Kidney.—Very large and deeply bile stained. There is a good deal of vascular congestion, but there is no glomerular nephritis, though the glomerular capsules contain a coagulable exudate. The epithelium of the convoluted tubules is greatly swollen and vacuolated, but the nuclear staining is mostly preserved, and there is very little fatty change in Sudan III sections. Bile-stained casts and granules are numerous, green with biliverdin.

Heart Muscle.—Slight fatty change only, in the form of granules about the poles of the nuclei.

Spleen and Retroperitoneal Gland.—No striking changes found.

These two cases resemble one another very closely in their history, clinical manifestations, and morbid anatomy.

Briefly stated, after receiving five doses of novarsenobillon followed by an interval (of seven and fourteen days respectively), they became jaundiced. At first the symptoms were mild, but the jaundice gradually deepened, the liver became greatly reduced in size, persistent vomiting occurred, and the patients died twenty-one and forty days respectively after the onset of symptoms. Autopsy showed an acute cirrhosis of the liver. Both were cases of primary syphilis and showed no secondary manifestations. Case No. 1 gave a negative Wassermann reaction at the conclusion of treatment, but Case No. 2 gave a double positive reaction on the last occasion on which it was taken.

That the cirrhotic condition of the liver was due to syphilis appears to be almost out of the question, as shown by Major Andrewes's report. In Case II he remarks on the appearance of the liver: "I am unfamiliar with this appearance." The clinical symptoms do not accurately agree with acute yellow atrophy of the liver, and the naked-eye and microscopical appearances of the liver are quite unlike what is found in this condition.

These two conditions being excluded, the question naturally arises whether these fatalities were due to chronic poisoning with arsenic. Inquiries were therefore made with a view to finding out whether similar cases had occurred at the N.Z.V.D. section or elsewhere.

Captain Falconer Brown, officer in charge of N.Z.V.D. section, states that he has treated 263 cases of syphilis with novarsenobillon, and the cases reported are the only ones followed by jaundice. Captain Robert W. McKenna, venereal specialist to 1st Western General Hospital, states that he has not met a single case of jaundice following treatment of syphilis by salvarsan and kharsivan, and

attributes his success to special precautions with regard to intervals between doses, etc.

Lieut.-Colonel Harrison, officer commanding Rochester Row Hospital, writes: "Jaundice occurs during treatment of syphilis with arsenical compounds in 0.6 per cent. of cases, and this symptom may last for four or five months."

In neither of the cases here reported was arsenic detected in the urine.

TOXIC JAUNDICE, WITH ATROPHY OF LIVER, FOLLOWED BY REGENERATION AND RECOVERY.

By BARBARA G. R. CRAWFORD, M.B., CH.B.

DURING the summer of 1917 I had the opportunity of seeing and treating three cases of toxic jaundice caused by trinitrotoluene. In all three there was profound illness, with jaundice, delirium, and marked diminution of liver area, and later recovery, with replacement of liver substance and function. During the course of the disease the patients were seen by one of H.M. Medical Inspectors of Factories, who confirmed the diagnosis and the diminished liver area in two of the cases (the third case, being convalescent at the date of his visit, was not fully examined), and who stated that in his opinion a fatal issue was to be expected.

The patients were workers on T.N.T. manufacturing processes, and were exposed both to fume and skin contact. C. B., male, aged 29, worked for four months in a corrugated iron building where the T.N.T. was washed, and then for eight weeks in the open air recovering T.N.T. from waste water gullies. T. M., male, aged 22, worked for three months in the T.N.T. process, and then for five weeks on the outside laundries (as the gullies are called) at the same work as C. B. B. C., female, aged 19, worked for six weeks in the T.N.T. packing house. One patient had thus been in contact with the T.N.T. for six months, and one for four months; both of these had been employed in the open air for many weeks before the onset of illness; the third had worked in T.N.T. for six weeks only, and had been free from contact for thirty-eight days before the jaundice was observed; during that time she had been attended by her own private doctor for "sore throat." The hands of all three were stained orange yellow, as is common among T.N.T. workers.

In each case the health had not been satisfactory for some weeks before the onset of jaundice, the complaints varied greatly and can hardly be regarded as definite prodromal symptoms: B. C. complained of sore throat, T. M. of faintness, C. B. of tightness of chest (and a fourth case, referred to later, of weakness of the eyes).

On investigation, however, it was ascertained in each case that the worker had felt weak, with poor appetite, slight nausea, and a tendency to headache (one case, C. B., came to the surgery asking for his discharge, as he did not feel able for his work). Cyanosis was not observed in any of these cases, and the patients had never suffered from T.N.T. dermatitis.

The first definite sign was yellowness of the conjunctivae, quickly followed by general icterus; at the beginning the patient did not appear to be seriously ill, but shortly afterwards became suddenly worse with vomiting, delirium, incontinence of urine and faeces; rigors were frequent and were associated with severe epigastric and hepatic pain; the stools were paler than normal but never entirely clay-coloured; the urine was heavily bile-stained, normal in quantity and specific gravity, acid in reaction, and containing small traces of blood and albumin (in one case tube casts and epithelial debris were present); leucin, tyrosin, and T.N.T. were absent.

In all three cases the disease ran a similar course, the patient becoming steadily worse; the liver area decreased and drowsiness and delirium persisted. In one case the patient was more or less unconscious for over three weeks, passing his evacuations under him and having to be fed by hand. In this case an inexperienced nurse placed the clinical thermometer in the patient's mouth, and a moment later recovered part of it with difficulty, the lower end having been bitten off and swallowed by the semi-conscious

man. Fortunately the thermometer end was passed later with a globule of liquid mercury in the stools.

Extreme emaciation occurred in two of the cases, the third lost weight but did not emaciate to the same extent as the others. The temperature was normal as a rule, rising occasionally for a day or less at a time to 100° F.; the pulse-rate was normal though feeble at the height of the illness. The breath was foul and had a characteristic odour; the tongue and lips were furred and bled slightly; the colour of conjunctivae and skin became dark yellow; small raised petechial spots appeared on the limbs, chest, and face; there was no itching. Vomiting was troublesome and the bowels tended to be costive; in response to an enema or an aperient slimy pale stools were passed which stained the draw-sheet pink round the edges of the soiled area; during this time no T.N.T. could be detected in the urine. Perspiration was scanty, the skin being harsh and dry.

Whenever the patient was sufficiently conscious he complained of constant pain over the liver region, and the liver dullness steadily diminished until in the two most severe cases one to one and a half inches or less could be made out in the nipple line.

The treatment was necessarily somewhat empirical, the symptoms being alleviated as far as possible as they arose. The skin was encouraged to act, the bowels kept free by a mild aperient (white mixture) and enemata; nourishment was given in small quantities at frequent intervals—milk and soda water, meat juice, thin broths, barley water, etc.; meat extracts were well tolerated, while fruit and fruit juices disagreed and caused vomiting. Injections of 6 oz. of a saturated solution of sodium bicarbonate were given by the rectum twice daily at the height of the illness, and the same salt by mouth also in a mixture and in milk to the amount of 2 drachms daily; whenever this was discontinued the patients became worse. All three cases slowly rallied, and in the fifth or sixth week of the illness began definitely to improve; delirium ceased, the vomiting and pain became less frequent, appetite better, colour less deeply jaundiced, and the stools became normal in colour and consistence; the area of the liver increased, and its function returned with remarkable rapidity; in one case (C. B.) in five weeks the liver dullness from being less than one inch increased to two and a half inches.

Convalescence, however, was slow and slight relapses frequent, the patient becoming drowsy and sick, and having recurrence of epigastric pain if allowed to do much at first, or if excited by friends or visitors. When the patients were allowed up oedema of the legs and to a less extent of the body was troublesome, and persisted for weeks after the urine was clear of albumin; the jaundice was slow in subsiding, a yellow tinge remaining after ten weeks. The liver dullness, after having almost disappeared in two of the cases and having greatly diminished in the third, returned practically to normal. The petechial spots persisted as small raised papules, with no itching, especially on the face, long after the patients had otherwise recovered and the jaundice had completely disappeared.

The three cases were eventually discharged home and returned to work, T. M. as a miner, C. B. as a sanitary worker, and B. C. on the factory traffic gang. The length of treatment in hospital averaged ten weeks, and the duration of illness until the patient was fit for work again was nearly twice that period. I have recently heard from the patients, and all report themselves well and at work at the present time, six months after recovery. In the third case, B. C., which was the least severe, blood examination revealed no pathological change, cell and haemoglobin ratios being normal. Menstruation was missed for three periods during her illness, but has occurred normally since.

In a fourth case, a girl of 18 years, who worked for four months on the outside laundries, and was seen on several occasions but not treated by me, the symptoms and course were the same—full recovery and regeneration of the liver taking place after a serious and prolonged illness of many months, in which the liver area diminished to less than half its normal size. In this case also sodium bicarbonate was given freely throughout.

The chief points of interest appear to be: (1) The regeneration of the liver after very extensive destruction. (2) The beneficial result of the exhibition of sodium bicarbonate¹ in what seemed to be hopeless cases. (3) The absence of T.N.T. in the urine when it was being excreted by the bowel.

From a series of several hundred examinations of the urine my experience has been that T.N.T. is normally present (Webster's test) when a worker is in contact with this substance, and that instead of this being a danger signal, as has been held, it is on the contrary normal and quite compatible with good health; it is not found in the urine of patients suffering from toxic jaundice.

REFERENCE.

¹ Sodium bicarbonate is recommended by Dr. W. H. Willcox for the treatment of toxic jaundice due to tetrachlorethane, BRITISH MEDICAL JOURNAL, February 26th, 1916.

ACUTE METATARSAL OVERSTRAIN (FOOT-SWELLING).

By A. ROCYN JONES, M.B., B.S., M.R.C.S.,

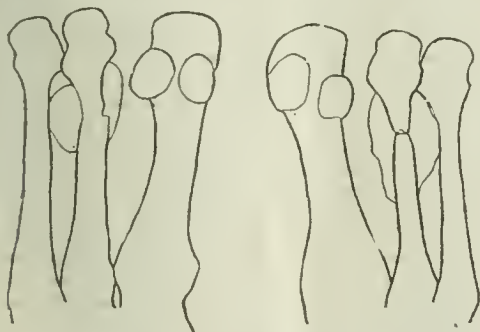
ACTING SURGEON AND SURGICAL REGISTRAR, ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

ACUTE overstraining of the metatarsals is one of the disabilities to which the marching foot is subject, and even before the war was being increasingly recognized by the military surgeons of the large conscript armies of the Continent as a lesion to which their recruits were liable. The complaint was first described in 1855 by Breithaupt, who gave it the name of "foot-swelling," and attributed it to injury of the metatarso-phalangeal joints and tendinous sheaths. This was the accepted explanation until 1887, when the French surgeon Pauzat, in a very striking paper, suggested periostitis of the metatarsal bones as a cause. Pauzat's explanation still holds good for some cases, but with the advent of *x* rays in 1897 fracture was revealed, and in the *Revue d'Orthopédie* of September, 1898, there is an excellent skiagram by Mannoury of Chartres, showing fracture of the third metatarsal with characteristic callus formation.

The following case illustrates the typical signs and symptoms of overstrain:

W. T., aged 28, entered the army in October, 1914. During his training in England he frequently fell out on the march because of sore feet, but was never completely off duty for this trouble. On May 24th, 1916, he was sent to France, and remained a few days at a rest camp. On May 28th he marched six miles, and at the end began to feel pain in the left foot. Next day he marched another ten miles, after which the foot, being swollen, was bandaged. The following day he again marched a few miles, and both feet became swollen and painful. He was sent to a field ambulance, and thence down the line. He was admitted to the Royal National Orthopaedic Hospital on June 15th, bearing a card with the provisional diagnosis of trench feet.

The feet were swollen, and he complained of pain across the anterior part of the dorsum of each foot, particularly the left. He had distinct *pes planus*, but, owing to the pain, he objected to any attempt at manual inversion. He was kept in bed and the feet were massaged. At the end of ten days he was allowed up; there was a recurrence of the pain, which he persisted in



Right.

Left.

An outline drawing of a skiagram showing the three inner metatarsals of a soldier's feet. There is a marching fracture of each second metatarsal with characteristic callus formation.

localizing at the anterior part of each foot. An *x*-ray picture, an outline drawing from which is here reproduced, showed a fracture of each second metatarsal bone just behind the head, with considerable surrounding callus, that on the left being the more exuberant and therefore possibly explaining the greater tenderness on this side. The patient was kept off his feet completely for one month, and during this time was given massage and hot air. He was then by easy stages allowed to get up, and six weeks after admission he could walk with comfort. To prevent relapse it was thought advisable to add a transverse

"football" bar across the sole of each boot, well behind the position occupied by the heads of the metatarsals, to take the weight for the time being off these heads, and for the planus a valgus wedge and prolonged heel were added. He was then transferred to a convalescent hospital.

It is very seldom that marching fractures occur in both feet as in this case. Of 575 cases collected by Nion in two only were both the second metatarsals affected, in one both the third, and in one the second and third. Rarely are there two fractures in the same foot; in the same series four times only were the second and third metatarsals broken and once the second and fourth. Acute metatarsal overstrain is practically confined to the three middle metatarsals. I can find no recorded instance of fracture of the first metatarsal due to marching, and fractures of the fifth are commonly the result of accident due to sudden throwing of the body weight upon the inverted foot. Usually one foot only is affected and usually only one bone; Nion gives the proportions of 112:98:17 for the second, third, and fourth metatarsals respectively. That some bones are more frequently involved than others is due to their anatomical disposition and the relative parts they play in bearing the body weight. The great diversity in the strength and projection of the metatarsal bones is readily apparent on examination of a large number of skiagrams. It seems that the head of the fifth always projects least and the fourth next, but that the projection of the heads of the three inner bones is subject to much variation. The third head may reach the same level as, but never exceeds, that of the second, and either or both of these bones may extend beyond or fall short of the first. The second metatarsal bone is more subject to variation than any other; it may be the strongest, next to the first metatarsal, or it may be the weakest. On the other hand, the third metatarsal is always a weak bone. The metatarsals as a whole are so arranged as to complete the anterior portions of the longitudinal and transverse arches of the foot, the second and third occupying the highest plane. At their bases they all unite with the tarsus, but the first has the widest range of movement, the fifth next, and the fourth next, whereas with the second and third, as Hepburn points out, "an extremely powerful interlocking of parts is provided which places any marked independent movement of these metatarsal bones entirely out of the question." Again, in the *x*-ray picture of a normal foot it will be seen that the second and third metatarsals are practically parallel, and run in a strictly antero-posterior direction, whereas the others radiate obliquely forward.

This disposition of the bones provides for the transmission of the body weight by the astragalus along a line passing through the second metatarsal head.

When standing the weight is borne by the two feet, the chief points of support in each foot being the os calcis, the shaft and head of the fifth metatarsal, and the head of the first metatarsal. During ordinary walking, however, the main points of contact with the ground are continually changing. First the heel is brought down, then the sole, and then the body is levered forward on the metatarsal heads. During this last part of the step the four inner metatarsals and their toes are the chief points of contact, with the second and third forming the most direct anterior supports of the longitudinal arch of the foot, and consequently subject to very direct pressure. That this is so is shown by the boots of people with normal feet, from which it appears that the sole is most worn about the middle, at a point corresponding with the heads of the second and third metatarsal bones. Frequently there is also a callosity in the corresponding position on the sole of the foot. It is during the successive weighting of the metatarsal heads that overstrain is produced. The feet of the vast majority of recruits quickly accommodate themselves to the rigours of route marching, but occasionally there is a breakdown, either in the direction of flat-foot or metatarsal overstrain, or both. In these the extra loading due to the pack, the fatigue induced in the small muscles of the foot, and the roughness of the ground traversed are cardinal causes. With every unevenness of the ground the sole of the boot becomes slanting, and the tendency is for the mid-metatarsus to become more heavily weighted, and occasionally one bone more burdened than the others. This is further promoted by the lessened co-ordination between the metatarsal bones as the result of tired muscles and the generally diminished sensibility of the foot induced

by fatigue. The frequency of fracture of the second and third metatarsals is due to their commonly slender length, their fixity, their direct forward projection, their lie in the transmission line of body weight, and the part they play in the leverage action of the foot. The fourth is less often affected because it is more mobile, and subject to less direct stress; the first escapes because of its strength and mobility, while the fifth, which is fairly strong and mobile, likewise escapes because it is the least strained during the forward lifting of the body.

In the diagnosis it should be remembered that the usual history given is that the symptoms developed gradually during a march, and that rarely is there any account of the accident. The pain is localized to the metatarsus, and by running the fingers along the bony shafts a very sensitive spot will be found in one of them. If a fracture occurs discoloration of the skin due to extravasation of blood may be present, and possibly crepitus elicited. Swelling of the foot is usually a prominent feature, whence the name "foot-swelling," given to the complaint when its pathology was still uncertain. The diagnosis can only be definitely established by the *x* rays. A skiagram may show a fracture and possibly even callus formation, the break generally being in the anterior half of the shaft. If there be no fracture, periostitis may be present, shown by vagueness or irregularity of outline, or swelling of the shaft of the bone. In this connexion it is interesting to note that Momburg found in some old-standing cases definite spindle-shaped thickenings of the shaft of a metatarsal, and he also notes thickening of the compact bone at the expense of the cancellous tissue by a process of osteo-sclerosis. These osseous thickenings may occur by way of compensatory adaptation in the feet of soldiers who have never complained of any symptoms or of any unusual difficulty in marching. It may be mentioned that statistics show that troops drawn from mountainous districts suffer less from metatarsal overstrain than those from the lowlands, for hill climbing tends to strengthen the metatarsus and pedal muscles, and possibly to promote a better power in dorsiflexing the foot. This climbing influence is best seen in Alpine guides, who usually have an extreme range of movement at the ankle-joints.

The broad lines of treatment have already been given in the case quoted—that is, complete rest off the feet for four weeks and the application of massage and hot air. The heating chamber should be at a temperature of 300° F., and the limb well protected by wool and flannel bandages; the treatment should occupy from thirty to forty minutes daily. As an alternative treatment passive hyperaemia may be adopted. A Martin's bandage is applied around the leg just above the ankle, so as partly to obstruct the venous flow from the foot. The bandage should be arranged so as to cause no discomfort, and the foot must feel warm during the whole sitting. This treatment should be applied at first for an hour daily and gradually extended to several hours; at Spandau it is even persisted in for twelve hours continuously.

At the end of one month, or less in the case of periostitis, the patient is allowed to get on his feet gradually. Ten days after this, if there is no pain and no swelling, he is allowed to walk freely. In the case of fracture, the transverse "football" bar, referred to above, is worn for a few weeks, and may then be discarded. Care should be taken that a properly fitting boot is provided. The present army boot is a fairly good shape and it has to be strong, but one sometimes sees, after much wear, either a distorted upper or a "rocker" sole—that is, a sole which is extremely convex from front to back. These faults, which interfere with the proper play of the toes, are easily remedied by stretching and straightening the shoe on a last.

I am indebted to Dr. R. L. Rawlinson for enabling me to examine a large number of skiagrams.

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THE French Government has decided to establish a school of medicine at Dakar, French West Africa, on the same lines as those already in existence in French Indo-China and Madagascar.

THE VALUE OF AMYL NITRITE INHALATIONS IN THE DIAGNOSIS OF MITRAL STENOSIS.

By R. A. MORISON, M.D., LIEUT. M.R.C., U.S.ARMY.
(From the Military Heart Hospital, Colchester.)*

MITRAL STENOSIS develops insidiously and symptoms of a really incapacitating nature are frequently absent until the lesion is well advanced. In soldiers it is often discovered accidentally during the routine examination of a man reporting sick for a trivial complaint. In young soldiers, when very early and uncomplicated, it is unaccompanied by subjective symptoms which characterize the state.† The number of border-line cases seen appears to be remarkable, until it is remembered that the strains to which the men are subjected are precisely those calculated to call forth symptoms in early cases. Advanced mitral stenosis has been largely kept out or sorted out of the army, and patients who suffer from "irritable heart" in the absence of structural change very frequently present such signs as accentuation of the first heart sound, accentuation or reduplication of the second heart sound, signs which are credited with significance in the early diagnosis of mitral stenosis. In dealing with military patients a clear decision is most desirable; it is imperative when, in sorting cases bearing cardio-vascular diagnosis, tolerance of exercise is largely relied upon.‡ Men with structural heart disease are to be guarded against over-exertion. We may take a diastolic (presystolic) rumble or thrill, or both, to be the most positive and convincing sign of mitral stenosis, and it is at present inadvisable to diagnose this lesion in the absence of such a murmur. Any method, therefore, which accentuates such a murmur, or discovers it, must be of considerable value.

Amongst patients who fall near the diagnostic border-line (a border-line which it should be clearly understood varies according to the skill, experience, and opinion of the observer) there are a number of patients who present no suggestion of mitral stenosis when they are examined standing, but who present unequivocal signs while lying down; there are a number who present inconclusive signs of stenosis while standing, but signs of stenosis become clear on lying; still a further number who exhibit no conclusive signs standing or lying, but in whom the diagnosis is no longer in doubt while they lie after exercise. At the Military Heart Hospital at Colchester all cases are auscultated standing and lying, and lying after exercise, and a considerable number of presystolic murmurs are detected which would otherwise escape observation.

Amyl nitrite is used as a further test in doubtful cases; its action, like that of exercise, is to increase the flow of blood through the A-V ring, a change which favours the production of the murmurs in question. We desire to give our early impressions of the experience with amyl nitrite. The observations are not based upon *post-mortem* evidence, but upon the assumption that a clear presystolic murmur signifies stenosis in the absence of aortic disease. On that assumption, it is clear to us that amyl nitrite will often bring to light a clear presystolic or full diastolic murmur in a patient lying on his back, who had exhibited no murmur previously, and will thereby render an early mitral stenosis diagnosable.

In twelve cases in which presystolic murmurs were suspected, but in which they could not be recognized with any degree of certainty, amyl nitrite (inhaled from a 3 minim capsule until a reaction was evident) brought forth unmistakable murmurs in six instances. Amongst the first signs of early mitral stenosis is an accentuated first sound; from this sign the sounds pass to a simple reduplication with accentuation; to perhaps a triplication, and thence to what may, or may not, be termed a murmur, according to the idiosyncrasies of the examiner.

The point which is to be emphasized is that amyl nitrite, in a large proportion of cases, will raise the scale of the signs, bringing them nearer to a point where a diagnosis becomes certain.

* Observations undertaken on behalf of the Medical Research Committee.

† The actual proportion of clearly diagnosable mitral stenosis amongst such patients is approximately 4 per cent.

‡ It is inadvisable that the exercise tolerance tests should be applied in mitral stenosis, and those who suffer from this lesion are to be sifted out.

As to the cases in which amyl nitrite has the reverse effect, and produces a lowering of the scale, in some cases abolishing a diastolic murmur, we speak with more diffidence, yet it is extremely suggestive that this reversal of the usual effect has been witnessed for the most part in cases in which aortic regurgitation was undoubtedly present, and where consequently the murmur may have owed its origin to a different cause (Flint murmur).^{*} Whether it will prove ultimately that the test serves to differentiate the Flint murmur remains for the future to decide; so far as military diagnosis is concerned, it is a point of lesser importance; the point for which publicity is desired is the usefulness of the drug in bringing out clear presystolic murmurs in cases in which mitral stenosis is suspected but not proved.

A PYLON, OR TEMPORARY ARTIFICIAL LEG.

BY

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AFTER amputation through the thigh or leg there is, as is well known, progressive diminution in the girth of the stump, owing to muscular wasting; consequently the "bucket" of an artificial leg, which fits accurately at the time of fixing, will in a few weeks become loose.



FIG. 1.—Plaster cast of stump (hollow).

It occurred to me that the bucket for a temporary leg might be made of papiermâché, which could be broken up and replaced or remoulded, if necessary, periodically, until the stump reached its minimal circumference.

It was believed also that by arranging for the end of the stump to be subjected to graduated pressure by padding the floor of the bucket, the weight-bearing power of the stump would be improved.

The main principles of the leg were explained to Mr. J. D. Danson, technical instructor in the curative workshops, Alder Hey, and as a result of his expert advice and experiments the temporary artificial leg here described was made.

An accurate cast of the stump, up to a height of 15 in., if available, is taken in plaster-of-Paris (Fig. 1); on to this plaster cast a layer of soft felt is sewn (Fig. 2); this in turn is covered with a layer of papiermâché, about $\frac{1}{8}$ in. thick. (The papiermâché is made by boiling in water disused tram tickets, paper, etc., straining, and mixing

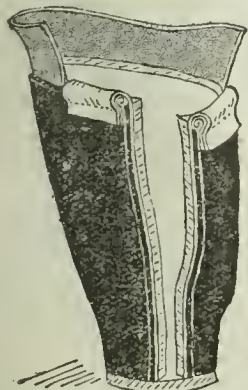


FIG. 2.—Cast covered with felt and papiermâché.



FIG. 3.—Metal rods which support the papiermâché.

with whiting and gluc.) A wooden base is fitted to the floor of the bucket thus formed, the paper bucket is then reinforced by four light metal bars, which are welded at their lower ends into a tube, into which is fitted the wooden peg (Fig. 3). If the bucket is made to fit a stump below

^{*} Thus out of ten cases of aortic disease in which a presystolic or diastolic rumble was audible at the apex, suggesting stenosis, the murmur cleared entirely under amyl nitrite in five instances.

the knee, the leg has a hinge-joint at the knee, to allow either a partial or complete range of movement at that joint (Fig. 5).

The leg provides an accurately-fitting bucket for the stump. It can be fitted as soon as the stump is healed, and

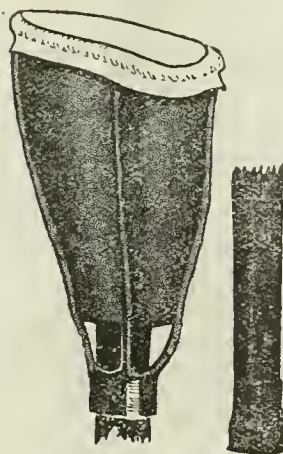


FIG. 4.—Complete pylon (for thigh stump).

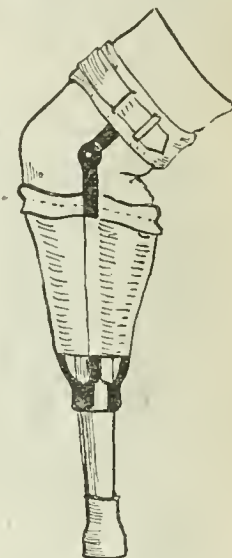


FIG. 5.—Pylon for leg with knee hinge.

the use of crutches and the consequent risk of crutch-palsy obviated. The leg is not to be too light, so that the muscles may receive adequate training. The patient is early familiarized with the wearing of a bucket and also with the gradual transmission of his weight to the end of the stump; he can regulate the pressure by adjusting the thickness of the pad at the bottom of the bucket. The cheapness of the material permits of the renewal or remoulding of the bucket at a trifling cost.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE FARADIC CURRENT FOR THE IDENTIFICATION OF MUSCLES DURING OPERATION.

IN certain operations difficulty may be experienced when searching for structures which lie between separate muscles; for instance, in ligaturing the ulnar, radial, or anterior tibial arteries or in dealing with their corresponding nerves. Such operations are more common than usual now in consequence of war injuries, and the difficulty in defining the limits of two adjoining muscles is increased by scar tissue which naturally lies in the line of the operation.

Such operation can be much simplified by the use of the faradic current. This may be applied locally to the surface of one or other muscle before the fascia is divided or even before the skin incision is made, or it may be applied to the nerve above the field of operation if the muscles have a separate nerve supply. The current may be applied so as to give a series of twitches or the muscle may be kept in a state of contraction as long as is needed. Not only does this show the limits of each muscle, but it also makes the separation of the muscles easier if one is kept contracted while the other remains flaccid.

I recently had the opportunity of using this method in a case of bullet wound of the middle of the forearm in which the subsequently formed scar tissue had involved the ulnar nerve, causing typical ulnar paralysis and anaesthesia. On cutting down to the fascia in the line of the nerve no distinction could be made out between the flexor carpi ulnaris and the flexor sublimis digitorum; these muscles were also bound together by scar tissue. On applying the electrode to the ulnar nerve behind the elbow the flexor carpi ulnaris was at once defined, and, after the fascia was divided, there was no difficulty in

separating this muscle from the flexor sublimis digitorum, and the nerve was found and cleared from the scar which was compressing it.

All that is required is a small coil with battery and something to use as a sterile electrode in case it is wanted to stimulate the surface of muscle; the ordinary electrode suffices if the nerve is to be stimulated. Only a weak current is needed.

T. H. FOULKES, M.R.C.P., F.R.O.S.,
Lieut. Colonel I.M.S.

THE EFFECTS OF ELECTRIC ARC WELDING UPON THE EYES AND SKIN.

My attention was first drawn by a tramway engineer to certain effects upon the eyes and skin produced by electric arc welding. He was using the process for welding broken rails *in situ* to save labour and time. The mechanical results were excellent, but he noticed that the workmen, himself, and visitors who came to see the process were affected adversely. Briefly, the symptoms were intense lacrymation and eye tenderness. "The eyes felt as if the lids had been sandpapered." The conjunctivae were much injected. The symptoms did not come on until some hours after exposure, or until the eyes were closed. With repeated exposures the eyes appeared to become accustomed to the light. Reddening of the skin exposed, followed by smarting and peeling, also were noticed. With repeated exposure the skin became "sunburnt."

On my visit I noticed (1) that the light was intensely strong and white; (2) that a considerable amount of gas, smelling like ozone, was generated; (3) that much very fine carbon dust was blown about; (4) that the heat was great. An x-ray plate, enclosed in two light-proof envelopes, was fogged evenly all over, in spite of lead discs closely held by clips against it.

The cause of the conjunctivitis seems to be the intense light, and not dust, as the eyes were protected by glass. The presence of ultra-violet or N rays I do not think probable. Some form of secondary ray may be given off by the molten metal, but of this I am not competent to judge. The matter appears worthy of full investigation.

Southampton.

OSCAR HOLDEN, M.D.

ACUTE YELLOW ATROPHY IN SYPHILIS.

I READ with deep interest in the BRITISH MEDICAL JOURNAL of January 19th a paper on this subject by Professor Stuart McDonald.

As I have been in France for the last three years my notes are not at hand, but I would like to mention a very important fact regarding his suggestion "that acute yellow atrophy may result as a direct consequence of treatment by 'salvarsan' preparations." As Professor McDonald says, acute yellow atrophy is one of the rarest diseases to be met with in medicine, a statement with which all physicians will agree. I have personally conducted over 6,000 *post-mortem* examinations in a hospital and asylum experience in the last thirty years, and I have only met with seven cases of acute yellow atrophy, all of which have been recorded. In all these cases there was a definite history of recent syphilitic infection, and in only two of them had there been any mercurial treatment. All the cases occurred in adults between the ages of 20 and 43, four being males and three females.

Whatever the exact etiology of this fatal disease may prove to be, it seems certain that syphilis plays the most important part, but I cannot see any justification at present for associating it in any way with treatment by salvarsan—by far the best means we have to-day for the treatment of recent infections—and I am sure that Professor McDonald does not wish to convey that impression.

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"IRRITABLE HEART."

My experience of the class of cases discussed by Dr. Lewis (p. 363) was gained at a Mediterranean station, where we dealt with the men in an earlier and less selected state than that in which they would come under his care. Here we had gathered together all the cases classed as D.A.H.

out of a big camp. Most had served at Salonica, Gallipoli, or Egypt. Very many had had malaria.

After careful examination they were all collected in separate marquees and placed under a physical instructor, and each morning were given gentle physical exercise for a period of ten minutes, the pulse, respiration, and temperature having previously been taken. At first the medical officer in charge of the cases was present during the entire period of drill, and made careful notes of any cases which did not seem to stand it well. After drill the men lay down for at least ten minutes; the pulse and respiration were taken first after the exercise, and again after three minutes' rest. After seven days' training in milder exercises the whole squad was examined, and those who regained their normal respiration and pulse after three minutes' rest were promoted to more complicated exercises. After a further week those who were improving were made to do a combined exercise for double time.

Thus three classes were kept going, and at least once a week the medical officer examined every case carefully to ascertain if he were fit for the longer and more severe exercise. I also gave the men an extra ration of sugar, which appears to have a synergizing effect on the cardiac muscle.

To summarize results, we found after treatment:

1. 70 to 90 per cent. of the cases labelled "D.A.H." were fit for at least light duty, and of these 20 to 30 per cent. were fit for ordinary duty.

2. A very large proportion of all the cases were fit for ordinary base duties.

3. The only real practical test of the fitness for duty of a man labelled "D.A.H." is the time in which, after a given exertion, he regains his normal pulse and respiration rate. If this be under three minutes he may be regarded as fit for at least light duty.

4. Mere rapidity of pulse may be ignored as of no necessary pathological significance.

5. Many of the cases called "D.A.H." are due to excessive thyroid activity, and not to any cardiogenic conditions. The drill or gymnastic treatment seems to point to this, for it invariably aggravates this condition. It does not follow they are unfit for duty.

6. Ordinary treatment of D.A.H. cases in ordinary hospitals, after, perhaps, a couple of weeks' rest in bed, is not merely useless, but harmful, unless some form of gymnastic exercise be added.

J. C. McWALTER, M.B., F.R.F.P. and S.Glasg.

GALYL IN MALTA FEVER.

So far as I know, the treatment of Malta fever by galyl or salvarsan has not yet been recorded. The two following cases are therefore worth reporting:

CASE I.—A strong healthy man, aged about 35, in easy circumstances, with a comfortable home and perfectly sanitary surroundings, and not overworked, had suffered for about four years from attacks of fever at varying intervals; occasionally the interval was three months, but often as little as one month. The fever usually reached 102° F., but sometimes even 104°. Though Malta fever was suspected early in the course of the case, blood tests made by several bacteriologists did not confirm this suspicion, and only after about two years was a positive Malta fever reaction obtained. Inoculation with sensitized Malta fever vaccine was then carried out most conscientiously for more than a year. At times the inoculation seemed to be helping, but progress was very slow and uncertain.

About October, 1916, severe attacks began again in spite of the inoculation, and returned every month. The patient had lost a serious amount of weight, was weak and languid, and felt hardly able to conduct his business. On January 6th, 1917, I gave him an intravenous injection of 0.3 gram of galyl dissolved in 3 ounces of freshly distilled water. Since then there has been no return of fever, the lost weight, strength, and energy have all been regained, and the patient is to-day, ten months after the injection, in perfect health.

CASE II.—An elderly hard-working man consulted me for intractable lumbago and sciatica of about nine months' duration. His local doctor had diagnosed Malta fever, and had treated him with many drugs but without avail. A blood test confirmed the diagnosis. On July 4th, 1917, I gave him 0.3 gram galyl intravenously, and he returned home two days after. When next I saw him, early in October, he told me the treatment had been a great success, all his pain had disappeared within a few days, and he was soon able to walk about and do his work as usual.

A line of treatment cannot be based upon two cases, but the results in these are sufficiently striking to suggest that salvarsan or galyl should take a prominent place in

the treatment of Malta fever. Case 1 is especially noteworthy, for in spite of the very favourable conditions under which the patient lived, and in spite of frequent and prolonged holidays at the coast (the oldest Kimberley remedy for "camp fever," a good percentage of which we now believe to have been Malta fever), he was no whit better at the end of four years, and the effect of the galy was immediate, and so far seems to have been permanent. Any one has had to deal with Malta fever will realize what an immense help a remedy which acts quickly, and gives a permanent cure, would be in this tedious disease, so aptly called "sluipende koors" (sneaking fever) by the Dutch farmers.

E. OLIVER ASHE, M.D.Lond., F.R.C.S.Eng.,
Surgeon to Kimberley Hospital.

Reports of Societies.

HYPOTONIA AND TROPHIC CHANGES.

At a meeting of the Section of Neurology of the Royal Society of Medicine, on January 24th, Captain GEORGE RIMMOEN contributed a paper on muscular hypotonia and changes in nutrition associated with lesions of the posterior columns of the spinal cord and the posterior roots. Defining reflex muscular tone as postural contraction (Sherrington), he pointed out that tonus was found in those muscles which maintained the animal erect; it depended upon a reflex system excited by afferent impulses arising during tension and stress from muscles and tendons. The controlling centres of this system were situated in the mid-brain, pons and medulla. The activities of this system were adjusted through impulses from the labyrinth and by the cerebellum. The peripheral fibres ran in the deep muscular nerves. Hughlings Jackson taught that rigidity of the affected limbs in cases of hemiplegia was due to unantagonized cerebellar influences. The activities of this reflex mechanism might be entirely unconscious. Head and Thompson stated and emphasized that "sensation may never be evoked until some disturbance of equilibrium produces impulses which, passing up sensory paths, reach the highest centres concerned with sensation." Their findings suggested the close association through collaterals of the posterior columns and the afferent cerebellar tracts. Whenever hypotonia followed lesions of the posterior columns, it was always associated with defective appreciation of space; but in hypotonia resulting from lesions of the posterior roots, at a level where all sensory impulses were still in their primary grouping, all aspects of sensation were affected, and the area of sensory loss was determined by the number of the roots involved. Captain Kiddoch quoted instances of cases to show that by an investigation of the condition of sensation in the affected parts the level and the extent of the lesion giving rise to the hypotonia could usually be determined. He described some of the trophic and vasomotor changes frequently observed in the affected hands after injury to the posterior columns of the spinal cord in the region of the cervical enlargement; in character these changes closely resembled the associated trophic and vasomotor changes found in cases of causalgia of the median nerve. From the sensory picture of the hands he adduced that trophic and vasomotor changes of this type were due to damage to the posterior roots involving the "visceral" afferent sympathetic fibres belonging to the sympathetic nervous supply of the hand, and not to any injury of the spinal cord. The afferent fibres of the sympathetic involuntary nervous system probably had more or less the same regional distribution as the efferent fibres, and passed into the spinal cord by the segmentally corresponding posterior nerve roots. Such facts might explain the minimal nutritional and vasomotor changes in the legs and feet after injury to the lower lumbar and sacral posterior nerve roots, where hypotonia was present and sensation was definitely affected but not completely abolished.

TRINITROTOLUENE POISONING.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine, held on April 12th, the President (Dr. G. S. BUCHANAN) in the chair, Dr. W. J. O'DONOVAN (Chief Medical Officer, Welfare

and Health Section, Ministry of Munitions) read a paper on the epidemiology of trinitrotoluene poisoning, which was in effect a continuation of a chapter in preventive medicine begun at a meeting of the society in January, 1917. Dermatitis, gastritis, and toxic jaundice produced by T.N.T. were described, and stress was laid on the necessity of regarding all cases of purpura or of uterine bleeding with the gravest suspicion, as these symptoms might represent the onset of aplastic anaemia. Thirteen cases of these grave anaemias were known to have occurred and only one was alive. Toxic jaundice was now rare and the death-rate had fallen considerably. In stamping out toxic jaundice, and with it the large amount of minor illness due to T.N.T., the co-operation of the engineers was invaluable. Clean working was the cardinal rule, and automatic working was the only way of securing this with thousands of unskilled female workers. The various processes in which T.N.T. absorption might occur were illustrated by photographs, and the various types of automatic machinery that had largely helped to eliminate hand contact were shown in the same way. Casein varnish had not proved a success in practice; respirators were of little or no service, and the use of gloves, except for hot or rough work, was discouraged; workers could not keep the interior of gloves free from T.N.T., and a poultice of T.N.T. on a hot hand was the ideal way to secure absorption. Attention was drawn to the variability of the incidence of the effects of T.N.T. at the same factory; this suggested that the pathological ill effects might be coincident, but were not necessarily dependent on one another. The way in which factories were separately attacked after periods of freedom and the absence of fresh cases under constant working conditions suggested that two factors came into play—first, the toxic effect of T.N.T., and secondly, possibly portal infection. The work of Opie on the production of experimental cirrhosis of the liver in animals, and a recent paper by Dr. Stuart McDonald¹ on acute atrophy of the liver after the administration of salvarsan, lent support to this view, but the question remained open. Attention was drawn to a publication by the late Mr. Simeon Snell in the BRITISH MEDICAL JOURNAL of March 3rd, 1894, dealing with poisoning by dinitrobenzol, and it was shown how closely parallel were his recommendations to those of the T.N.T. Committee appointed by Dr. Addison when Minister of Munitions; it was not known, however, that any cases of neuritis or of amblyopia due to T.N.T. had occurred. The chief precautionary measures—alternation, periodic medical examination, clean working, and ventilation—were explained and detailed references were made to managerial, explosive, and wages aspects with which these points are bound up. Recognition was paid to the services of the T.N.T. factory medical officers, working continuously for months in isolated areas with none of the amenities of ordinary medical life.

The paper was discussed by Dr. LEGGE (Home Office), Dr. COLLIS (Ministry of Munitions), Lieut.-Colonel O'REILLY, R.A.M.C., Dr. CHRISTINE PILLMAN, and Dr. MACNALLY.

Reviews.

COUCHING FOR CATARACT: ITS DANGERS.

THE operation of couching for cataract is one of the most ancient procedures known to surgery, the earliest description of the method being that given by Celsus, a contemporary of Christ's. Besides its antiquity it is perhaps one of the operations which is most frequently performed for the relief of cataract, since this degeneration of the eye is so common in India, and the nature of the operation lends itself readily to the practice of wandering native practitioners. Further, it is not so long ago that the operation was practised in Western countries. For all these reasons Colonel ELLIOT's book on *The Indian Operation of Couching*¹ is of great interest, for he deals with the nature and results of the operation, particularly at the hands of untrained and often quite ignorant and primitive folk

¹ BRITISH MEDICAL JOURNAL, January 19th, 1918.

² *The Indian Operation of Couching for Cataract*; incorporating the Hunterian Lectures. By Robert Henry Elliot, M.D.Lond., Lieut.-Colonel I.M.S.(retired). London: H. K. Lewis. 1917. (Roy. 8vo, pp. 94; 45 figures. 7s. 6d. net.)

whose only knowledge is that gained through the handing down of an old tradition.

Colonel Elliot has divided his book into sections dealing with the history of couching, the technique of the operation, and the Andian coucher and his habits; there is a chapter on statistics of observed results, one on the pathological anatomy of couched eyes, and, lastly, chapters on the diagnosis and clinical symptoms. In each he has done full justice to his subject, and he is to be congratulated on the facility with which he introduces his reader into a lively association with his work and experience in the East. One of the difficulties of an investigator is illustrated by his statement that he had never been able to see a coucher at work during his twenty-five years in India, yet his knowledge of the results of the operations of these men was direct enough in his hospital work.

The charm of the operation to the uninitiated lies in two facts: it is very easy to perform, and the results obtained are immediate. The hand is passed over the eye, and lo! the blind man sees. The needle or thorn is thrust suddenly through the cornea or sclera of the eye, according to whether the anterior or posterior operation is performed, so as to penetrate the lens; and in the same movement with a turn of the wrist the lens is thrust down into the posterior chamber of the eye and the pupil is clear. Dirt and injury due to clumsiness account for a vast number of speedy losses of sight. But even with the best of immediate results there is the steadily approaching Nemesis of total and irretrievable blindness, owing to the dislocated lens acting as a foreign body within the eye and setting up chronic cyclitis. A summary of the Hunterian Lectures given by Colonel Elliot last year was published in our columns at the time (1917, vol. i, p. 334), but in this book the full story is told, and the moral is drawn. Cataract in India strikes down a man at maturity, when his life's work is beginning to have its full effect, and the operations of the quack destroy his one chance of recovery. Prohibition might be desired, but, as the author says, the people are not ready for it. But there should be (1) the systematic dissemination of knowledge through Government agencies amongst the people; (2) the improvement of ophthalmic education. A movement in these two directions is already on foot, and in time will bear much fruit.

THE FUTURE OF THE MEDICAL PROFESSION UNDER A NATIONAL HEALTH MINISTRY.

A MEETING of the Fellows of the Royal Society of Medicine was held on April 15th, Sir RICKMAN GODLEE presiding, to discuss the future of the medical profession under a Ministry of National Health. The subject was opened by Dr. J. F. GORDON DILL, who said that a central authority to deal exclusively with all matters of national health should be established under a Minister of Cabinet rank, and to this administration the various departments now engaged upon health matters should be transferred and as far as possible fused. The secretaries and higher personnel should be qualified medical men, and there should be an administrator-general for the kingdom, national administrators for each country, and inspectors of preventive medicine and directors of clinical medicine for each division or county. The divisions should be made up of so many districts, with a medical officer allotted to each, though in suitable centres of population contiguous districts might be pooled. The district medical officer would reside in the district, be the family doctor for most of the community, and keep such records and make such returns as might be required. Consultants and specialists should be appointed to areas of suitable size and be the visiting physicians of the hospitals in those areas, and central laboratories should be established in charge of resident or visiting pathologists. Dr. Dill also discussed the terms of service of the medical officers, the responsibility of the peripheral executive to the central administration, and the desirability that, along with such a state system, no limitation should be imposed on freedom of choice, either of doctor or patient.

Sir ARTHUR NEWSHOLME said that state institutional measures for dealing with disease had grown in a remarkable manner during recent years. Of the 300,000 hospital beds (including asylum beds) in England and Wales, 170,000 were under the public health authority and 96,000

under the Poor Law authority. With this development had arisen such arrangements as school medical inspection and clinics, public treatment for tuberculosis and for venereal diseases, maternity and child welfare work, and, not least, the vast insurance service, with one and a quarter millions spent annually on maternity benefit, three-quarters of a million on sanatorium benefit, and four and two-fifths millions on the payment of medical practitioners for domiciliary attendance. Any satisfactory medical service in the future must be as readily available to the poor as to the well-to-do, not only in respect to consultation and treatment, but also in respect to laboratory facilities and skilled nursing. There must be increased collaboration between voluntary hospitals and private practitioners. There must be more team work between consultant and general practitioner and between nurse and doctor, and economy of effort might be effected by the proper utilization of less skilled persons under fully qualified supervision.

Sir BERTRAND DAWSON said that the feeling that some change was needed antedated the war. There was a growing opinion in the community that the best treatment of disease and the measures for securing health must be available to all by right and not by grace. Medicine in this respect was only repeating the history of national education. But the maintenance of health and the cure of disease were becoming increasingly complex and costly, with the result that the best treatment would be decreasingly available for the community at large; yet not only was there the demand of the public that the best treatment should be made generally available, but there was also the feeling on the part of the profession that it must give its best in all cases, and the only way out of the difficulty was some degree of state support and state control. Neither in private practice nor in hospitals would it be possible to continue altogether on the voluntary basis; every new invention, for instance, added to the expense of hospital upkeep. There were three possible forms of state aid: (1) To make the medical profession a salaried civil service. With this he could not agree. In no profession was there such a difference between the minimum and the best, between what a man could get on with and what he might do if he lived up to his ideals. That intensive effort, which at once made medicine so exhausting and so inspiring, would not be encouraged by a state-salaried service. (2) To amplify the insurance system, with its underlying principle that the sick should be partly paid for by the state and partly by the individual—at present a cumbersome method, but one which had possibilities. (3) The state endowment of fabric. Explaining what he meant by this last, Sir Bertrand Dawson said that curative and preventive medicine must come together in thought, teaching, and organization, and it was important not to multiply specialists too much or to deprive the general practitioner of the things that made his profession interesting. The general practitioner in a small township should be in charge of both the preventive and the curative treatment, and although an increased proportion of his earnings would be by salary, he would still be a free man as regarded his patients, while his local authority would give him every sort of encouragement in return for his work by providing him with a collection of buildings and equipment.

Dr. BENJAMIN MOORE pleaded for a whole-time national medical service, with local control in the various branches according to the needs of the district, and argued that there would be an even fuller choice of doctor under a whole-time service than there was at present. Dr. LAURISTON SHAW thought that consultants should confine themselves to consultative work, and that their relation to the general practitioners should be as uncompetitive and cordial as that between barristers and solicitors. Sir RICKMAN GODLEE, in closing the discussion, said that as a man at the close of his professional career, he might be expected to look askance at the rising tide of state control, but he hoped there would still remain some little bays and inlets for those who shared his own professional ideals.

SURGEON-GENERAL RUPERT BLUE, of the United States Public Health Service, has asked Congress to appropriate £60,000 to be applied in establishing a Sanitary Reserve Corps whose function it will be to combat outbreaks of disease both in time of war and in time of peace.

British Medical Journal.

SATURDAY, APRIL 20TH, 1918.

CASUALTY CLEARING STATIONS IN MOBILE WARFARE.

THE great lesson of the war with regard to the treatment of the wounded man has been that the earlier and more efficiently his wounds are dealt with surgically the more rapid, certain, and complete is his recovery. The tendency, therefore, has been to operate on an increasingly large proportion of cases at the casualty clearing stations, which as a rule provide the earliest possible stage for carrying out radical treatment. During stationary warfare the accommodation provided in these units has increased enormously, to four and even six-fold in many cases. Many of the stations had bedsteads as long ago as September, 1916—in some cases, we believe, six months earlier—and probably most of them now have a good many. We have heard of as many as 150 to 200. They are used especially in the resuscitation wards, which have often been described, and for the more seriously wounded—as, for instance, chest wounds, and fractures of the femur. The results obtained at these stations during the last year and a half or two years have more than justified this policy.

A little reflection on the experiences of the past few weeks will show how easily the trials the wounded endured might have been aggravated and their chance of recovery destroyed had the arrangements entailed delay in the treatment of wounds. It is difficult to over-estimate the saving of life and of limb which has resulted from early efficient treatment, and the real military help which can be given thereby, in that lightly wounded men have a vastly shortened convalescence. Briefly put, a lightly wounded man successfully operated on at an advanced casualty clearing station may become an active soldier again in a comparatively short time, whereas if treatment be delayed he may be of no further use to the army, and may be more or less crippled for life. The economic value of the work done at the casualty clearing stations to the army in the first instance, and afterwards to the nation as a whole, is very high.

The development of casualty clearing stations during the last year or two of almost stationary warfare has naturally followed lines which adapted them to the conditions existing, but if we are to look forward to periods of open warfare some of their arrangements will no doubt undergo modification. The original plan was that clearing hospitals, the forerunners of casualty clearing stations, should be accommodated in suitable buildings if available, or in tents. Suitable buildings have not, we believe, very often been available in recent times, and in setting up casualty clearing stations huts have sometimes been used in place of tents. Such huts required several days and many men to erect and nearly as long to dismantle, to say nothing of the difficulty involved in their transport. Huts have to be abandoned, along with other heavy impedimenta, during a rapid retreat under pressure of the enemy.

To meet a period of more mobile warfare advanced hospital units will have to be, as far as possible, correspondingly mobile, though movement may be necessary only at intervals measured by months. It would be a grave misfortune were surgical opportunities during such intervals to be curtailed in any serious

way. Very many of the operations performed in casualty clearing stations are of the most serious and difficult character conceivable, and such as a surgeon is only justified in undertaking if he can command the essential appliances of his craft. Among these is an operation room properly constructed and equipped, and capable of being kept surgically clean. It is, we believe, the general opinion of those who have had practical experience that to fulfil these conditions, should no suitable large room in a permanent building be available, a wooden structure is necessary. If enemy action enforces a move, this wooden operating room must usually be abandoned. It is apparent, therefore, that if the best surgical treatment is to be carried out at what has been found to be the best time, the casualty clearing stations cannot be made so mobile that, in the event of rapid retreat, a proportion of the equipment will not be lost.

The authorities are, therefore, faced with the alternatives that either they must sacrifice the interests of the wounded man and all that is entailed thereby or they must be prepared to lose some equipment. We know that the nation would have no hesitation in its choice between these two alternatives. We do not doubt that the medical authorities will find a way to adapt the fabric and equipment of the casualty clearing stations to the special needs, so that the very best surgical treatment shall be available as early as hitherto, while at the same time such mobility is regained for these units that only the minimum loss of material will result. Waste must always occur in war. The loss of guns does not deter the fighting man from replacing that loss with improved weapons and distributing them where they will have greatest effect.

We feel that we can safely leave these momentous decisions in the hands of those whose practical experience during this war best enables them to cope successfully with all contingencies, and that they will know how to win fresh laurels for the Royal Army Medical Corps.

THE AUTOMATIC BLADDER, MASS-REFLEX, AND OTHER PROBLEMS.

THE advance of medicine depends partly on clinical experience and largely on special investigations carried out in laboratories, both in direct relation to disease and on other lines. It is now generally recognized that pure physiological research undertaken to increase scientific knowledge, though not at once obviously applicable to the needs of medical practice, sooner or later makes the clinician its debtor. On the other hand, the work of the active physician and surgeon, though often of help in elucidating the problems of physiology, is rarely of such an exhaustive and far-reaching character as that of Dr. H. Head and Dr. G. Riddoch recorded in the current number of *Brain*.¹ Clinical research of this kind demands a special training and a devotion of time and energy that are only exceptionally available; it is therefore of peculiar value, and to some extent may redress the balance of debt to our physiological colleagues.

Utilizing the unexampled opportunities afforded by the casualties of the war for an intensive study of the phenomena of gross lesions of the spinal cord, Dr. H. Head and, under his inspiration, Dr. Riddoch, the medical officer in charge of the Empire Hospital,

¹ H. Head and G. Riddoch: The automatic bladder, excessive sweating, and some other reflex conditions in gross lesions of the spinal cord. *Brain*, London, 1917-18, xl, 149-263. G. Riddoch: The reflex functions of the completely divided spinal cord in man, compared with those associated with less severe lesions, *Ibid.*, 264-402.

Vincent Square, have carried further Professor Sherrington's work on the decerebrate animal, particularly as regards the problems of postural co-ordination. While the object of the authors is to consider the physiological principles underlying the clinical manifestations, the practical outcome of their careful observations on these paraplegic patients is very important, especially as regards the vesical condition which has such an essential bearing on prognosis. After a severe spinal injury complete retention may, if a catheter is not passed, be succeeded by cystitis and death before any signs of the complete act of automatic micturition can occur; if a catheter is passed so that overdistension and infection of the bladder are prevented, retention usually passes off, and eventually the bladder automatically empties itself. The bad effect of overdistension of the bladder must be borne in mind in washing out, for considerable pressure, such as may be obtained by raising the vessel to a height of several feet above the bed, easily overcomes the contractile power of the bladder and so only adds to its contents. The "automatic bladder" may in favourable circumstances—namely, the absence of cystitis, toxæmia, and fever—become established after a complete transection of the cord and also after complete destruction of the cauda equina; but there is the essential difference that when the automatic bladder exists independently of the spinal cord it is impossible to influence it reflexly by stimulation. The subject of the innervation of the bladder and urethra is reviewed by Dr. Fearnsides as an appropriate introduction to these observations.

When the control of a segment of the spinal cord is removed by a complete division, the discriminating and specific character of a normal reflex, such as the scratch reflex, is lost, and after the shock has passed off the lower part of the cord gradually regains its reflex activity, which is now uncontrolled; as a result stimulation leads to widespread discharge of motor energy overflowing into visceral channels; thus, stimulation of any part of the skin of one lower extremity, or even of the abdomen, may lead to characteristic flexor spasm extending to both sides, evacuation of the bladder and rectum, and excessive sweating. In this reflex the bladder is emptied when it contains less than half the amount that the automatic bladder usually discharges; and this "facilitation" of the automatic bladder is a good index of the widespread effect of a stimulus, and is seen only when the postural reflexes are absent, as in complete division of the cord. The excessive sweating—a remarkable feature of these cases—is due to activity of the nervous system below the lesion in the cord, and can be excited by almost any stimulus sending afferent impulses into the cord below the lesion, such as scratching the skin, washing out the bladder, or an enema. The massive or "mass-reflex" is part of the primitive protective reflex to pain, and not part of the normal postural reflex, whereas in cases of incomplete division of the cord the lumbar centres may still be inhibited by the pre-spinal centres and the postural reflexes persist.

In his complementary article on the reflex functions of the completely divided spinal cord in man (based on eight cases proved at operation) compared with those associated with less severe lesions, Dr. Riddoch shows that the clinical picture hitherto given as characteristic of a complete division of the cord is imperfect, and describes three stages: (1) of muscular flaccidity, corresponding with the period of deep depression from "spinal shock," and lasting from one to three weeks, with absence of superficial and tendon reflexes, toneless muscles, and retention of urine and

faeces; (2) of reflex activity, with the mass-reflex; and (3) of gradual failure of the reflex functions of the isolated spinal cord due to toxic febrile complications; the mass-reflex is no longer obtained, and the reflexes disappear, the extensor tendon jerks going first. There are no manifestations absolutely diagnostic of anatomical division of the cord, but some cases of severe damage to the cord with abolition of motion and sensation and with automatic action of the bladder and rectum show certain manifestations not present in cases with proved anatomical division of the cord. Movements of the flexor type were the only primary motor reactions observed in complete transection, whereas in the contrasted group of cases the involuntary movements may simulate progression or be entirely extensor. The clinical picture in complete division of the cord resembles that described by Babinski and Walshe as "paraplegia in flexion," and is comparable with that of the "spinal" animal, while their picture of "paraplegia in extension" is like that in the less severe spinal injuries, and comparable to that of the decerebrate animal.

MEDICAL PRACTITIONERS UNDER THE MILITARY SERVICE BILL.

THE Military Service Bill, which was read a third time in the Commons on Tuesday, April 16th, reached the Lords on Wednesday, and will, no doubt, receive the Royal assent before the end of the week. The first clause gives power by Order in Council to raise the age to 56 as respects men generally, but as the bill itself fixes the higher limit in the case of medical practitioners they will be subject to it probably before these words are in print. The position is one of some difficulty, and will require careful handling. We are therefore glad to learn that the Central Medical War Committee is already in conference with the Ministry of National Service and the Insurance Commissioners with regard to it. In the debate on April 12th on the part of the first clause which dealt with the special medical provision, the Minister of National Service said that the professional committees recognized under the Military Service Act, 1916, which had power to deal with claims for exemption made by duly qualified medical practitioners, had now been compelled to report that as the result of the withdrawal of medical men for the army the supply was very short. The number of practitioners available in every district had been ascertained, and it appeared that in some districts where young fit men were really as necessary as in the trenches (he instanced munition areas) the position had become serious. On the other hand, it was believed that there were in some residential cities doctors of the higher ages who were really in excess of local requirements. The professional committees agreed that many of them could probably be taken for work in the base hospitals, but Sir Auckland Geddes went on to say that appeals were being made to individual doctors to move into districts where the supply of medical practitioners was scanty. A certain number had, with great public spirit, responded, but more were required. At a much later stage of the debate, when the question of industrial conscription was raised by members of the Labour Party, Sir Auckland Geddes said that there was not the slightest intention to make use of powers the Act would confer to compel men to do things in civil life, and he repudiated any intention of devising a scheme of industrial compulsion. The context seems to us to show quite plainly that he was not thinking of the medical profession, that matter having, in fact, been settled on April 12th after a debate, which is reported at p. 462. We are not in a position to say exactly what may have been in the Minister's mind when he referred to the need

of inducing individual doctors to move out of residential into industrial districts, but we interpret his remarks to mean that the Ministry of National Service desires to put into force a system of substitution. Under such a system medical men in residential districts, where their services, it is considered, can be spared without injury to the civil population, would be expected to undertake work in other districts, either in the poorer parts of the same town or in some other town. We have no doubt that the response of the medical profession will be good, but we hope that it may be found possible to attain the desired result by way of what may be called "local substitution"—that is to say, a scheme by which a medical practitioner would undertake additional work in the neighbourhood in which he resides. The response, we feel sure, would be readier and more general were it not that the impression persists that many of those serving in the R.A.M.C. abroad, and even at home, are very far from finding their time fully employed. This point was made both by Sir Watson Cheyne, who was a member of the Committee of Inquiry which went to France last autumn, and by Major David Davies, who has been very persistent in asking for publication of the report of that committee. Sir Henry Craik, the member for the Universities of Glasgow and Aberdeen, also made a special appeal for the exercise of greater economy of resources on the part of the Medical Department of the War Office. He had, he said, received bitter complaints from medical officers eating out their hearts with anxiety to do work but could not find it; instead, they found themselves forced into some place where they were not fully used. Doctors, he said, were ready to accept the burden imposed by the clause if they could be certain that the use of their services by the army would be more economical and more effective than in the past.

THE DEMAND FOR AN INCREASED INSURANCE CAPITATION FEE.

THE special conference of representatives of Local Medical and Panel Committees, which was held on April 11th, is reported in the SUPPLEMENT this week. The outstanding question before the meeting was the policy to be adopted with regard to the demand for an increased capitation fee put forward by the last annual conference, and the Government's reply that no proposal for a general increase of remuneration could be entertained. Early in the proceedings the Chairman of the Insurance Acts Committee informed the conference that that Committee, after carefully considering the position in the light of all the information at its disposal, had come to the conclusion that while maintaining the equity of the claim for an increased capitation fee, the demand should not be pressed at the present moment. This opinion, it scarcely need be added, was based primarily upon the patriotic desire not to embarrass the Government in any way during a grave national crisis. In order to bring the matter to a clear issue it was decided to take at once a motion urging panel practitioners not to renew their present contracts next January. As an amendment to this, in the opposite sense, it was proposed that while still maintaining the justice of the demand for an increased capitation fee, and protesting against the tone of Sir Edwin Cornwall's reply, the conference, as a matter of patriotic duty, should not press the general claim at the present moment. This amendment clearly expressed the wish of the meeting, and, as a substantive expression of policy, it was carried by an overwhelming majority. While no one could be satisfied with the existing arrangement, the general feeling was obviously against any action which would increase the Government's difficulties in a national emergency, or might suggest to the public mind that medical practitioners put professional interests before their duty as citizens. The Chancellor of the Exchequer indicated, however, on March 15th that the Treasury was

prepared to consider an equitable scheme for meeting the increased expenses of practice, especially travelling expenses, as well as proposals for increased remuneration, on the ground of the higher cost of living, for doctors with professional incomes under £500. The conference accordingly instructed the Insurance Acts Committee to take steps to secure such additional grants and to devise equitable plans for their distribution. It was further decided that the methods of distribution of all the available funds, and the general financial arrangements and terms of service, needed early reconsideration. Lastly, the report of the president of the Institute of Actuaries upon his investigation into the constitution of the central pool was received and approved.

THE POSITION OF SCIENCE IN EDUCATION.

A COMMITTEE was appointed by the Prime Minister in August, 1916, to inquire into the position of natural science in the educational system of Great Britain, especially in secondary schools and universities, and to advise what measures are needed to promote its study, regard being had to the requirements of a liberal education, to the advancement of pure science, and to the interests of the trades, industries, and professions which largely depend upon applied science. The chairman of the committee was Sir J. J. Thomson, president of the Royal Society, and the members consisted in about equal proportions of persons especially concerned in general education, in science, and in the application of science to industry. The medical members were Dr. Henry Head, F.R.S., and Professor E. H. Starling, F.R.S. The report of the committee, issued this week,¹ fills, with its appendices, eighty-four pages, and will afford food for much careful study. It is concerned mainly with England, but it contains short sections on Wales and Scotland. Its effect may be summed up in the recommendation "that concerted efforts should be made by employers, teachers, local education authorities, and the state to increase the flow of capable students to the universities and higher technical institutions with a view to securing the larger supply of trained scientific workers required for industrial and other purposes." It recommends that natural science should be included in the general course of education of all up to the age of about 16; that the tests of such a course recommended in the report should, with necessary modifications, be accepted as the normal qualification for entrance to the universities and professions; that a large increase in the number of scholarships at all stages of education is necessary, and that periodical inspection under the direction of the state should be compulsory on all schools. Finally, it states emphatically that real progress in education depends on a revolution in the public attitude towards the salaries of teachers and the importance of their training. Recognizing that no profession is more affected by the way natural science is taught in schools than medicine, since it is directly based on a knowledge of chemistry, physics, and biology, the committee devotes a special section to medical education and makes certain recommendations. It points out that there are two standards for admission to a medical school—the senior, which is equivalent at least to a university matriculation examination, and the junior, which is considerably lower and is taken by about 40 per cent. The committee considers that the senior examinations would be a satisfactory test for entrance into the medical profession if one or more natural science subjects were offered by the candidate and if the teaching of natural science were materially improved in secondary schools. It is of opinion that some substitute for the junior certificates must be found which will make it certain that the pupil has passed through an educational course in the natural sciences. At present the "junior certificates are taken by boys who either left school at about 16 for no very definite cause, or were too lazy or too

¹ Cd. 9311, price 9d.

ignorant to pass the higher examinations, or who perhaps on account of poverty do not aim at a university course in medicine." These certificates are granted on the result of an examination in four subjects—English, mathematics, Latin, and an additional language, classical or modern. No evidence of instruction in natural science is required, nor any certificate of attendance at any educational course, whether at a secondary school or elsewhere. It is obvious, the report continues, that such a method suffers from two grave defects: first, there is no guarantee that the candidate has received any instruction in natural science, the bedrock of his future vocation; secondly, there is no evidence to show that he has gone through a coherent educational course in any of the subjects demanded. He may merely have been crammed by some institution which exists for this purpose. As the door has been opened by the universities of London, Liverpool, Leeds, Sheffield, and Birmingham, the committee considers it too late to attempt to retain Latin as an obligatory subject in the examination for entrance to the medical profession, and advises that the first school examination should, subject to certain modifications, be recognized by the General Medical Council as qualifying for entrance into the medical profession. This examination would be held at the completion of the general course of study at a secondary school to test the results of instruction in English subjects, languages, mathematics, and science, in the manner suggested by the Board of Education, but the committee recommends that every boy should be required to satisfy the examiners both in science and mathematics. The committee considers that something more than a simple pass should be demanded at this examination from a medical student, and that a candidate who has obtained a simple pass should only be allowed to enter on the study of medicine by passing the second school examination, which the Board of Education has suggested would be suitable for pupils of about 18. The committee further recommends that medical students should be allowed to take the first professional examination in chemistry and physics and in biology before entering a university or medical school, and that more scholarships should be provided for candidates of both sexes, tenable throughout the medical course.

NATIONAL KITCHENS.

THE Food Controller, acting under the powers conferred upon him by the Defence of the Realm Regulations, has issued an Order—to be known as the National Kitchens Order, 1918—permitting local authorities to establish and maintain in their areas national kitchens and distributing dépôts, to sell food and drink for consumption on or off the premises, and to do such other things as are necessary for fulfilling this purpose, subject to conditions laid down by the Food Controller. The powers granted to it may be delegated by a local authority to its Food Committee, or other committee, and approved combinations of neighbouring local authorities will be encouraged by the Food Controller. Such kitchens and dépôts, and the food and drink supplied by them, must at all times be open to inspection by authorized persons. The Local Government Board, by arrangement with the Food Controller, has issued regulations conferring upon local authorities and their officers the powers and duties necessary to conform with the National Kitchens Order, with the proviso that no such authority shall delegate any power to levy a rate or borrow money, the expenses incurred in the execution of this Order being defrayed as if they had been incurred in the execution of the Public Health Acts. The Ministry of Food has also issued a memorandum on national kitchens for the information and guidance of local authorities and committees. This explains that the present position of the food supply has made an organized effort of the kind both necessary and desirable. The advantages of national kitchens are summarized thus: (a) Economy of food and fuel; (b) the

supply of nutritious and well-cooked food at reasonable prices—that is, on a self-supporting, but not profit-making basis; (c) the substitution of skilfully prepared and properly cooked wholesome meals for makeshift meals; (d) economy of labour by the collective preparation of food. Experience of the kitchens already in use has satisfied the Food Controller that the benefits to be derived from the operation of suitable schemes only need to be known to be appreciated. He therefore wishes local authorities to regard the provision of national kitchens as a matter of national urgency and a form of insurance against food shortage. Every scheme must be approved by him before they are put into operation. Existing kitchens will require approval, and should be included in proposed schemes. The Treasury has sanctioned the payment to a local authority, in respect of an approved scheme, of an out-and-out grant of one quarter the cost of equipment; the advance of a second quarter of such cost on condition that the amount will be repaid out of the financial results of the kitchen rateable with the amount provided by the local authority; and a similar Treasury grant and advance in respect of approved schemes for village canteens. The balance of the cost will be borne by the local authority. Schemes should take into account the facilities available (including the equipment in premises now closed) for the supply of cooked food through the medium of restaurants, eating-houses, and other catering agencies, and co-operation with the proprietors of such establishments is recommended. The memorandum contains various practical suggestions with regard to the selection of premises, and an outline of procedure for organizing kitchens and dépôts. The point is insisted upon that a national kitchen is a business proposition, and must not be conducted as a charity. The Food Controller is willing to aid in the preparation of schemes, especially as regards the character of kitchens and their equipment, estimates of cost, menus, and other information relative to scientific and economic cookery, accountancy, methods of transport of cooked food, and the supply of supervisors and working staff. All communications on this subject should be addressed to the Director of National Kitchens, 4, St. Paul's Churchyard, London, E.C.4. The cordial support of the medical profession can be assured beforehand, since the communal kitchen has dietetic and economic advantages which are self-evident. We foresee great developments of the idea, not only during the present food crisis, but also in the lean years which must be expected after the war. It may perhaps form an essential feature in social reorganization.

THE EFFECT OF GLARE ON THE EYE.

IN a paper on the physiology of the retina, read before the Illuminating Engineering Society on April 16th, Professor W. M. Bayliss, F.R.S., discussed in the first place the structure of the retina and the photochemical reaction of the visual purple, and in particular the time course of the reaction as illustrated in records of electrical changes accompanying light action in the eyes of certain animals. He went on to express the opinion that excessive contrasts produced injurious effects upon the retina. It was difficult to say exactly what occurred in the retina when the unpleasant sensation resulting from excessive contrasts was experienced, but after very intense and prolonged exposure detectable damage to the cell structures could be made out. The presumption was that any glaring conditions which caused discomfort were prejudicial, and, although in mild cases the discomfort was only temporary, and the recuperative power of the eye might prevent appreciable injury, yet habitual subjection to moderate glare would probably hasten failing sight in later years. The difficulty of imposing definite limits to what could be accounted glare arose from the varying power of different eyes in respect of resistance and recuperation, and from the fact that the eye

at any moment was affected differently by a light of given brightness according to its state of adaptation. It had been suggested in America that the ratio of brightness of objects in the field of view should not exceed 100:1, and while it would be premature to say that a physiological basis for this suggestion was established, it seemed a reasonable figure to take. No unshaded bright sources, such as filaments or incandescent mantles, should be allowed to fall within the direct range of vision; if such bright sources were permissible anywhere, it was immediately overhead, in which case the eye was shielded by the brow and upper eyelid. The same difficulty, owing to the complexity of factors on the physiological side, was to be found in attempting to contrive a general test for eye fatigue such as could be applied to demonstrate the effect of different systems of illumination. This involved the question of bodily health and fatigue as well as eye-strain in particular. The difficulty of establishing this general fatigue test was also indicated by Mr. Treacher Collins in the subsequent discussion. He said that the limits of fatigue varied widely among different people, according to the prominence of the eyeball in the orbit (the deep-set eye, other things being equal, was less liable to fatigue); the size of the pupil, the length and colour of the eyelashes, and the pigment in the skin of the eyelids were further factors to be taken into account, and he had himself found that to smear a little charcoal over the eyelids when travelling in glaring sunlight was some protection. The question could not be considered without bringing in also the great differences between individuals in respect of nervous sensibility and imagination.

MILITARY DOCUMENTS, MAN POWER, AND PROMOTION.

We felt it our duty a short time ago to call attention to the multiplicity of the forms to be filled up and the documents to be prepared by army medical officers, and the amount of clerical work of a routine kind they were called upon to undertake. We were disposed to attribute this to the persistence of old regulations, which were only applicable to the small army this country maintained in peace. We were assured that this was not the explanation, and that as a matter of fact the old regulations did not require so much clerical work from medical officers as many were doing in this country. It appeared, therefore, that the obligations had been placed upon them under a misapprehension, and we cannot doubt that they have ceased to labour under this disadvantage. That great complexity of clerical work can arise even in a new department is shown by the letter from Lord Rothermere, Secretary of State for the Royal Air Force, published in the newspapers on Monday. Speaking of that department, he said that there was much duplication, and that a great many excellent officers were engaged in filling up unnecessary forms and carrying out circumlocutory methods of conducting business. It is quite clear, therefore, that the multiplication of documents and forms to be written, filled up, or signed, is one of the dangers which has to be guarded against in the working of any public department. The abuse is very serious in France, and one of the Paris newspapers published a year or two ago a whole sheet, the size of a page of the *Times*, reproducing in facsimile all the notes, stamps, and signatures accumulated about a simple question. The first document, sent to the officer commanding a particular regiment, set out that the French War Office had decided that men who met certain conditions should be removed from their units and sent elsewhere, and the question was, how many men in his regiment fulfilled the conditions. The document started on its voyage through "the usual channels," and in the various offices and commands was duly annotated, signed, and stamped. Eventually it reached the officer commanding the regiment, who replied that there were no men in his regiment who fulfilled the

conditions. Whereupon the document started on its return journey, and before it got back to the original inquirer had attained the dimensions we have mentioned. There is one other point in Lord Rothermere's letter which seems worthy of reproduction here. It deals with promotion. "I intend," he wrote, "that the door shall be thrown wide open for promotion of any and every officer whose merit, first from the disciplinary and then from the flying or technical point of view, entitles him to advancement. The Regular officer must always receive priority of consideration. He is the backbone of the three fighting Services, but after all his claims have been met there should be wide scope for the promotion of temporary and Special Reserve officers, for in the Air Force these officers comprise more than 90 per cent. of the entire staff. So far not one of them has risen to the rank of Brigadier-General on any of the battle fronts or in the training divisions at home."

A NEW SPIROCHAETE IN RAT-BITE FEVER.

RAT-BITE FEVER is fairly common in Bombay, but as the cases usually come under observation weeks or months after the initial phases have passed and when complications have supervened, Row¹ has not in ten years' search been able to demonstrate the virus of the disease until now. A schoolboy, aged 15, developed fever after an incubation period of ten days from a scratch by a rat, and nine days later a papular, slightly nodular eruption gradually spread over the face, neck, trunk, and limbs; it suggested a papular syphilide or even nodular leprosy. Blood from the median basilic vein showed a slight leucocytosis, but was sterile, free from spirochaetes, and gave a negative Wassermann reaction. Films from blood and serum squeezed out of the papules contained spirochaetes, 2 to 3 μ in length, with only two or sometimes three curls, and so quite different from the much longer spirochaete described in 1916 as the cause of rat-bite fever by Futaki, Takaki, Taniguchi, and Osumi in Japan, which was midway in length between *Spirochaeta pallida* and *S. duttoni*. Row's spirochaete was pathogenic to mice and rats. The patient was completely cured by the injection of neo-salvarsan, the eruption rapidly disappearing on the third day after the injection. This case confirms the Japanese view that rat-bite fever is a spirochaetosis, but it raises the interesting question as to the possibility that different spirochaetes may cause the disease. Observers in America—Blake, Tileston, and Tunncliffe—described a streptothrix in rat-bite fever which is said to be identical with Schottmüller's, but Row suggests that this was a secondary or possibly mixed infection.

ORTHOPAEDIC COMMITTEE: MINISTRY OF PENSIONS.

The Minister of Pensions has appointed a consultative Orthopaedic Committee, to consult with and advise the Ministry on all matters relating to orthopaedics. The chairman is Sir Arthur Boscawen, Parliamentary Secretary to the Ministry of Pensions, and the members are Colonel Sir Robert Jones, C.B., Major Bristow, R.A.M.C., Major Elmslie, R.A.M.C., Sir John Collie, Director of Medical Service to the Ministry of Pensions, and Dr. Fletcher Porter, Deputy Director of Medical Service to the Ministry of Pensions. We are glad to know that this step has been taken, and can only regret that it was not taken earlier. We must regret also that the Minister has not given any intimation of his intention to establish an orthopaedic branch of the medical department which would command the permanent services of one or more experienced orthopaedic surgeons. The committee contains three officers eminent in this speciality, but we are not informed how often they are to meet. We fear that an occasional sitting, even of so strong a committee, will not meet the necessities of the situation, which we regard as very grave.

¹ R. ROW, *Indian Journ. Med. Research*, Calcutta, 1917, v, 386-393.

THE Council of the Royal Society has appointed a committee to investigate and report on the possibility of obtaining and replacing food materials and other necessities by the utilization of natural products not hitherto generally employed for such purposes. Suggestions as to such products and the means of organizing their collection should be addressed to the Secretary of the Natural Products Committee, Royal Society, Burlington House, Piccadilly, London, W.1.

Medical Notes in Parliament.

Military Service Bill.

The Extended Age for Medical Men.

THE provision in the Military Service Bill whereby the age for military service for duly qualified medical practitioners is to be raised to 56, as against 51 for ordinary service, came before the House of Commons in Committee on April 12th.

A debate arose on an amendment moved by Mr. Leif Jones for the purpose of obtaining information, and during its course Sir Watson Cheyne stated the position of the medical profession. He was quite sure that its members were not opposed to the proposal, and to him it seemed that an honour had been done to them. They particularly trusted the Minister of National Service because he belonged to the same profession. Nevertheless it was an extremely serious thing, both for the doctors themselves of this age and for the community at large, for them to be called up, and it would require a very great deal of care and tact to do it without injury. Referring to the sacrifices that the profession had made, Sir Watson Cheyne said he knew many young men who volunteered early in the war and were absolutely ruined as a result, financially and in health also. It was a great problem for these men how to reinstate themselves, and yet as long as they were young they did not lose hope, as they had time to begin again. That applied to young men of 20 to 30, but when a man was between 50 and 55 he could not recover his position. It was hoped that in selecting these men the Minister would have special regard to this point. The reason for calling on men of this age was, he presumed, that they were wanted to take the place of others who were fit to go abroad. He did not suppose for a moment there was any idea of putting men of 55 into the trenches. A man at that age had not the physical ability to go into the trenches, but he might have the brains and experience to help the country at home. Hence he suggested that to a certain extent they should be part-time men. Let them be put in charge near their own homes—for instance, in London, to work in a hospital—and let them give the greater part of their time there and yet be able to go home to keep things together. That was the sort of solution. It would be very hard if a man were taken from active practice and had nothing whatever to do abroad. That had happened over and over again. Men who were working night and day in London had been sent abroad and had half an hour's work in the whole day. That broke a man's heart. He wanted only to draw the attention of Sir Auckland Geddes to the point, that he as far as possible should try and conserve doctors' practices at the same time getting as much work out of them as possible.

Sir Auckland Geddes said that the Military Service Act of 1916 gave power to provide for the establishment of professional committees to deal with claims for exemption made by duly qualified medical practitioners. In other words, the dealing out, if he might use the expression, of the doctors for the armed forces of the Crown was, in fact, controlled by professional committees. They had now reached the stage at which the professional committees said: "There are only two possibilities in front of us: Either we are to take away the only doctor remaining in the locality and leave no one, or we have to arrange when we take that man to move some one else into his locality." There were districts in this country where, as the result of the withdrawal of medical men, the supply available was very short and where the young fit man was really necessary, just as necessary as he was in the trenches, and working practically as hard day and night. It was no good talking about putting an old man who did not know the district and did not know the people into that position. In the medical profession youth and fitness were now required for certain districts at home just as much as at the front. But there were great base hospitals where the work was not normally very hard, and it

therefore appeared wise to see if use could not be made of some of the older men of the medical profession who were at present in this country. The number of medical men available had been ascertained in every district and the number of the population they might have to look after, and it was found that there were in some of the more comfortably off residential cities—not the great manufacturing cities but cities for the retired class—doctors of ages from 50 to 54 who were really in excess of local requirements. These had, comparatively speaking, a small number of possible patients at any time. The professional committees agreed that many of these men could go without dislocating either the public health service or the ordinary service of attendance on the sick, and were sufficiently physically fit for work in the base hospitals. The question for Parliament, therefore, was whether the medical demands for the forces of the Crown were to be met in the way that made least disturbance at home and without harm to the civil population, or was the age for doctors to be left at the same level as for other sections of the population, a kind of double-shuffle going on. There were always men coming back from overseas to their practices to release a partner or something of that sort. If medical men had to be moved from town A to town B so that the practitioners in town A might replace practitioners in town B who had gone into the service, an enormous number of problems would be raised as to the adjustment of practices and compensation for removal from positions. Were it true that the doctors were now equally spread over the country so that there was an equal possibility of medical attendance for persons in civil life there would be no need to raise the age. But that was not the case. Doctors were unfortunately thin in the great munition areas, and no more could be taken out of those areas. Appeals had been made to individual doctors to move into districts which required greater service, and with great public spirit a certain number had responded. But the medical profession was composed of human beings, and there were human beings who would do these things, and there were human beings who said, "No, I would rather not." The object of the clause, however, was to enable the situation to be dealt with in the interests of the civil population. The administration of the power proposed with regard to the medical profession was in no sense under the War Office until the medical man actually donned the uniform of the R.A.M.C. The provision would be worked by the Ministry of National Service, with the National Insurance Commissioners, the Local Government Board, and the professional committees as the executive machinery for calling up and distributing the men; he believed he was correct in saying that all these bodies agreed that the power which was being asked for should be granted.

In the course of the discussion Mr. Pringle said that before giving this power to the Government they ought to insist that the War Office should exercise rigid economy in the use it made of doctors in the army, and also that they should be used in the best way. Merely clerical work should not be thrown upon them. He was told that when the committee of investigation into the medical service in France was there the authorities reduced the number of doctors in the casualty clearing stations, and there was a most rigid economy wherever the committee went. Sir Watson Cheyne interpolated that nothing of that kind deceived the committee. Brigadier-General McCalmont supported Mr. Pringle's appeal for assurance that the medical officer was put to the work for which he was most suited. In regard to Ireland he thought they would be able to economize a great deal in medical officers if there was a certain amount of give-and-take between the civilian element and the military authorities. If the military authorities were going to say, "We must have a military medical officer in such and such a town," and if the Ministry of National Service had no power to say, "No; it is quite enough for you to use the local civilian doctor," much service would be lost. He mentioned Ireland because there were many small garrisons which required medical attention, and probably the problem was more acute there than elsewhere. Sir Thomas Esmonde agreed with Sir Watson Cheyne as to the course to be adopted. Every one who knew anything of the work of the R.A.M.C. was aware of the enormous amount of time wasted in filling up forms. He asked Sir Auckland Geddes to consult the medical authorities as to whether it was not possible to take medical students of three years' standing for first-aid work at the front and thus relieve doctors for more important work. Major David Davies, referring to the work of the committee of inquiry in France, said he had asked that this committee should include a lay element, and that the

inquiry should be extended. He thought the House should have had the report of the committee before it. At the time this committee was appointed it was understood—although he knew that that had been denied—that under the terms of reference it would investigate arrangements in this country as well as in France. The medical service in the East ought also to have been included. Sir Henry Craik, as the representative of some 5,000 doctors, supported the view that some further form of compulsion was desirable. He had received communications from some of his constituents complaining that certain men in advantageous positions were stealing away the practices of others. It was a very serious question, and he thought it was on that ground very largely that the profession as a whole were in favour of some sort of regulation and organization such as was proposed in the bill. While the profession welcomed the proposal, it felt that it placed a great responsibility upon the authorities. He therefore joined in the appeal that there should be greater exercise of economy of resources on the part of the medical department of the War Office.

Sir Auckland Geddes, in a further reply, said that there had been consultation with the medical profession and with the authorities representing the central governing bodies, and there had been a very strong expression of opinion from certain members of the profession that the age should be raised to 60. In answer to Mr. Timothy Healy, Sir Auckland said that safeguards for the medical profession in Ireland would be worked along lines similar to those which were followed in England, where there were committees of representatives of the Royal Colleges, of the British Medical Association, etc., actually working as professional tribunals. He added that the whole object of the present organization was as far as possible to give part-time work to the medical profession.

The Committee divided on the clause, which was carried by 249 votes to 95.

During the further proceedings in Committee Sir George Cave agreed to modify the proposal under which there should be power by proclamation on national emergency to cancel certificates of exemption *en bloc*. It was explained that the National Service Ministry already had power to cancel exemptions granted on grounds of occupation. The Home Secretary agreed to omit from the scope of possible proclamation men who were given exemptions on the ground of ill health, and also to omit conscientious objectors. The number of cases, he said, in which the tribunals had acted on their own judgement against the views of the medical boards were few; many of the conscientious objectors were of weak physique and deficient in other ways. They were a class of little military value. Thus the power to be given for cancelling exemptions by proclamation would be limited to the cases of serious hardship on business or domestic ground. What was in mind was only a period of crisis in which all personal considerations ought to give way. He accepted an amendment that Orders in Council should be laid on the table for fourteen days, within which period it would be open for an address to be presented for annulling the Order.

Mr. Hayes Fisher explained that it was intended that the Local Government Board should nominate the local tribunals and also frame regulations regarding them. The appeal tribunals would be retained in much the same form as now, but their personnel might be altered. Sir George Cave subsequently undertook that there should be equal rights of appeal both for the men and the National Service Department. The proposed inclusion of ministers of religion was omitted; those who desired to serve could still do so if they had permission from their superiors.

During the discussions Sir Auckland Geddes replied to a number of questions as to his statement last week to the effect that it was estimated that the number of men it was expected to call up and post for service in the army or air force during this year was 7 per cent.; the remaining 93 per cent. would remain in civil life under conditions precisely similar to those under which men from 35 to 43 were in civil life now; there was no intention of compelling those men who remained in civil life industrially. It was not competent for a tribunal to grant certificates of exemption conditionally upon a man remaining employed by any specified firm or individual; the exemption must always be upon the ground that the man was engaged in a certain occupation. He added: "I want to say generally that there is not the slightest intention to make use of these powers in this Act to compel men to do things in civil life." There was no intent on to devise a scheme of industrial compulsion with regard to the 93 per cent., nor to depart from the general lines of procedure followed throughout the last two years. It was intended to take every young man who could be taken before drawing upon older men; but while these older men were of comparatively small value for front line trench work, they were of enormous use in connexion with the ground work of the Royal Flying Corps, in the Royal Army Medical Corps, the Ordnance Corps, and the Garrison Artillery.

On the third reading, Mr. Barnes, the Labour Minister, and Mr. Lloyd George definitely announced that the Government would introduce a Home Rule Bill which would include Ulster within the authority of an Irish Parliament, and pledged itself to pass this measure subject to the approval of the House. If the measure were rejected by the Lords the Government would

resign. It was hoped that the Home Rule Bill would be on the statute book before the conscription provisions operated in Ireland, but the Government was bound to proceed with this provision for Ireland, as well as the rest of the country, without waiting for the Irish Parliament to be set up, for that operation would take time, and men were wanted.

The Sexual Offences Bill.

Lord Beauchamp has introduced into the House of Lords a bill intitled "An Act to make further provision with respect to the punishment of sexual offences and for the treatment of venereal diseases and the prevention of indecent advertisements; and matters connected therewith."

Clause 1 makes it an offence, punishable by imprisonment up to two years with or without hard labour, for any person suffering from venereal disease in a communicable form to have, to solicit, or to invite intercourse with, or wilfully to communicate such disease to another person, provided that no one shall be convicted who proves reasonable grounds for believing that he or she was free from communicable venereal disease at the time of the alleged offence. To ascertain whether a person, convicted of any offence, which under this clause would be caused or aggravated by the existence of communicable venereal disease, is in fact so suffering, the court may order the offender to submit to medical examination and tests, these being conducted in the case of a female, if she so desires, by a medical woman. False accusations are made punishable by heavy fine or imprisonment or both. Clause 2 forbids common prostitutes and night-walkers to loiter in thoroughfares or public places for the purpose of prostitution or solicitation, on pain of a month's imprisonment. Clause 3 stiffens the penalties against brothel keepers and the like. Clause 4 imposes a fine not exceeding £20 upon the occupier of premises used for public entertainment convicted of allowing these to be the habitual resort, for whatever purpose, of reputed prostitutes. Clause 5 prohibits in the most comprehensive terms the treatment of venereal disease otherwise than by duly qualified medical practitioners, and forbids the advertisement of any such treatment whatever, except by local or public authorities with the sanction of the Local Government Board, or in publications sent only to medical practitioners, or to wholesale and retail chemists for the purpose of their business. The penalty for contravention of this clause ranges from a fine not exceeding £100 to two years' hard labour, and the Venereal Diseases Act, 1917, is explicitly repealed. Clause 6 forbids the display or transmission of "any picture or printed or written matter which is of an indecent or obscene nature," including any advertisement which relates to venereal disease, nervous debility, or other complaint or infirmity arising from or relating to sexual intercourse, or which suggests, directly or indirectly, either the taking of anything for the purpose of procuring miscarriage or abortion, or the use of any premises for immoral purposes. Clause 7 seeks to punish acts of indecency with persons under the age of 17, consent being no defence, and Clause 8 would amend the Criminal Law Amendment Act, 1885, in the same way. Clause 9 gives power to exclude the public from courts, and to prohibit reports of proceedings where this seems desirable in the interests of decency, morality, humanity, or justice. Venereal disease is defined as meaning syphilis, gonorrhoea, or soft chancre; and the short title is "Sexual Offences Act, 1918."

Appeals on Medical Grounds.—Replying to a question in the House of Commons on April 18th Mr. Hayes Fisher (President of the Local Government Board) said that, so far as he was responsible for issuing the regulations, he did not contemplate taking away any rights of appeal on medical grounds to the appeal tribunals. Attested men, alike with unattested men, were examined as to their medical fitness for military service by National Service Medical Boards. Attested men had the same rights as unattested men under the rules (which had been issued by the Local Government Board) of applying to the appeal tribunals for leave to be examined by the medical assessors if they were dissatisfied with the grading by the National Service Medical Boards.

Extra Meat Allowance for Invalids.—In reply to Sir Clement Kinloch-Cooke, Mr. Clynes said there was no evidence that any undue suffering or hardship was caused to invalids under the present food regulations. If advantage was taken of the possibilities that were open in the use of fish, eggs, milk, meat extracts, and other unrationed food, no invalid need suffer in any way from the scarcity of butcher's meat. The Food Controller was acting throughout in consultation with scientific and medical authorities and was now considering whether some modifications should be made in the regulations. In reply to Sir Henry Craik, he said that the department was in consultation with those concerned to see whether some extra rations should be allowed on medical advice to patients suffering from loss of blood after surgical operations.

A CORRECTION.—In the debate last week on the Military Service Bill Sir Donald Maclean said that the Minister of National Service would agree that it had been the experience of the last two years that the sickness casualties of men between the ages of 35 and 41 had been two and a half times greater than those of men who were between the ages of 27 and 35. By a slip of the pen our note last week repeated the first-named figures.

THE WAR.

THE EAST AFRICAN CAMPAIGN.

A DISPATCH from Lieut.-General Sir J. L. van Deventer, Commanding-in-Chief British Forces in East Africa, dated January 21st, 1918, and covering the period from May 30th to December 1st, 1917, has been issued by the War Office. The health of the troops after the wettest season known in German East Africa for very many years was far from good. None but the indigenous African could stand the climate of the coastal belt in the rains, and the conditions on the banks of the Rufiji were little better. Europeans, Indians, and Africans recruited from any but low-lying areas accordingly suffered terribly from malaria, and the "paper strengths" of the force bore no proportion whatever to the numbers of men available in the field.

After describing the progress of the campaign towards its successful conclusion in the conquest of the last German colony, the Commander-in-Chief pays a warm tribute to the medical services. These, he says, had many, and at times almost insuperable, difficulties to contend with. Probably in no previous campaign in the tropics had such numbers been employed, and the peculiar conditions rendered the evacuation of the large number of sick and wounded a most difficult problem. Ambulance transport over the roughest roads involved much discomfort to the patients, but evacuation was well and expeditiously carried out from the front to the railway and sea bases, and every effort was made to minimize suffering. The mobility of the force was never impaired by the retention of the sick at the front. Apart from the large number of wounded, the sick-rate from malaria and dysentery was excessive, needing large hospital provision.

The sanitary services also had a most difficult task in controlling the spread of severe infectious diseases—for example, cerebro-spinal meningitis and small-pox, which are prevalent in many parts of the country. The great number of carriers employed necessitated the formation of an elaborate medical organization, including large hospital establishments, to deal with them. It is recorded that these arrangements were most carefully considered and well carried out. Equally with the fighting troops the personnel of the medical services suffered from the extremely trying climate.

The Commander-in-Chief adds that he cannot speak too highly of the enthusiasm and good work done by officers and men of the various medical services under the command of Surgeon-General G. D. Hunter, C.B., who made every effort for the treatment, care, and comfort of the sick and wounded, at times under the most exceptional and trying conditions. The highest praise also is given to the ladies of the nursing services for their devotion to duty.

THE ITALIAN FRONT.

GENERAL SIR HERBERT PLUMER, lately commanding the British Forces in Italy, in a dispatch dated March 9th, summarizes the services rendered by the various branches of the force since he assumed command on November 10th, 1917. He states that the medical and sanitary services were well organized. The various hospitals and convalescent camps had been well arranged, and were in thoroughly good working order; while the policy of establishing general and stationary hospitals on the Riviera worked well, the effect of the hospitals being in such a good climate naturally tending to early recovery. The health of the troops was excellent and casualties were slight. Although the men felt the cold considerably during the winter, the Commander-in-Chief is convinced that they benefited much from the change after the severe fighting they had had in France.

INDIAN FRONTIER OPERATIONS.

In a dispatch on the operations against the Mahsuds, March to August, 1917, Lieut.-General Sir A. A. Barrett states that the medical services under Colonel P. Hehir, by the timely use of precautionary measures, were able to prevent the outbreak of epidemics, while the arrangements for reception and evacuation were fully adequate to deal with casualties. The provision and equipment of base hospitals and convalescent dépôts at Rawalpindi and in the Murree Hills were quickly carried out, and amply sufficed to meet all requirements.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Drowned.

SURGEON A. F. MACINTOSH, R.N.

Surgeon Alexander Fraser Macintosh, R.N., was reported as accidentally drowned, in the casualty list published on April 11th. He was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1915, and soon after took a temporary commission as surgeon in the navy.

ARMY.

Killed in Action.

MAJOR J. S. WALLACE, M.C., R.A.M.C.

Major Joseph Stephen Wallace, M.C., R.A.M.C., reported killed in the casualty list published on April 10th, received his medical education at University College Hospital, and took the diplomas of M.R.C.S., L.R.C.P.Lond. in 1915. After serving as house-surgeon to the Great Northern Central Hospital he received a temporary commission in the R.A.M.C. In the early part of 1917 he was awarded the Military Cross for conspicuous gallantry and devotion to duty when in charge of bearer parties.

CAPTAIN S. CROSS, R.A.M.C.

Captain Solomon Cross was killed in action on March 22nd. He had been previously reported missing, but a brother officer stated in a letter that after Captain Cross had attended to wounded throughout the whole of March 22nd in an exposed trench and under intense shell fire, our troops were obliged to withdraw. It was during the withdrawal and while bending over a wounded soldier that he was killed. Previous to this engagement he had been attached to a casualty clearing station. He was the youngest son of Mr. W. Cross of Darlington, and was educated at the Royal Keppier Grammar School, Houghton-le-Spring, where he gained the Heath Scholarship. Captain Cross graduated M.B., B.S.Durh., with honours, in 1899. For a few years he was in practice in Houghton-le-Spring, and latterly in Newcastle, where he specialized in diseases of the nose and throat, having previously held house-surgeonsies in the special departments of Brighton and of the Sussex County Hospitals. He was on the staff of Newcastle-upon-Tyne Hospital for diseases of the throat, nose and ears, also on the Women's Hospital. When in Boulogne in March, 1917, having joined up in 1915, he volunteered to go to the trenches, and for a period was M.O. to a battalion of the Northumberland Fusiliers. He will be much missed by friends and patients.

CAPTAIN D. W. HUNTER, D.S.O., R.A.M.C.

Captain Douglas William Hunter, D.S.O., R.A.M.C., was killed in action on March 25th. He was the eldest son of Mr. Douglas Hunter, of Jordanhill, Glasgow, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1901, subsequently taking the D.P.H.Camb. in 1907. He was in practice at Bradford before the war. He took a temporary commission as lieutenant in the R.A.M.C., was promoted to captain on completion of a year's service, received the D.S.O. on September 26th, 1916, for an act of great bravery and determination, and was attached to the West Yorkshire Regiment when killed. Much of his valuable work in the trenches was done in encouraging and keeping together his men.

Died of Wounds.

CAPTAIN C. E. A. WILSON, R.A.M.C.

Captain Charles Edgar Andrew Wilson, R.A.M.C., died of wounds on April 8th, aged 41. He was the eldest son of the late Rev. A. Wilson, Rector of Bedford Park, Chiswick, and was educated at Charterhouse, at St. Thomas's Hospital, and at Christchurch, Oxford, where he graduated B.A. with first-class honours in physiology in 1899, and M.B. and B.Ch. in 1902. After filling the posts of house-surgeon to the Hospital for Sick Children, Great Ormond Street, of house-surgeon to the General Hospital, Birmingham, and of honorary surgeon to the Blackheath and Charlton Cottage Hospital, he went into practice at Petworth, Sussex, where he was honorary surgeon to the Petworth Cottage Hospital. He took a temporary commission as lieutenant in the R.A.M.C. in 1916, and had

been at the front almost ever since—at first with the Northumberland Fusiliers, and then with the Rifle Brigade, being promoted to captain after a year's service.

Died on Service.

CAPTAIN W. TURNER, R.A.M.C.

Captain William Turner, R.A.M.C., died recently of pneumonia on active service. He was educated at St. Mungo's College, Glasgow, and took the Scottish triple qualification in 1900, after which he went into practice at Saltcoats, Ardrossan, where he was medical officer of Old Ardrossan parish. He took a temporary commission as lieutenant in the R.A.M.C. about two years ago, was promoted to captain after a year's service, and had served on both Eastern and Western fronts.

Wounded and Missing.

Captain T. A. Townsend, R.A.M.C. (temporary).

Wounded.

Major G. E. Ferguson, R.A.M.C.
Major B. F. Bartlett, R.A.M.C. (temporary).
Captain C. D. S. Agassiz, M.C., R.A.M.C. (T.F.).
Captain R. C. B. Briscoe, R.A.M.C. (temporary).
Captain L. A. Celestin, R.A.M.C. (temporary).
Captain T. A. Davie, M.C., R.A.M.C. (S.R.).
Captain S. W. Fisk, R.A.M.C. (temporary).
Captain P. Forbes, R.A.M.C. (temporary).
Captain A. W. Forrest, R.A.M.C. (temporary).
Captain A. W. Gill, R.A.M.C. (temporary).
Captain C. M. Gozney, M.C., R.A.M.C. (T.F.).
Captain N. B. Graham, M.C., R.A.M.C. (S.R.).
Captain J. W. Hagey, Canadian A.M.C.
Captain A. C. Hancock, M.C., R.A.M.C. (temporary).
Captain W. A. Hislop, R.A.M.C. (temporary).
Captain G. W. B. James, R.A.M.C. (temporary).
Captain C. H. S. Redmond, R.A.M.C. (T.F.).
Captain W. J. Seale, M.C., R.A.M.C. (temporary).
Captain F. N. Stewart, M.C., R.A.M.C. (temporary).
Lieutenant D. T. Harris, R.A.M.C. (temporary).
Lieutenant E. A. Sanders, R.A.M.C. (temporary).
Lieutenant A. H. Southam, R.A.M.C.

Missing.

Major J. Kennedy, R.A.M.C. (S.R.).
Captain F. Dallimore, M.C., R.A.M.C. (temporary).
Captain F. T. H. Davies, R.A.M.C. (temporary).
Captain J. A. Gilfillan, R.A.M.C. (temporary).
Captain P. H. Green, R.A.M.C. (temporary).
Captain A. C. Hepburn, R.A.M.C. (temporary).
Captain W. J. Hirst, R.A.M.C. (T.F.).
Captain H. S. Moore, R.A.M.C. (temporary).
Captain J. C. Muir, R.A.M.C. (temporary).
Captain C. E. Redman, R.A.M.C. (temporary).
Captain S. Smith, M.C., R.A.M.C. (temporary).
Captain R. M. Soames, R.A.M.C. (temporary).
Captain E. A. Walker, M.C., R.A.M.C. (temporary).
Lieutenant F. N. P. Martland, R.A.M.C. (temporary).

Prisoner of War.

Captain E. H. Griffin, R.A.M.C. (temporary), whose name was given as killed in action in the obituary columns of the *Times* of April 9th, and of whom an obituary notice appeared in last week's *BRITISH MEDICAL JOURNAL*, is now believed to be wounded and a prisoner.

DEATHS OF SONS OF MEDICAL MEN.

Beverley, Michael, Australian Infantry, eldest son of Dr. Michael Beverley of Scole, Norfolk (formerly of Norwich), killed March 26th. He had gained the Military Medal.

Church, John William, Lieutenant Hertfordshire Regiment, eldest son of Sir William Church, Bt., K.C.B., killed on March 30th. He was educated at Harrow and University College, Oxford, and graduated with honours. He was called to the Bar in 1903 and served three years under the Colonial Office as District Commissioner on the Gold Coast. He enlisted in the Public Schools Battalion, Middlesex Regiment, in August, 1914, and received his commission in the Herts Regiment on March 1st, 1915. He served as assistant adjutant and acting captain in 1916-17, and joined his regiment at the front in August, 1917. He is survived by his widow and three daughters.

Craigmile, Alexander Murray, M.C., Captain Rifle Brigade, eldest son of Dr. Craigmile of Wallacey, killed March 29th,

aged 23. He was educated at Sedbergh, where he was in the fifteen and the eleven, and at King's College, Cambridge; got his commission on November 28th, 1914; was wounded in May, 1915; returned to the front in November, 1915, and got the Military Cross in October, 1917.

Cummins, Fenton King, Captain Connaught Rangers, youngest son of Professor Ashley Cummins of Cork, killed March 21st, aged 20. He was educated at Cheltenham College, was gazetted from Sandhurst in August, 1915, had been mentioned in dispatches, and got his company in March, 1918. His brother, Lieutenant Harry Jackson Cummins, 5th Gurkhas, was killed in Gallipoli in August, 1915, and four other brothers are now serving.

Featherstone, William Davies, M.C., Lieutenant R.F.A., younger son of Dr. W. B. Featherstone of Erdington, Birmingham, killed March 23rd, aged 22.

Gemmell, Stuart Stirling, Second Lieutenant Cameron Highlanders, youngest son of Dr. John E. Gemmell of Liverpool, killed March 21st, aged 19. He was educated at Uppingham, got his commission through the Cambridge Cadet Corps in August, 1917, and went to the front in September.

Gordon, Cecil Philip George, Captain South Staffordshire Regiment, only son of Colonel P. C. H. Gordon, R.A.M.C., accidentally killed while flying in Gloucestershire, March 21st, aged 24. He got his first commission on October 10th, 1914.

Gough, John Noel, Lieutenant R.F.A., son of Dr. Gough, medical officer of health of Northwich, Cheshire, killed recently. He was educated at King's School, Canterbury, whence he got a leaving exhibition to Trinity College, Cambridge, but took a commission in February, 1917. His brother, Lieutenant George Gough, was killed a few months ago in Palestine.

Gray, Edward J., Second Lieutenant Rifle Brigade, youngest son of Dr. Alan Gray of Cambridge, killed March 31st. He was born in 1898, educated at Winchester, where he was senior commoner prefect, and gained an exhibition at Trinity College, Cambridge, in December, 1915, but did not go into residence. He got a commission in January, 1917, and went to the front last June.

Hamer, John, Second Lieutenant K.S.L.I., killed on March 22nd, elder son of Dr. W. H. Hamer, M.O.H. for the County of London. He was born in 1897, and educated at University College School, Hampstead, where he held an entrance scholarship, and on the results of the London Matriculation was awarded the Horton Smith scholarship. He was in the first fifteen at the school 1914-16, and captain of the school in 1916-17, and gained an open scholarship in science at Christ's College, Cambridge.

Holmes, T. G., Second Lieutenant R.F.A., younger son of Dr. Holmes of Cheltenham, killed March 27th, aged 19. He was educated at Cheltenham College and Woolwich, and went to the front only seven weeks ago.

Hoops, H. A. M., Second Lieutenant Royal Irish Fusiliers, attached Royal Irish Rifles, son of Dr. H. L. Hoops of Cardiff, reported to have been killed, aged 21. Prior to joining the Officers' Training Corps he was serving his articles with an accountant at Cardiff. His brother is serving with the Royal Welsh Fusiliers.

Kenny, Hilary, Lieutenant Royal Naval Division, only son of the late Mr. A. S. Kenny, F.R.C.S., killed March 25th. He enlisted in the R.N.D., served in Gallipoli, and got his commission in the autumn of 1917.

Mackay, Ian, Captain Cameron Highlanders, eldest son of Dr. William Mackay of Craigmonie, Inverness, killed March 28th. He became lieutenant in the 4th Territorial battalion of his regiment on March 31st, 1913.

Newington, Percy W., Lieutenant East Kent Regiment, the Buffs, son of Dr. Newington of Edenbridge, killed March 21st, aged 20. He was educated at Epsom, passed into Sandhurst in July, 1915, got his commission in April, 1916, and went to France in July of the same year. He served through the battle of the Somme in 1916, and was promoted to lieutenant last October.

Spurway, Douglas, Captain Yorkshire Regiment, son of Dr. John Spurway of Brondesbury, killed in action on March 22nd, in his twenty-third year. He was educated at Bridgnorth Grammar School and St. Bartholomew's Hospital, and entered with a scholarship in October, 1914. In the following July, having passed his first professional examination, he joined the University of London O.T.C., and in two weeks obtained a commission in the 4th Battalion Yorkshire Regiment. He took part in the battles on the Somme, at Arras, and at Passchendaele Ridge, and was mentioned in dispatches in connexion with the latter. He was a great favourite at his school and with his fellow officers.

Watson, O. C. Spencer, Lieut.-Colonel King's Own Yorkshire Light Infantry, youngest son of the late Mr. W. Spencer Watson, killed March 28th. He was educated at St. Paul's School, and got his commission in the K.O.Y.L.I. in 1897. He served in the Tirah campaign of 1897-98, when he was dangerously wounded (medal and two clasps), and in China in 1900 (medal). He was invalided in 1904. He joined the 1st County of London Yeomanry in 1910, and served with them in Egypt and Gallipoli. He was promoted to major, and rejoined the K.O.Y.L.I., and went with them to France early in 1917, was dangerously wounded at Bullecourt in May, 1917, and received the D.S.O. He returned to the front last January, and was shortly afterwards promoted to lieutenant-colonel.

Wegg, Hugh Neville, Captain Middlesex Regiment, younger son of the late Dr. William Wegg, killed March 25th, aged 36. He got his commission in 1914, and became lieutenant on February 13th, 1915.

Whitehouse, John Luther Glendinning, Lieutenant R.E., only son of the late Dr. John Whitehouse, of the Scottish Church Mission in Rajputana, killed March 23rd, aged 20.
Wright, John Reginald Norrish, Cadet R.N., son of Dr. Wright, of Romford, Essex, died at the Royal Naval College, Osborne, April 5th.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE following is a continuation from p. 440 of our last issue of the particulars of acts of conspicuous gallantry and devotion to duty for which the decorations announced in the BRITISH MEDICAL JOURNAL, December 1st, 1917, p. 733, were conferred:

Military Cross.

Captain William Norman Abbott, N.Z.A.M.C.

He was untiring in his efforts in attending to the wounded under heavy fire during an attack. He worked without rest for seventy-two hours, and set a magnificent example to all.

Captain Douglas Lewis Barlow, A.A.M.C.

During an attack he advanced with the battalion, established his aid post, and dressed the wounded and assisted in their removal under constant shelling. Owing to casualties among bearers he was cut off from the ambulance clearing post for several hours, and it was mainly owing to his exertions that the wounded received attention and shelter during this period.

Captain Charles Henry Brennan, R.A.M.C.(S.R.).

He led his bearers fearlessly through heavy shell fire, and made a most valuable reconnaissance beyond the regimental aid post to find out if there were any wounded lying out. Though blown up and gassed, he remained at duty, setting a magnificent example to all.

Captain John Harold Balfour Brown, A.A.M.C.

When in charge of the forward line of evacuation for eight hours after his commanding officer was wounded, his reconnoitring of ambulance posts and regimental aid posts through the area of shell fire was of great assistance in controlling the evacuation. He supervised the loading of wounded into horse ambulances and organized the line of bearers and prisoners, and it was due to his action that great congestion was prevented.

Temporary Lieutenant (temporary Captain) Raymond John Clausen, R.A.M.C.

He worked continuously for forty-eight hours directing the stretcher-bearers and attending to the wounded under continuous shell fire. His cool courage and indomitable energy inspired his men and helped to save many lives.

Captain George Crawshaw, R.A.M.C.

His aid post was twice blown up, but he continued at his work in the open, attending to the wounded under heavy fire with utter disregard of his own safety. He set a magnificent example of courage and devotion to duty.

Temporary Captain Douglas Erith Derry, R.A.M.C.

While he was posting stretcher-bearers the locality was very heavily shelled, and many men were wounded, but he succeeded in dressing and removing them all under heavy fire. Later, in a small dressing station, when the shelters were hit and damaged by shell fire, he showed a splendid example to all by his coolness and resource.

Temporary Captain Thomas Duncan, R.A.M.C.

Though he was wounded on the way up to the line before an attack, he refused to go back, and carried out his duties under most difficult conditions, though suffering considerable pain, throughout the operation. He was again wounded, but continued at work until ordered to have his wounds attended to.

Captain Fred, Ellis, R.A.M.C.

He was in charge of stretcher-bearers during an action, and owing to his fearless and capable handling of his men the evacuation of the wounded was carried out with great success and rapidity. He remained in the open for long periods superintending the work. His disregard of danger and devotion to duty were of the highest order.

Temporary Captain Andrew Gaston, R.A.M.C.

During an attack he was untiring in his efforts to attend to the wounded under heavy shell fire, and personally brought in many wounded men, often dressing their wounds first in the open. His courage inspired all the wounded with confidence, and proved the finest example to his stretcher-bearers.

Captain Stuart Galloway Gibson, A.A.M.C.

While he was in charge of a detachment at a loading post the enemy opened a heavy bombardment. Though nearly all the shelters were demolished, he continued at his work of removing casualties throughout intense shelling. He set a splendid example of courage and devotion to duty.

Captain William Evans Graham, R.A.M.C.

By his utter disregard of danger when in charge of stretcher-bearers he set a splendid example to his men, and carried out the evacuation of the wounded under heavy and continuous shell fire until he was severely wounded.

Temporary Captain John Lewis Anderton Grant, R.A.M.C.

He conducted a number of stretcher squads through very heavy shell fire to the aid posts after they had previously failed to get through. Two bearers were killed and three wounded, but by his gallant action over forty stretcher cases were got to safety. Later, he personally conducted squads to these aid posts under similar circumstances.

Temporary Lieutenant Henry John Henderson, R.A.M.C.

He established his aid post within 300 yards of the enemy's position, and dressed and evacuated cases in the open. It was due to his splendid example, cheerfulness and courage, that a great number of lives were saved.

Captain Charles Edward Kynaston Herapath, R.A.M.C.

During two attacks he was in charge of the evacuation of the wounded from the regimental aid posts. On both occasions he moved about from post to post under very heavy shell fire, encouraging the stretcher-bearers and organizing the evacuation. It was largely owing to his conduct and example that 1,000 cases were got away successfully.

Captain Frederick William Kemp, N.Z.A.M.C.

He was untiring in his efforts in attending to the wounded under heavy fire, during an attack. He worked without rest for seventy-two hours, and set a magnificent example to all.

Captain David Mackie, R.A.M.C.(S.R.).

When in charge of a line of evacuation, for four days he worked continuously in the open, going through heavy barrages.

Temporary Captain John Charsley Mackwood, R.A.M.C.

He attended to the wounded of eleven units in the open under heavy shell fire, working single-handed for several days. His self-sacrificing devotion to duty and his thoughtfulness and care of the wounded were beyond all praise.

Temporary Captain William Strelley Martin, R.A.M.C.

He led his bearers during seven days' operations through the most intense shelling with infinite resource and regardless of personal safety. It was due to his masterly organization and example that the wounded were collected so promptly.

Temporary Captain John Louis Menzies, R.A.M.C.

He worked continuously for thirty-six hours dressing and collecting wounded in the open under shell fire. When forced to take refuge, his shelter was blown in and he himself badly shaken and only saved by his steel helmet. He remained at his post, however, until relieved in the ordinary course.

Temporary Captain James Bertram Mitton, R.A.M.C.

When in charge of stretcher-bearers, by his courage and example he was able to get many wounded men away. The district was almost continuously under heavy shell fire and the roads were in a very bad condition, but he overcame all difficulties in a most praiseworthy manner and set a splendid example of courage and self-sacrifice.

Temporary Captain John Henry Morris-Jones, R.A.M.C.

He carried on his duties at his aid post during an enemy attack under very heavy fire. He also visited wounded men who were lying out in the heaviest of the fire, and went up to the front line to attend to the wounded. He showed total disregard of his own safety, and encouraged all by his cheerful and courageous demeanour.

Temporary Captain Joseph Herbert Porter, R.A.M.C.

He was in charge of the divisional collecting post during an action, and by his example and thoroughness did much to encourage all ranks in the discharge of their duties. He went forward in charge of bearers, and by his untiring energy succeeded in getting his communications re-established in the face of great difficulties.

Temporary Captain Norman Pallister Pritchard, R.A.M.C.

When in charge of his aid post during operations, it was entirely owing to his untiring care of the wounded and exertion in marshalling stretcher-bearers that all were eventually evacuated and lives saved thereby. Most of his work was done in the open under observed machine-gun fire.

Captain James Purdie, R.A.M.C.(S.R.).

When he was informed that there were a number of wounded in the front line during an action, he at once went forward with his stretcher-bearers, under heavy fire, and remained in the front line dressing and collecting the wounded until all were cleared. He set a fine example of courage and devotion to duty.

Captain James Rafter, R.A.M.C.(S.R.).

By his splendidly sustained effort in dressing wounded and organizing stretcher-bearers in the open under heavy shell fire during four days' operations without relief he undoubtedly saved many lives and much suffering.

Captain Stanley Arthur Railton, A.A.M.C.

During a very heavy barrage and an enemy counter attack he attended to the wounded in the open, with complete disregard for his own safety. His courage and coolness in carrying on his work under such conditions resulted in the saving of many lives.

Temporary Captain Alan Randle, R.A.M.C.

He went forward during an action and personally cleared the battlefield of wounded, evacuating 120 cases in two hours under heavy shell fire. He showed great courage when casualties were caused by a bombardment during a relief.

Captain Edmund Lewis Reid, S.A.M.C.

He accompanied the battalion in the attack and attended to the wounded with magnificent fearlessness under heavy fire in the open. He visited and attended to cases in the front line, and it was largely due to his efforts that the wounded were quickly dressed and cleared. His courageous conduct saved many lives.

Captain Hugh Arthur Sandiford, M.B., R.A.M.C.

He took up a position immediately behind the front line during an attack and dressed the wounded in the open. He displayed great coolness and gallantry under heavy artillery fire, working in an exposed position for forty-eight hours.

Temporary Captain William Logan Scott, R.A.M.C.

He worked untiringly, attending to the wounded in the open under heavy fire during an engagement, and showed splendid courage and resource.

Captain Frederic Battinson Smith, R.A.M.C.

He worked in a shell hole, attending to the wounded, throughout a very heavy bombardment. At night he frequently went out into No Man's Land with parties to bring in the wounded. He showed splendid courage and fearlessness.

Captain Edwin Cyril Widmerpoole Starling, R.A.M.C.(S.R.).

He remained day and night at his post under continuous shell fire, and was untiring in his work on behalf of the wounded, to whom his unremitting care and unflinching calmness was the greatest comfort and assistance. He set a splendid example of courage and self-sacrifice.

Temporary Captain John Glyndor Treharne Thomas, R.A.M.C.

He established a forward dressing station in an advanced position during an action, and, though heavily shelled throughout the whole day, stuck to his post in a most courageous manner, and undoubtedly saved the lives of many men. He organized search parties, and himself carried in a number of badly wounded men under rifle and machine-gun fire.

Temporary Captain John Aylmer Tippet, R.A.M.C.

When his dressing station was blown in and nearly all the occupants killed, although much shaken, he immediately organized a new station, and for eight hours dressed and tended the wounded without rest. Later, when the battalion moved forward, he went through a heavy barrage to the new dressing station and worked continuously for six hours. During five days he had practically no rest, and dealt with some 300 casualties.

Captain Adam Annand Turner, R.A.M.C.

He remained at duty for forty-eight hours under fire and without rest, and succeeded in getting all the wounded away rapidly from the aid posts and forward areas in spite of heavy enemy barrages. He set his men a splendid example of fearlessness and devotion to duty.

Temporary Captain John Wilfred Watthews, R.A.M.C.

His evacuation of the wounded during and after attack was carried out with wonderful organization and skill. He worked continuously for forty-eight hours attending to the wounded under hostile shell fire.

Captain Harry Whitaker, R.A.M.C.

During an action he went forward and, in spite of heavy shell and machine-gun fire, searched out and dressed the wounded in the most advanced positions. When a counter-attack developed he refused to leave his post until all the wounded had been removed. His courage and devotion to duty were an inspiration to all ranks.

Temporary Captain Henry Dewi Hampton Willis-Bund, R.A.M.C.

He was in charge of a dressing station which was destroyed by shell fire. Though rendered unconscious, he continued to attend to the wounded in the open when he recovered, accompanied the battalion into action, and remained at duty for forty-eight hours. He showed the greatest courage and devotion to duty.

Captain Eric William Beresford Woods, A.A.M.C.

For several days he worked at his aid post under very heavy shell fire, attending to all stretcher cases in the open with great courage and complete disregard of danger. His untiring energy and organization saved many lives.

OPERATIONS IN PALESTINE.

The following medical officers are included in a list of awards for distinguished service in the field in connexion with military operations culminating in the capture of Jerusalem, published in a special Supplement to the *London Gazette* issued on April 11th:

To be C.M.G.

Colonel Richard H. Luce, C.B., V.D.

Awarded the D.S.O.

Colonel Evelyn J. R. Evatt, R.A.M.C.

Lieut.-Colonels (temporary Colonels): George A. T. Bray, R.A.M.C., Ernest B. Dowsett, R.A.M.C.

Temporary Lieut.-Colonel Henry Wade, R.A.M.C.

Majors (temporary Lieut.-Colonels): Robert J. Cahill, R.A.M.C., Matthew Dunning, R.A.M.C., Hugh Richardson, R.A.M.C.

Temporary Major James J. Abraham, R.A.M.C.

Captain (acting Lieut.-Colonel) Ernest C. Lambkin, R.A.M.C.

Awarded the Military Cross.

Captains: Phillip S. Martin, R.A.M.C., Archibald B. Mitchell, R.A.M.C., James M. Mitchell, R.A.M.C.

Temporary Captain Gerald F. Bird, R.A.M.C.

THE King of the Belgians has conferred the decorations of Chevalier of the Ordre de Leopold and the Croix de Guerre upon Captain Robert G. Martyn, R.A.M.C.(S.R.), for distinguished services rendered during the course of the campaign.

NOTES.**SPECTACLES FOR SOLDIERS.**

SINCE the paragraph on spectacles for soldiers was published on April 6th, p. 406, we have received a copy of Army Council Instruction 1371 of 1917, which is as follows:

- (a) No simple spherical lens will be supplied of a less strength than 1.00 dioptré, or of a greater strength than 18.00 dioptries.
- (b) No simple cylindrical lens will be supplied of a less strength than 1.00 dioptré, or of a greater strength than 6.00 dioptries.
- (c) No spherocylindrical lens will be supplied having before or after transposition:
 - (i) One of its component parts less than 0.50 dioptré and the other component part less than 1.00 dioptré.
 - (ii) A combined strength of greater than 18.00 dioptries.

or

- (iii) A cylindrical strength greater than 6.00 dioptries.
- (d) No spherocylindrical lens will be supplied with a concave spherical surface and a convex cylindrical surface.
- (e) No greater dioptré lenses will be supplied above 3.00 dioptries, and no half dioptré lenses above 6.00 dioptries.

As will be seen, the Order permits the supply of spherocylindrical lens, one of the component parts of which is half a dioptré, and therefore so far meets our suggestion. We believe that it would be politic to correct the smaller errors of refraction in all men engaged in clerical work for long hours.

Correspondence.**PRIMARY SUTURE OF WAR WOUNDS.**

SIR,—In view of the fact that the names of others than a consultant surgeon are mentioned in Sir Anthony Bowlby's paper which appeared in the *BRITISH MEDICAL JOURNAL* of March 23rd, I feel it is only just, considering the knowledge of the facts which I possess, that credit and prominence should be given to the work of surgeons like Milligan, Charles, Lockwood, Roberts, Tabuteau, the Andersons, and others, who in 1914 and 1915 were laying the foundation, in an unostentatious way, of the recent work of which Sir Anthony writes. I am sure that the surgeons quoted in Sir Anthony Bowlby's paper would not wish that mention should be made of them alone.

I wish to point out that successful excision and suture of wounds of soft parts preceded and justified the application of the procedure to wounds of the knee-joint, head, chest, etc. It was the natural sequence. More than two years ago successful primary closure of fracture cases was being carried out.

Many of the names I have mentioned above are attached to articles describing work and results the excellence of which, in the early days of the war, was realized only by those who experienced them. The technique introduced then has stood the test of time, and is now, thanks to General Bowlby and others, being more widely appreciated. —I am, etc.,

H. M. W. GRAY,

France, March 31st.

Temporary Colonel A.M.S.,
Consultant Surgeon.

EPIDEMIC OF OBSCURE ORIGIN—POSSIBLY BOTULISM.

SIR,—I desire to call the attention of your readers to a series of unusual cases which have been occurring in and around the Sheffield district during the last few weeks so as to constitute a small epidemic. The characteristic features of the ten cases I have so far seen are briefly as follows: Acute and profound asthenia, amounting in some cases to complete disablement; drowsiness and apathy, sometimes with much delirium; and, also, various combinations of cranial nerve palsies, chiefly the oculo-motor nerves and the facials. In three of the cases there is facial diplegia, in two unilateral facial palsy. Nystagmus is an almost constant symptom. In some the clinical picture is that of a meningitis, but they recover instead of getting worse; in others profound drowsiness and asthenia are the most prominent symptoms.

Most of the cases have been in adults. No two have occurred in the same house, but in three instances two cases have lived quite near to each other. It is too early to hazard an opinion as to the exact nature or origin of these cases, but the symptoms present a similarity to those seen in certain outbreaks of botulism, due to the consumption of food infected by *B. botulini*. A reference to available descriptions of this disease is suggestive, and investigations are proceeding on these lines. It emphasizes the importance, should fresh cases arise, of making a detailed inquiry, as early as possible, concerning the foods taken by the patient prior to his illness. Otherwise, in a few days, such details are either unobtainable from the patient, owing to his condition, or forgotten by the friends. It seems desirable to make this preliminary statement in the hope of ascertaining whether similar cases, either isolated or in groups, have been met with elsewhere.—I am, etc.,

Sheffield, April 14th.

ARTHUR J. HALL.

THE VALUE OF THE WASSERMANN TEST.

SIR,—The memorandum in your issue of April 13th, by Dr. J. S. Robertson, contains warnings which merit more than a passing notice. Not only some of our profession, but numbers of the laity are lulled into a sense of security by a "negative" Wassermann reaction. It is not uncommon for men who have had syphilis and have discontinued treatment to undergo a Wassermann test without reference to their medical adviser. If the report is negative, they believe that they are "cured" and are liable to neglect fresh symptoms. I have recently had such a case, in which a negative reaction was reported to the patient (not to his doctor), and consequently no advice was sought

for many weeks after fresh syphilitic lesions developed. It seems to me very important that the public should be disabused of their faith in a negative blood reaction to this test.—I am, etc.,

London, W., April 15th.

J. B. LAWFOED.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

SIR,—Like probably many others, I have received a circular from a self-constituted committee, which seems desirous to appropriate for a Conservative or Unionist the seat in Parliament given to some seven universities. May I venture to urge my co-electors in all these universities to set their faces like steel against the introduction of politics, especially of a kind now becoming rapidly obsolete?

That some united action is necessary is apparent to all graduates, but I would voice a wish that what we at this juncture require—after a compromise between the several universities concerned and the professions involved—is a candidate or candidates keen on social questions, whether educational, health, or other, who knows his subject and who we can support—financially, if necessary—at the election, and afterwards in carrying out his task.

Will those in authority in these universities, representative of the professions involved, wake up and give the graduates an opportunity to crystallize their opinions and actions before it is too late?—I am, etc.,

Hove, April 11th.

E. ROWLAND FOTHERGILL, M.B.

Obituary.

GUY ELLISTON,

FINANCIAL SECRETARY AND BUSINESS MANAGER OF THE BRITISH
MEDICAL ASSOCIATION.

THE deep regret with which we announce the death, at the age of 46, of Mr. Guy Elliston will be shared by all members of the Association, but especially by those who have had opportunity of knowing the work he has unobtrusively done for it during the last nineteen years. He had not been in robust health for some time, and an attack of pneumonia proved fatal on April 13th after a few days' illness.

Guy Elliston was the third son of the late Dr. W. A. Elliston, who was president of the British Medical Association when it held its annual meeting in Ipswich in 1900. He was educated at Ipswich School, and entered upon a business career in Liverpool in 1888, where he was concerned in initiating a direct steamship service between Manchester and Paris. In 1897 he joined the staff of the *Weekly Sun*, and in the following year became manager of the *Naval and Military Magazine* and the *Public Health Magazine*. He joined the 1st Lancashire Artillery Volunteers in 1891, retiring when senior captain in 1897.

Mr. Elliston became Assistant Secretary to the British Medical Association in 1899, and succeeded Mr. Francis Fewke as General Secretary in 1902. The reconstitution of the Association in 1902 and the great expansion of its medico-political work led to the creation of the office of Medical Secretary, and Mr. Elliston's sphere of duty was defined as that of Financial Secretary and Business Manager. His interest in everything concerning the welfare of the Association never flagged. He was always diligent in supplying information required by the Council or its Committees, and did not spare himself in procuring and setting it out. The better he was known the higher became the opinion of his competence in his special sphere of duties. He was ever anxious also to assist individual members of the Association, and he won amongst them many friends who appreciated his qualities as a man and valued his intimate knowledge of the business side of professional life.

The financial position of the Association in 1902 was very satisfactory; it owned the freehold of its house in the Strand and possessed a considerable sum in investments. The policy of building larger and more convenient offices having been accepted in principle, plans were approved as the result of a public competition and the work was begun in 1907. Mr. Elliston arranged temporary offices in Catherine Street, where the work was carried on for two years. In 1908 the new offices were ready for occupation and the expenditure on the whole transaction was being defrayed at a satisfactory rate.

The financial situation was seriously altered for the worse by the introduction of the Insurance Act in 1911, entailing on the Association a large expenditure in its struggle to maintain the just claims of the profession. For some years the position caused anxiety to those responsible for the financial affairs of the Association, and especially to the Treasurer, Dr. Rayner, and his executive officer, Mr. Elliston. The wise and careful policy followed was rewarded by steady improvement. The favourable course was interrupted by the outbreak of the war and the disturbance it produced in all business affairs, not least in those in any way concerned with printing and publishing; prices went up for everything, including postage, a serious matter to an Association which issues a weekly journal by post, as well as many other documents, to some twenty-four thousand members. The foresight and prompt decision displayed by Mr. Elliston as each fresh difficulty arose were of the greatest value in enabling the Association to maintain its work while safeguarding its funds. His action has again and again received marks of approval from the Council and deserves like recognition from every member.

The preliminary arrangements for the annual meetings of the Association, and for the exhibition held during each, were in the hands of Mr. Elliston; and Dr. Collier, President of the Association when it met at Oxford in 1904, recalls in a short note the invaluable help Mr. Elliston so readily gave to him. The local committees in other centres will be ready to bear testimony to the same effect.

The Workmen's Compensation Act of 1906 raised many questions which seriously concerned the medical profession, and the need for insurance against the risks which arose under it was in every one's mind. It was felt that steps should be taken to meet the special needs of the profession, but it was found that the British Medical Association could not under its constitution undertake the work. The *Lancet* and the *BRITISH MEDICAL JOURNAL*, acting together, formed a committee which established the Medical Insurance Agency, with the late Dr. Radcliffe Crocker as Chairman, and Mr. Guy Elliston as Secretary and Agent. The work of the agency grew rapidly, and it was extended to include life assurance, motor car insurance, and policies covering other risks of professional life. It had been resolved at the inception of the agency that special concessions should be made to policy holders, and that any surplus should be used to make contributions to existing medical charities. At the half-yearly meeting of the committee last November it was reported that since the agency was established the insured had received £6,500 by way of direct benefit, and at the same time had the satisfaction of knowing that substantial contributions were being made to the funds of medical charities. Down to the end of 1916 the agency had thus distributed £2,405; at the end of 1917 the amount had risen to £3,405. The funds chiefly benefited have been the Royal Medical Benevolent Fund and the Guild, the Epsom College Benevolent Fund, and the Royal Medical Benevolent Fund of Ireland. Last year a sum of £1,000 was distributed, including a special contribution made to the War Emergency Fund of the Royal Medical Benevolent Fund. Dr. Haslip, who in 1909 succeeded Dr. Radcliffe Crocker as chairman of the committee, desires us to say that in his judgement the success of the agency has been in a large measure due to the judicious and energetic manner in which Mr. Elliston conducted its affairs.

Mr. Elliston leaves a widow and four daughters, and with them much sympathy is felt. Three of his brothers are at present serving with the armies abroad.

Dr. EDWIN RAYNER, who was treasurer of the British Medical Association from 1907 to 1915, has sent us the following tribute to Mr. Elliston's memory:

Since the last issue of the *JOURNAL* the British Medical Association has sustained a serious loss through the death of Mr. Guy Elliston, its Financial Secretary and Business Manager. His illness was not generally known to the members, and it was only in the later part of last week that complications supervened causing grave anxiety to those associated with the case. On Friday there seemed some slight improvement, but the reports said that he was very weak. This weakness seems to have rapidly increased, and he passed away on Saturday morning. A more careful,

trustworthy, and conscientious official no society every had. Never, especially of late years, blessed with robust health, he always considered the welfare of the Association far before his own health and pleasure. A month or so ago he was too unwell to come to the office for a time, and had he not interrupted his convalescence by coming to the office and so exposing himself to the continual piercing winds we might not have had to deplore his loss. I have been closely associated with him for many years in the work of the Association, and often in anxious circumstances, as when our overdraft at the bank increased and attained the sum of £55,000. It was finally cleared off at the beginning of 1917, and this happy condition was partly due to the industry and foresight of our Financial Secretary. Personally I have been associated with him for ten years, and I greatly deplore his loss. He was proud of the Association, and those members of the Association with whom he came most in contact were proud of him.

Dr. HASLIP, who has been Treasurer of the Association during the last two years, and Chairman of the Committee of the Medical Insurance Agency since 1909, adds the following personal tribute:

The death of Mr. Elliston, our Financial Secretary, must have come as a great shock to many of our members, as it was to myself, for the last report received of his illness was so favourable that we had hoped he was out of danger. However, this was not to be, and we have all to mourn a loyal colleague and a most devoted and faithful officer of the Association. My predecessor, Dr. Rayner, can speak of Mr. Elliston's services during the strain on the finances of the Association by the rebuilding of our premises and in the period after the introduction of the Insurance Act. Although my knowledge with regard to his business capacities extends over the same period, I can write better of my further appreciation during the time I have been practically in daily contact with him; I can substantiate all Dr. Rayner has said, for it has been due to his foresight and knowledge that we have been able to cope with the difficulties which have constantly recurred during this period of war; they have been very perplexing and worrying. When we remember the rise in the cost of printing, the great increase in the price of paper and the difficulty in obtaining an adequate supply, and the fact that our interests have been twice affected by enemy action—involving on the last occasion the destruction of a considerable quantity of paper—the anxieties caused to our late Business Manager will be understood.

As to Mr. Elliston's services to the Medical Insurance Agency, I have no hesitation in saying that it has been entirely due to him that so great a success has been achieved. Started from a small beginning and with modest expectations, we were able in the early years to give £50 to medical benevolent funds, and were highly gratified by this result; but last year, 1917, the committee was able to devote the sum of £1,000 to charitable purposes; the early prognostications of our secretary were thus confirmed, and I know that this gave him great satisfaction, for he saw that an annual contribution such as this would become powerful in helping to bring about the proper co-operation of our various medical charities, which was the great object of his ambition, for, being a practical business man, he knew that by this arrangement further benefit would be derived by the profession. I consider that this great success will always be a memorial of his services to the profession.

Personally I know I have lost a true friend and colleague and one it will be very difficult to replace. By his death we of the Association I am convinced have not only lost an officer who was a courteous gentleman, always ready to give his advice and assistance to members, but a good financial adviser possessing great foresight and sound sagacity. We shall have every reason to mourn the loss of Guy Elliston.

The EDITOR, who has been closely associated with Mr. Elliston throughout the whole of his service with the Association, begs leave to add a few personal words. Elliston did not appear at his best on public occasions; it was necessary to watch his work from day to day to know how valuable his services were to the Association, and with what honesty and zeal he gave his best to it through nineteen years, in which he encountered and surmounted

many difficulties. He was thorough and conscientious in all his work. He had so intimate a knowledge of finance, and moved so easily among figures that he did not always find it easy to understand the difficulties of the less expert. For this reason his first presentation of a new subject might fail to carry conviction, but discussion showed that the points were quite clear in his own mind, and that all that was needed was a fuller statement in which assumptions that had seemed to him obviously true were set out and explained. He was always looking ahead, and again and again, during the last four years especially, his forecast was justified by the event. A more loyal colleague never breathed.

The funeral took place at Ipswich on April 17th. The British Medical Association was represented by the Chairman (Dr. J. R. Staddon) and the Honorary Secretary (Dr. F. Fowler Ward) of the South Suffolk Division, and by Dr. James Neal, the Deputy Medical Secretary. Amongst the floral tributes was a wreath from Dr. G. E. Haslip, the Honorary Treasurer of the Association, another from the officers of the Medical Secretary's department and the BRITISH MEDICAL JOURNAL, and a third from the clerical and printing staffs of the Association.

W. M. CROWFOOT, M.B., F.R.C.S. Eng.,

CONSULTING SURGEON TO THE BECCLES HOSPITAL.

THE death of Dr. William Miller Crowfoot, of Beccles, on April 6th, at the age of 80, removes one of the most distinguished members of the medical profession in East Anglia. For more than a century the Crowfoots of Beccles, father and son, have been held in the highest esteem by their professional brethren far and near.

Dr. William Crowfoot received his medical education at St. Bartholomew's Hospital, where he had a distinguished career, winning many medals and scholarships at the University of London. After receiving the qualifications M.R.C.S. and L.S.A. in 1858, and the M.B. degree in the following year, he joined his father in practice. In 1890 he was elected a Fellow of the Royal College of Surgeons. Dr. Crowfoot took an active part in local affairs. He was a keen supporter of the volunteer movement of 1860, retiring with the rank of honorary lieutenant-colonel, and was a justice of the peace for the County of Suffolk. Dr. Michael Beverley, who was associated with Dr. Crowfoot professionally for more than fifty years, writes of his popularity in the medical circle at Norwich, and of his high social and scientific qualities. To the proceedings of medical meetings there he often contributed valuable papers, and his address as president of the East Anglian Branch of the British Medical Association many years ago was a signal success. Dr. Crowfoot was an enthusiastic naturalist, with a special leaning towards botany, and he took a keen interest in archaeology. The funeral took place on April 10th.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on April 11th, when Sir George Makins, G.C.M.G., C.B., President, was in the chair.

It was decided not this year to present a report to the Fellows and Members, nor to hold the annual meeting of Fellows and Members.

The subject for the Jacksonian Prize for the year 1919 is the investigation and treatment of injuries of the thorax received in war. The John Tomes Prize for 1915-17 was awarded to Mr. Joseph George Turner, Fellow and Licentiate in Dental Surgery of the College, for his work on the subject of dental pathology. Miss Edith Marjorie Rooke, of the London School of Medicine for Women, was appointed to the Begley Studentship.

The following Members of twenty years' standing were elected Fellows: Sir Alan Reeve Manby, M.V.O., Colonel Sir Robert Jones, C.B., A.M.S., Inspector of Military Orthopaedics.

THE Local Government Board has issued an order empowering county councils and borough councils to arrange for the provision of serum for the treatment of cases, or suspected cases, of cerebro-spinal fever, together with the necessary apparatus for administration, and for the examination of suspected cases and contacts. The order applies to every administrative borough in England and Wales, and is in force as from April 1st, 1918. Its object is to secure the prompt gratuitous provision of antimeningococcus serum for the use of medical practitioners in each area.

Medical News.

Dr. G. F. SYDENHAM, of Dulverton, Somerset, has been appointed a Justice of the Peace for Somerset.

THE bill of the Decimal Association for a decimal coinage in this country has been approved by the Associated Chambers of Commerce, and will be introduced into the House of Lords by Lord Southworth.

MAJOR SIR ROBERT ARMSTRONG-JONES, R.A.M.C., will read a paper on mental effects of the war and their lesson in social and medical reconstruction, at the Royal Society of Arts, John Street, Adelphi, on Wednesday, when Lord Sydenham will take the chair at 4.30 p.m. All interested in the subject are invited.

AT a meeting of the Edinburgh and Leith Medical War Committee, on April 10th, a resolution was adopted unanimously disapproving of the apparent intention of the Government in the new Military Service Bill to treat members of the medical profession on a different footing from other classes by making them liable for service to the age of 56 years. The resolution was approved at another meeting of medical practitioners in Edinburgh on April 12th.

AT a meeting of the Irish Committee on April 4th, Dr. Giusani in the chair, a resolution was unanimously passed offering the support of the committee to the Enniskillen Poor Law medical officers in their efforts to secure adequate salaries from their guardians. At a meeting of the Irish Medical Committee, presided over by Dr. E. C. Thompson, D.L., a resolution was passed expressing the sympathy of the meeting with the Enniskillen dispensary doctors who resigned their offices when the guardians had refused three applications to increase their salaries.

DR. ADDISON, Minister of Reconstruction, in reply to a deputation from the Joint Standing Committee of Industrial Women's Organizations and the Labour Party, urging the immediate establishment of a Ministry of Health, stated that just before Easter he concluded the negotiations in which he had been engaged for some months at the Prime Minister's request. As soon as the national crisis became less acute he hoped to present his proposals to the Government. If it were decided before long to establish a Ministry of Health, he anticipated that the measure which Parliament would be asked to sanction would receive the whole-hearted approval of those whom the deputation represented.

THE reports as to the prevalence of plague in Northern China have received explanation in a letter published in the *Times* from its Peking correspondent. It appears that in December information was received from missionaries in the district of Mongolia immediately north of the Shansi Province of China that pneumonic plague had broken out. The fact was confirmed by foreign and Chinese doctors sent to the spot. The epidemic spread into the northern part of Shansi and finally to a point 150 miles south-west of Peking, where it was close to the Chengtai Peking-Hankow railways, but owing to the precautions taken by the railway authorities no cases occurred on either line, although the infection also spread eastward to a point 100 miles north of Peking. It is hoped that the worst is over, but no certainty can be felt that the infection may not be lighted up in other regions. The origin of the present outbreak is at present unknown, but it is thought to be associated with the marmots of the Mongolian plateau. In his volume of reports on the North Manchurian Plague Prevention Service, which has just reached this country, the director, Dr. Wu Lien-Teh, who is a Cambridge graduate and a London student, gives much interesting information. Writing on October 26th he was able to say that plague had then been absent from Manchuria and Northern China for the seventh year in succession; but he noted that there had been an outbreak of pneumonic plague in Kansu, on the Tibetan border, which, however, was easily dealt with. With the assistance of Dr. Ebersson, a graduate of Columbia University, who arrived in Manchuria in May, 1916, special investigations had been made in the research department at Harbin in the hope of discovering a serum for pneumonic and septicaemic plague. Dr. Ebersson reported his results in the *American Journal of Experimental Medicine* in a paper on the nature of plague proteotoxins, and in another on the production of active immunity to systemic plague. One of the articles in the volume points out that while pneumonic plague is most dangerous in winter bubonic plague is more prevalent in the warm weather, and the behaviour of the disease during the present summer will be watched with interest and some apprehension. The importance of the rat as disseminator of the disease is fully recognized.

Letters, Notes, and Answers.

The telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology, Westrand, London*; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediseera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

A VACANCY is announced for a medical referee under the Workmen's Compensation Act, 1906, for the Canterbury, Faversham, Ashford, and Tenterden and Cranbrook County Courts in Circuit No. 49. Applications to the Private Secretary, Home Office, by May 2nd.

ORAL SEPSIS.

MAJOR F. N. GRINLING, R.A.M.C.T.F. (Wolverhampton), writes that he has been struck, whilst acting as president of an invaliding board principally engaged in reviewing the cases of men already pensioned, by the large number invalided for neurasthenia, rheumatic and other affections, who were suffering from the effects of oral sepsis. In the majority of cases the documents give no evidence of previous recognition of this factor. This illustrates, he says, not only the inadequacy of dental treatment in the army, but also the futility of a National Insurance Act which makes no provision for such treatment.

J. G. H. writes to suggest that the frequency of pyorrhoea alveolaris amongst soldiers is due to the absence of fruit from their dietary.

THE VENEREAL DISEASES ACT, 1917.

In the King's Bench Division on April 16th an appeal was heard in a case stated by two of the justices of Cannock, Staffordshire, with reference to a conviction by them under the Venereal Diseases Act, 1917. It appears from the report in the *Times* that a handbill offering to give advice on the treatment of venereal disease in the name of the Curtis Medical Laboratory (Ltd.), of Hill Street, Birmingham, was found on October 11th, 1917, to be affixed to the inside wall of a public urinal at Cannock. The prosecution was taken against James Walker, Harry Key, and Fred. Waite—Walker being a director, Waite manager and secretary, and Harry Key a shareholder in the company, the three being the only persons present at the last annual meeting of the company. The magistrates stated that from the evidence before them it was proved to their satisfaction that the three defendants named all took an active part in carrying on the said business of the company, and that the said bill advertising the same was posted on their authority and with their knowledge and consent. The magistrates convicted, and fined Walker £25, Key £50, and Waite £50. The appeal was made on the ground that there was no evidence that any of the three defendants had either committed the offence or aided and abetted in its commission, and that there was no evidence that any of them took any part in the business of the company. Counsel for the respondents were not called on. Mr. Justice Darling, who delivered judgement, said that the magistrates were quite justified in coming to the conclusion they did. The three defendants had individually violated the provisions of the Act of Parliament. Mr. Justice Avory and Mr. Justice Atkin concurred, and the appeal was dismissed with costs.

THE CAPACITY OF THE BLADDER.

DR. W. JOBERNS (Wolverhampton) writes: A primipara on the third day complained of pain in the lower part of the abdomen, and said she had not passed any water during the day, though the bowels were moved the day before. A catheter was passed and five pints of urine drawn off. The quantity was carefully measured.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0 6 0
Each additional line	0 0 9
Whole single column	0 4 0
Whole page	12 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postea restante* letters addressed either in initials or numbers.

THE SELECTION OF ABDOMINAL CASES FOR OPERATION.

WITH REFERENCE TO A SERIES OF 200 OPERATIONS.

BY

OWEN RICHARDS, D.S.O., F.R.C.S.,
TEMPORARY COLONEL A.M.S.

At this stage of the war it is not worth while to give details of a series of cases essentially similar to others which have already been published. The value of early operation and the best technique are generally agreed on, and the percentage mortality is fairly constant. If it varies much from the average in any special collection of cases, the reason can usually be found in temporary and local conditions, which affect the time that the wounded take to reach hospital and the state in which they arrive there.

In a series of over 1,200 cases Wallace¹ found the rate of recovery to be 46 per cent. in all cases operated on, and 35 per cent. in those with wounds of the hollow viscera. In the present series the corresponding figures are 41.5 and 38 per cent. respectively.

"Successful" and "Profitable" Operations.

The percentage of patients who survive operation is, however, no real index of the value of treatment. In a large number of cases injuries are found which no surgery could cure; in others there are minor ones which would not have proved fatal even if they had been left alone. To count these as "failures" and "successes" respectively is unreasonable. In the first class of case we have failed to do what was in any case impossible; in the second our only success consists in not having killed the patient. Operation in both was unprofitable. The only kind of operation which is "profitable" as well as "successful" is one in which we find a fatal injury and cure it. These constitute the real successes.

The real failures are the cases in which the patient is wrongly classed as moribund when operation might have saved his life, and those in which a penetrating wound of the abdomen is not recognized as such until it is too late. Failures due to bad surgery are relatively rare, for the general level of surgical skill in the clearing stations is a high one. The difficulty lies rather in the selection of cases, and it is here, rather than in any point of technique, that most difference exists in the practice of individual surgeons.

Men who reckon every case "moribund" who has been wounded for more than twelve hours, or has a pulse of 120, will be able to show good statistical results. Those who operate on practically every living patient will waste much energy, and have a high death-rate—they will, however, save a few more lives.

The difficulty lies in determining the circumstances under which operation ceases as a rule to be worth while, even though it may yield an occasional success. This is important mainly for the sake of other patients. A hopeless abdominal case is only injured by operation in the sense that his life may be shortened by a few hours, while an exploration which proves unnecessary is rarely fatal. But every "unprofitable" operation means that time is wasted, and that other wounded have to wait longer. During an engagement, which is the time at which most cases have to be dealt with, this is a very serious matter. There may be in one station thirty or more cases waiting for operation, and developing sepsis and gangrene meanwhile. Every hour wasted makes the chances of all of them definitely worse. So that under these conditions any wrong selection has very far-reaching effects, for the inclusion of unsuitable cases may result in the loss of lives or limbs of other patients.

It is therefore worth while to consider what guidance can be got from the experience available. The present series is small, but it probably represents a fair average both as regards results and conditions.

Certain classes of injury may be at once ruled out. Wounds limited to the solid organs, with no progressive bleeding, and no large missile retained, do not usually need operation, and patients with other grave injuries of head, chest, or limbs are commonly unfit to stand it. In the vast majority of the remainder it can usually be

recognized that the abdomen is penetrated, but the nature and extent of the internal injury is almost always unknown.

In civil surgery the risks of a known injury or disease can to some extent be weighed against those of a set operation; but here both are unknown, and the abdomen is opened on the broad grounds that most men wounded in this part of the body die, but that some of them can be saved by operation. Whether operation is necessary or not can only be discovered by performing it, and if it is at all likely to be, exploration is fully justified.

Under these conditions we have to base our decision in each case on such facts as we can know. Practically these consist of the time which has elapsed since the injury, and the condition of the patient, of which the best index is the pulse.

Interval between Wound and Operation.

In this series the time which had passed since the injury was recorded in 164 cases; 120 were operated on within twenty-four hours, and 44 later. The recoveries in the early cases were 48 (40 per cent.), and in the later 19 (43 per cent.). This latter figure is remarkable, for there is usually a higher death-rate in late cases. Wallace in 79 cases operated on after twenty-four hours found 27 survivals (33 per cent.). Probably these late cases were more carefully selected and the numbers are small, but on grounds of percentage mortality there is in this series little to choose between the two classes.

When, however, they are examined in detail, to see how far the successful cases are profitable, there is a marked difference. Of the late cases only 7 of the survivors had wounds of the alimentary canal, namely, 3 of the colon, 4 of the small intestine. Two of the latter are included in the only 4 cases of the whole series who are known to have died after arrival at the base. So that out of 19 "successful" cases operated on after twenty-four hours, only 5 (26 per cent.) were permanent cures of men wounded in the stomach or intestines. The rest of the survivors were men whose chief essential injury was haemorrhage from solid organs, mesentery, or omentum.

In the early cases the proportion is quite different; 80 cases were operated on within twelve hours, and 33 recovered. Of these, 26 (80 per cent.) were wounded in the stomach or intestines.

Apparently what happens is that most men wounded in the abdomen, with the exception of those already referred to in whom the injury is obviously limited to the liver and kidneys, have some injury to the alimentary canal. As time goes on some of these die, and others develop peritonitis which proves fatal whether they are operated on or not. The survivors, with or without operation, are almost all those whose chief injury is haemorrhage. Their bleeding has by this time ceased, and is not necessarily fatal if left alone. In these late cases, then, there is a much greater chance of performing an unnecessary and unprofitable operation. This is not shown in statistics, where unnecessary operations, unless they kill the patient, are shown as successes.

The question is what extent of delay renders operation as a rule unprofitable. A German surgeon in an advanced operating centre was led by his experience² to fix a limit of twelve hours. This is certainly too low. Out of the 15 recoveries in this series amongst those operated on between twelve and twenty-four hours, 10 (66 per cent.) were wounds of the alimentary canal.

A distinction has already been drawn between operations which are "successful" in the sense that the patient survives them, and those which are "profitable" in the sense that they cure an otherwise fatal injury. If we assume that wounds which open the stomach or intestine are necessarily fatal if untreated, and that haemorrhage is not, the proportion of profitable operations in this series to those which were merely successful is—

In the first twelve hours	...	...	4 to 1
In the second twelve hours	...	...	2 to 1
Later	...	...	1 to 3

It is impossible to lay down any rule (this series includes a successful resection after thirty-six hours), but roughly it seems that operation is very profitable in the first twelve hours—and well worth while in the second twelve hours.

After this time the chances are in favour of its being unnecessary, even if the patient survives it—so that preference should always be given to early cases, even if their condition is less good.

General Condition: Pulse.

As regards the pulse the cases may be divided into those with a rate under 120, and those with a rate of 120 or over. The pulse was counted on the table before the anaesthetic was given and after measures had been taken to improve the patient's condition by rest and warmth. The quality of the pulse is almost equally important, but cannot be so accurately expressed. Here the distinction in mortality is sharply marked. Of the 131 cases in which the pulse was counted, in 77 it was under 120, and of these, 42 (54 per cent.) recovered. Of the 54 in whom it was 120 or over, only 14 (25 per cent.) recovered.

As far as these cases are concerned, therefore, the chance of survival of men with a pulse under 120 is more than double that of men with a more rapid pulse, and this in spite of the fact that some of the most seriously injured cases had originally a slow pulse, which rose suddenly in the course of the operation.

To make a rule never to operate on cases with a pulse over 120 would, however, in this series, have resulted in the loss of about a dozen lives. The most unpromising cases can occasionally be saved—for example:

Cpl. P., a delicate-looking youth, in civil life a chartered accountant, took part in a raid on June 27th, 1916. He was returning in charge of six prisoners when the enemy opened fire with a machine-gun. He and his prisoners tumbled hastily into our trench, and he fell on to a bayonet which entered his abdomen and chest.

Seven hours later he arrived in hospital collapsed and pulseless. After rest, warmth, and infusion, the pulse became "just perceptible." He was pale and cold, with a rigid abdomen and occasional haematemesis. There seemed no prospect of improvement, so his abdomen was opened, a quantity of blood cleared out, and two wounds of the stomach repaired. In the course of the night he vomited violently and burst open his wound. This was sewn up again, and the third day he was rather better, with a pulse of 120. His haemothorax then became septic, and was drained. He recovered, and was sent to the base on July 29th. The medical officer in charge notes that his general condition was then "excellent."

The objection to risking a death on the table is largely sentimental. If the patient is as fit as he is ever likely to be, and has a reasonable chance of surviving the operation, this danger may be faced like any other. The operation may be unsuccessful, but it is not likely to be unnecessary. But if conditions do not allow of all cases being treated promptly it is clearly better to take those with a low pulse rate first, and to try and improve the condition of the others meanwhile.

Cases of Apparently Slight Wounds.

If care is taken to exclude those who have been wounded too long, and those whose condition is too bad, there still remains the danger of failing to include those who have scarcely any symptoms. Minute wounds of the abdominal wall, without pain, rigidity, or vomiting, are sometimes associated with serious internal injuries—for example:

Case 1.—Pte. W., admitted February 1st, 1917, with tangential bullet wound of lower abdominal wall received four hours before admission. Condition excellent; pulse 90; no vomiting; abdomen soft, movable, and painless; no tenderness except over the actual track. Wound explored; a slit half an inch long found in the peritoneum. Laparotomy: Three perforations of the small intestines. Repair; recovery.

Case 2.—Cpl. C., admitted January 14th, 1917, with small bomb wound near the umbilicus received two and a half hours earlier. Condition very good; pulse 90; no rigidity or vomiting. The wound was explored and found to penetrate. Laparotomy: One wound in the small intestine, plugged by the missile. Repair; recovery.

Case 3.—Spr. D., small central wound of abdomen received twenty-six hours before admission. Condition very good; pulse 100; vomited once on being hit, never since. Abdomen soft and free from tenderness. The only positive symptom a slight "diarrhoea pain." Some free blood, a wound of the jejunum, which was empty. Repair; recovery.

Case 4.—Second Lieutenant C., admitted December 21st, 1916, with minute grenade wound in right iliac fossa received nineteen hours earlier. This appeared, and was considered, a superficial graze, and the patient came in as "G.S.W. eyes." Pulse 100; no rigidity; had vomited once only. There was

slight local pain under the wound. Explored: Much free blood; one wound of caecum, three of small intestine. Repair; recovery.

As is seen in these four cases, the results of operation before symptoms occur are very good. Their absence is probably due to the wounded gut being empty at the time, and if it can be repaired before it fills and leaks no infection of the peritoneum need arise.

The only way to avoid missing these very profitable cases is to explore every wound of the abdominal wall, front or back, whether symptoms are present or not. If the missile is in the wall, the patient is quit of it at the cost of a two-inch incision. If the track is found to penetrate, or is lost in the direction of the peritoneum, or if the skin is peppered with a number of minute wounds, the best course is to open the abdomen rather than to miss the best opportunity by waiting for signs of peritonitis to develop.

Organization of Operations.

The only other difficulty which arises in selection is to balance the claims of abdominal cases against those of other wounded in busy times. Keen surgeons are apt to concentrate on these technically interesting cases to the prejudice of other men whose lives are equally valuable, and who have more chance of being rendered fit for further service.

This tendency can be controlled by having an experienced and sensible surgeon in charge of the pre-operation ward, whose duty it is to decide the order in which cases go to the theatre, and, if necessary, the surgeons to whom they are allotted.

The real remedy, however, is to be found in eliminating waste of time, which is the chief reason why any cases, abdominal or other, fail to receive prompt treatment. Most time is wasted, not in actual operating, but in getting patients in and out of the theatre, anaesthetizing and cleaning them. If there is a sufficient supply of stretcher-bearers under a competent N.C.O., and if two tables are available for each surgeon, so that a second patient can be anaesthetized and cleaned on the other table by the time the first operation is finished, this kind of delay can be entirely got rid of. The operator has only to change his gloves and go straight on.

The other avoidable cause of delay is slowness in operating. Provided an operation is gentle and thorough, the quicker it is done the better. Men wounded in the abdomen are nearly all suffering from shock, what pulse they have is liable to fade away under prolonged exposure of their viscera, and ten minutes more or less may turn the scale between death and recovery. So that in the interests of the individual patient, as well as of others, speed is essential. Rapid work depends more on character than on manual dexterity. Method, decision, and silence are essential to it, and a clock in the theatre is the only known antidote to self-deception.

A competent surgeon, with a good sister helping him, can open the abdomen, search the small and large intestines, and close it, in twenty minutes. Ordinary repairs will extend this time to half an hour. But operators who habitually take an hour or more over a simple case should not be allowed to attempt this branch of surgery.

CONCLUSIONS.

1. The decision as to whether a man wounded in the abdomen should be operated on or not is usually based on the time which has elapsed since the injury and the rate and character of the pulse.

2. Of the patients who survive operation performed in the first twelve hours a high proportion will have had their lives saved by it, and this is true in a lesser degree of those operated on in the second twelve hours. After this time most of those who survive operation are those whose injuries were not originally fatal.

3. Men with a pulse of 120 or over have less than half the chance of survival of men with a lower pulse.

4. Recently wounded men, with a rapid pulse, should nevertheless be operated on, provided that their condition is as good as it is ever likely to be, that they have a reasonable prospect of surviving the actual operation, and that the time taken does not prevent the proper treatment of other wounded.

5. Every wound of the abdominal wall, however slight, should be explored, whether signs of internal injury are present or not. If it is found to be penetrating, the abdomen should be opened.

6. The necessity for deciding between the claims of abdominal and other cases can be best avoided by good theatre organization, the provision of two tables for each surgeon, and by not allowing slow operators to do abdominal work. If these measures are insufficient the decision should be left in the hands of the surgeon in charge of the pre-operation ward.

REFERENCES.

¹ *British Journal of Surgery*, April, 1917. ² *Brunn's Beiträge*, Krieger-chirurgisches Heft 106, iii.

ABDOMINAL OPERATIONS AT AN ADVANCED OPERATING CENTRE.

FIFTY CONSECUTIVE CASES OF PENETRATING WOUNDS OF ABDOMEN, IN SIXTEEN OF WHICH THE CHEST WAS ALSO INVOLVED.

BY

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The Operating Centre.

THE centre was situated in a village in advance of the corresponding group of casualty clearing stations. The roads between them at the time presented a very rough surface, and were heavily charged with transport, so that at least one hour's very bad journey was saved.

The accommodation comprised part of a building, without any special heating or lighting arrangements, and marquees. The heating was done by oil stoves, the lighting by an acetylene plant. In the building were the operating theatre, sterilizing room, and a post-operative room of twelve beds, while outside were the reception marquee and thirty-eight extra beds, partially distributed in a long ward of four contiguous marquees and in two separate.

The operating theatre was large enough for two tables, had a tiled floor, and large windows looking both east and south. The walls were distempered white. The sterilizing room adjoined the theatre, and was fitted with a large metal-lined washing-up trough. The post-operative ward of twelve beds was a large, light, airy room, with distempered walls and a parquet floor. The marquees were conveniently arranged adjacent to the building. The reception marquee was fitted with four pairs of trestles for stretchers, and served also as pre-operation and resuscitation departments. The big ward of four marquees joined together had accommodation for twenty-six patients, and two other single marquees were each fitted with six beds, one for officers and one for badly infected cases.

The Staff.

With the exception of the first few days, when a second team was attached (Captain Stevenson, R.A.M.C.), the operative work was done by one surgical team, consisting of surgeon, anaesthetist, sister, and theatre orderly, while the general administration was carried on most of the time by a section of the field ambulance to which the centre was attached. Four extra sisters were attached to superintend the nursing in the wards, the staff of orderlies being supplied by the field ambulance. At a later period, with an increase in the military activities, three extra surgical teams were attached to the centre, and the beds increased to 75. A special marquee was set apart for resuscitation, and a second for those cases considered as hopeless on admission, the reception marquee being utilized only for the reception of cases and the preparation of those to be operated on at once.

PRE-OPERATIVE TREATMENT.

Special efforts were made to evacuate the abdominal cases as quickly as possible from the line, and all concerned displayed the greatest keenness in achieving this. How far it succeeded will be seen in the study of the time intervals between wounding and arrival at the centre.

The reception marquee was always kept very warm, and on arrival the patient was taken to it, examined, and judged fit or unfit for operation.

If considered fit for operation he was washed and put in pyjamas, and morphine and atropine administered hypodermically if necessary. It was not uncommon for the patient to arrive already deeply under morphine; this was found to be especially dangerous in those cases with chest wounds, as great difficulty was sometimes experienced with the respiration after the operation. Rinsing of the mouth with water was allowed, but no drinks. The urine was always examined before operating, but if the patient failed to pass it himself catheterization was deferred till he came into the operating theatre. The operation was commenced one hour after his arrival. At the suggestion of Captain Stevenson a special stretcher was used for these cases to avoid any excessive amount of lifting about. A coarse palliasse was stitched down the sides so as to leave two tunnels through which the stretcher poles could pass, and two iron bars with rings at the ends were slipped over the pole handles to keep them apart. Over this was placed a ground sheet and then an ordinary sheet. The advantage of this was that the patient remained on the palliasse until he arrived in the ward, the poles being slipped out when he was placed on the operating table.

If the patient was considered unfit for operation the usual resuscitation procedures were carried out. He was made as comfortable as possible, morphine was administered if necessary and heating up was done by a Beatrice stove in a kerosene tin with a chimney leading under a cradle over the stretcher. Stimulants were given hypodermically as required, and saline, preferably by the intravenous method. In a few cases blood transfusion was performed, but only one of these was an intraperitoneal lesion. The method used was vein to vein by means of an improvised tube—an ordinary 6 in. glass testing pipette with $\frac{1}{8}$ in. lumen; it was bent into a U-shape, the limbs of the U being 1 in. long. A small flange was made at the ends to prevent the tube slipping out of the veins. The tube was sterilized and washed through with liquid paraffin before use (soft paraffin is undoubtedly better). The median basilic veins were used, an injection of $\frac{1}{2}$ per cent. novocain being given to produce anaesthesia. In one case where the blood refused to flow into the vein of the recipient, a second incision was made in the neck and transfusion made into the external jugular vein, which was seen to empty with each inspiration. The veins were connected for twenty minutes. The tube can easily be modified for an artery to vein transfusion, and may be made of metal. The method is not so good as Crile's No. 17 transfusion tube, but in an emergency is easily carried out, especially if none of the usual means is at hand. In the abdominal case so treated the pulse-rate came down from 142 to 108 in twenty minutes and remained so for about half an hour, when the patient quite suddenly collapsed again and died in another hour. The time for operation was settled by the progress of the case.

If the interval between wounding and admission was more than eighteen to twenty-four hours expectant treatment was adopted. The patient was put on a Fowler frame, the wound dressed, and fomentations applied to the abdomen, if necessary. Morphine was given, and fluid by the mouth gradually commenced.

When the case was judged hopeless the patient was made as comfortable as possible, morphine was not withheld, and fluids were allowed by the mouth.

A chamber for heating the pyjamas was made of a box the bottom of which was knocked out and replaced by wire netting. It was placed on a stand with a Beatrice stove underneath. By this means a stock of warm clothing was always ready for use.

OPERATIVE TREATMENT.

The patient was taken to the operating room, which was kept at a temperature of 65° to 70° Fahr. The anaesthetic administered was chiefly ether, reinforced at times by chloroform, and given by the Shipway apparatus. In the worst cases continuous oxygen was given simultaneously by attaching a cylinder. If the patient had been unable to micturate, a catheter was now passed and the urine examined.

The skin was prepared under the anaesthetic; it was shaved with spirit soap for preference, followed by the

application of turpentine, if it could be obtained, then more spirit soap and methylated spirit, and finally 5 per cent. picric acid solution in spirit.

Dry sterile towels were placed next to the patient, and covered by hot towels wrung out of 1 in 40 carbolic. Sterilized mops were used wet out of 1 in 10,000 biniodide lotion, and abdominal swabs out of hot saline. Instruments were boiled and kept in 1 in 40 carbolic acid, knives, etc., in spirit, after cresol. Masks were worn by surgeon and assistant, and gowns with long sleeves for preference. The lotion for the hands was 1 in 10,000 biniodide.

The principles observed in operating were: (1) Good exposure; (2) minimum retraction; (3) gentle manipulation; (4) speed, consistent with care and thoroughness.

The operation was begun by excising the wound; subsequently the incision was planned to obtain the best exposure of the affected area, as indicated by the position of the wound and the direction of the track. Hence in some cases it commenced at the excised wound, whilst in others it was entirely a separate opening. When separate a mid-line or transverse or oblique lateral incision was preferably employed, with a view to causing as little damage as possible to the belly wall. When the incision was completed wound gauzes were put on. The extent of the exploration was determined in great measure by the direction of the track, especially with regard to the solid viscera and to the more or less fixed hollow viscera.

When the small gut area was involved, the first loop that presented was taken, and, commencing at this point, examination of the entire length of it was carried out by passing up and down. The exploration was completed as quickly and gently as possible, any exposed viscera being covered with swabs out of hot saline, bleeding was controlled at once, clamps were fixed over the holes in the hollow viscera to stop leakage and serve as guides, and other injuries were noted. Treatment was as conservative as possible, no resection being done unless the affected viscera appeared damaged beyond repair, or the risk of haemorrhage seemed too great, that is, in the solid viscera.

In the case of the hollow viscera silk was used as suture material, and a transverse line of sutures was preferred to a purse-string in holes in the gut. While a single layer only was commonly used for the small gut, in the stomach and colon an additional layer of Lembert sutures was introduced, frequently reinforced by tags of omentum or appendices epiploicae. After resection of gut end-to-end anastomosis was employed, the suture line being strengthened by a few Lembert sutures. Paul's tubes were only used if the patient was so ill that it would have been fatal to prolong the operation; both patients in whom they were employed died within a few hours of operation. Intraperitoneal bladder wounds were closed with or without drainage of the extraperitoneal track, and no suprapubic cystostomy was done. In injuries of the solid viscera, it was routine to bipp all tracks in them, with the object of controlling sepsis, and, if bleeding resulted, it was controlled by deep catgut sutures. Catgut was always used for suturing, but silk was employed for ligaturing spleen and kidney pedicles.

The cleaning of the peritoneum varied with the class of case. When solid viscera alone were injured blood clot was removed and excessive fluid mopped up, and only in a very large extravasation was a saline irrigation used. In injuries of the hollow viscera, if the extravasation of contents were quite small and limited, all that was done was local cleansing and mopping out with flavine solution 1 in 1,000. If, on the other hand, the extravasation was widely diffused, as occurred chiefly in injury to the full stomach, the upper jejunum, the colon and bladder, the peritoneum was irrigated with flavine 1 in 10,000 or saline, at a temperature of 106° F., and a pelvic drain left in for forty-eight hours, either projecting from the lower end of the incision or from a separate suprapubic stab. There was no hesitation in leaving a smearing of bipp in any area which appeared rather soiled, and similarly all extraperitoneal tracks were bipped. If the foreign body was not encountered in the course of the general operation no prolonged search was made for it.

As a routine the incision was bipped and sutured in layers, the deeper layers with catgut, the skin with silk-

worm, including the superficial aponeurosis or muscle fibres. If the patient was very ill through-and-through sutures of thick silk only were employed.

When both the chest and abdomen were involved the essential feature of the operation was that the abdomen was dealt with through the diaphragm from above, and that the diaphragm itself was repaired from the thoracic aspect. The wound was excised and the injured rib removed for four or five inches. The incision was then carried on, if necessary, along the rib or intercostal space to the abdomen, reaching the edge of the rectus; in other words, it took the direction of the intercostal nerves. The wound in the diaphragm was enlarged if required, the excision extending in some cases right to its costal attachment. By this proceeding the splenic and liver regions were freely exposed by a minimum amount of retraction or none at all, and operations which by the abdominal route had often given rise to much difficulty became relatively easy as the injured viscera presented in the aperture. Indeed, in two cases the spleen was found prolapsed through the wound in the diaphragm, and in one of them a considerable portion of the fundus of the stomach was also present as well as the splenic flexure of the colon. The abdominal lesion having been dealt with, the aperture in the diaphragm was bipped and sutured with strong catgut and the abdomen closed. The chest condition was then investigated. Extravasated blood was removed, any lung track bipped and sutured, and the pleural cavity irrigated with 1 in 10,000 flavine and mopped dry. Finally the parietal incision was bipped and sutured up completely in layers, no drainage of the chest being employed. The anaesthetic for these cases was chloroform and oxygen given by the Shipway method. No detrimental effects were noticed as a result of this method of procedure.

Before leaving the theatre, if the patients were much shocked, an intravenous infusion of 1 to 1½ pints of saline was given. The injection which proved most satisfactory was composed of 3 per cent. gum acacia, 1 per cent. glucose, and 0.9 per cent. sodium chloride. With the injection, a hypodermic of camphor gr. ij in ether 3 ss was usually given.

POST-OPERATIVE TREATMENT.

On coming round from the anaesthetic the patients were propped up either with pillows or on a Fowler's bed, and everything possible was done to stimulate them. If the stomach was injured, a pint of saline with 1 oz. of brandy was given every four hours by the rectum and liquids by the mouth after twenty-four hours, sips at first, gradually increasing the amount. In injury to the small gut, especially if low down, small quantities of liquid were given by the mouth from the beginning and rectal saline with brandy as above described. In injuries of the colon as much fluid and stimulant as possible was given by the mouth. When an extraperitoneal injury of the bladder and rectum was present in addition to intra-abdominal lesions, the bowels were confined, if possible, for seven days with pil. opii gr. j, given two or three times daily as required.

When the chest was involved, respiratory difficulty was combated by position and the administration of oxygen, and hypodermic injections of camphor gr. j in ether m xv were freely given, in some cases every half-hour for a few hours. Morphine was given at first if much pain was complained of, but subsequently omnopon was preferred as a soporific.

In all cases the patients were kept at the advanced operating centre until they were quite fit, the average being about a fortnight, and when they were evacuated they were usually on full diet.

Of the 50 cases, 33, or 66 per cent., recovered, and 17, or 34 per cent., died.

The average time of all cases before operation was 8½ hours. Excluding Case No. 11, which was 42 hours, the average was 7.6 hours. Case No. 11 was operated on because of abscess and cellulitis in the right groin and iliac fossa; there was a fracture of the ilium, extraperitoneal and intraperitoneal holes in the caecum, and several large holes in the small gut, with widely diffused extravasation and advanced peritonitis. The average time among the recoveries was 7.3 hours, and that among the deaths, omitting Case No. 11, was 8.3 hours.

TABLE I.—Thirty-three Recoveries.

No. of Case.	Time in Hours.	Small Gut.	Large Gut.	Liver.	Spleen.	Kidney.	Omentum and Mesentery.	Chest.	Other Complications.
1	12	1	—	—	—	—	—	—	—
3	4	—	—	1	—	1	—	1	Fractured transverse processes of vertebrae. Flesh wound of thigh.
4	4	—	1	—	—	—	1	—	—
6	9	1	1	—	—	—	1	—	—
7	—	1	—	—	—	—	—	—	—
9	14	1	—	—	—	—	1	—	—
12	8½	—	—	—	1	—	1	1	—
14	12	—	—	1	—	—	—	—	Fractured sternum.
16	6	1	H.	—	—	—	—	—	—
17	6	H.	—	—	—	—	1	—	—
18	8	—	—	—	—	—	1	—	—
19	17	—	—	—	—	—	D.	1	Perforation into splenic pouch.
20	5½	1	—	—	—	—	1	—	Gut divided; anastomosis; no resection. Fractured ribs.
22	7	—	—	—	—	—	—	—	Through-and-through loin—intraperitoneal.
24	4	—	—	1	—	—	—	1	—
25	3	—	—	—	—	1	—	—	Fractured spinous and transverse processes of vertebrae.
27	5½	—	—	1	—	—	—	1	Piece of liver lying free in chest, 2½ in. × 1½ in. × 1 in.
29	3½	—	—	—	1	—	1	1	—
30	4	1	1	—	—	—	1	—	—
31	7	—	—	—	1	—	—	1	—
32	—	—	—	—	1	—	—	1	—
33	4½	—	—	1	—	—	—	1	Compound fracture of tibia and fibula.
34	18	—	—	—	1	1	1	—	—
35	5	—	—	1	—	—	—	1	—
36	—	—	—	—	1	—	1	1	—
37	12	1	—	—	—	—	1	—	—
38	5½	1	—	—	—	—	1	—	—
41	6½	1	—	—	—	—	—	—	Fractured ilium.
43	2½	—	—	1	—	—	—	1	Fractured radius, etc. (multiple).
44	8	—	—	—	1	—	—	1	—
48	7	1	—	—	—	—	1	—	—
49	5	R.	—	—	—	—	R.	—	—
50	5	—	—	1	—	1	—	—	Fractured rib and transverse process of vertebra.

H., Haematoma. R., Hernia. D., Hernia through diaphragm.

All the cases were shell wounds except No. 20 (gun recoil) and No. 30 (bomb). The stomach was wounded in one case only, No. 36 (part of wall); the pancreas also was wounded in one case only, No. 31. The spleen was excised in Cases 31 and 32, and the kidney in Cases 25 and 50. The bladder was involved in Cases 7 and 30. Resection was performed in Cases 7 and 41.

In the 50 operations—

The stomach was injured in	...	...	5 cases
The small gut in...	...	...	22 "
The large gut in...	...	...	14 "
The liver in	...	...	12 "
The spleen in	...	...	10 "
The kidney in	...	...	6 "
The pancreas in	...	...	1 case
The omentum and mesentery in...	...	...	21 cases
The bladder in	...	...	4 "
The chest was perforated in	...	...	16 "
Associated fractures, apart from the fractured ribs in thoraco-abdominal wounds, in	...	...	18 "
Resection was performed in	...	...	6 "
Anastomosis was performed without resection, one of the jejunum and one of both small and large gut, in...	...	...	2 "

TABLE II.—Seventeen Deaths.

No. of Case.	Time in Hours.	Stomach.	Small Gut.	Large Gut.	Liver.	Spleen.	Omentum and Mesentery.	Chest.	Other Complications.
2	9	—	—	1	—	—	—	—	Multiple wounds; toes and fingers amputated.
6	8	—	1	1	—	—	—	—	—
8	12	—	1	1	—	—	—	—	Both small gut and colon divided; double anastomosis; fractured ilio-sacral region.
10	17	—	1	1	—	—	1	—	Multiple; knee-joint with fracture and fractured ulna.
11	42	—	1	1	—	—	1	—	Fractured ilium.
13	—	—	1	—	—	—	—	—	(Two large protrusions of gut.)
15	9	—	1	1	—	—	—	—	—
21	6	—	1	1	—	—	1	—	(Very large protrusion of gut.)
23	2½	1	—	—	1	—	1	—	—
26	2½	—	—	1	1	—	—	—	Fractured ilium.
28	7	—	1	1	—	—	—	—	—
39	10	—	—	—	1	—	—	—	Fractured transverse process of vertebra.
40	11½	1	—	—	—	1	1	1	Compound fracture of skull; penetrating.
42	8	—	1	—	—	—	1	—	Multiple; fractured clavicle, etc.
45	9	—	—	—	—	1	—	1	Multiple wounds; both knees, head, arm, etc.
46	—	—	1	1	—	—	1	—	Fractured body of vertebra.
47	8	1	—	—	1	1	—	1	—

All the wounds were caused by shells with the exception of Cases 23 and 26 (bomb wounds).

The kidney was involved in two cases (Nos. 15 and 39); the bladder also was injured in two cases only (Nos. 5 and 26). Resection was performed in four cases (Nos. 5, 28, 42, and 46). Case 45 had two wounds of lung and one of heart. The spleen was excised in Case 47.

In the 17 deaths there were—

2 cases in which the intra-abdominal injury was limited to solid viscera:

Case 39.—Injury to liver and kidney and fractured transverse process of vertebra. *Post mortem* there was no sepsis, and the liver presented the typical appearances of delayed chloroform poisoning.

Case 45.—In this case there were, in addition to a ruptured spleen, two perforating wounds of the lung, a wound of the left ventricle of the heart, and multiple peripheral wounds, including both knee-joints.

3 cases in which the stomach was perforated (Cases 23, 40, and 47).

2 cases in which the small gut alone was injured (Cases 13 and 42).

2 cases in which the large gut alone was injured (Cases 2 and 26).

8 cases in which both large and small gut were injured (Cases 5, 8, 10, 11, 15, 21, 23, and 46).

8 cases had fractures associated with the intra-abdominal lesions apart from the fractured ribs of the patients with thoraco-abdominal wounds. These included three fractures of the pelvis and one penetrating head wound.

Almost all the deaths occurred within twenty-four hours of the operation. There were—

3 splenectomies with one death (Case 47).

2 nephrectomies with no death.

6 resections with four deaths (Cases, 5, 28, 42, and 46).

2 anastomoses without resection; one of the jejunum (Case 20) recovered, and the second, a double anastomosis of small and large gut (Case 8), died.

16 cases with associated perforation of the chest, with three deaths (Cases 40, 45, and 47).

No untoward results were observed in those cases in which the foreign body was not removed at the operation. No case underwent a second operation, and no chest required reopening. In no case did the wound break down, although there were one or two stitch abscesses, which occurred in the region of the original wound. The sutures were not removed before the seventeenth day.

AN ABDUCTION SPLINT FOR THE FEMUR.

BY
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THE war has demonstrated that for the early treatment and transportation of patients with fractures of the femur Thomas's knee-splint is the best general utility splint, and that rigid extension from the ischial tuberosity is practical. There is, however, a class of fractures of the femur—that is,

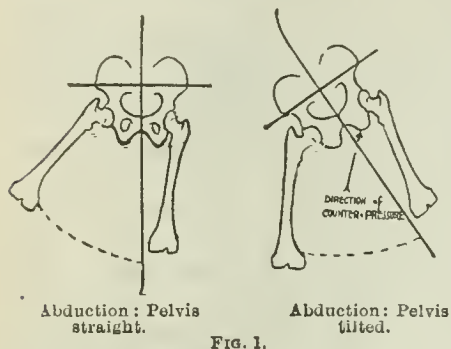


FIG. 1.

those in the upper third—which presents great difficulty to treatment with Thomas's splint, particularly when accompanied by extensive flesh wounds of the buttocks and hips. These cases require abduction as well as extension. Their wounds should be available for dressing. They and their splint should be easily transported, and immobilization of the fracture maintained.

There is no splint in use at present which performs all of these functions. Thomas's splint does not produce abduction, and the ring interferes with the dressing of high thigh and buttock wounds. Bradford's frame, the Hodgen-Balkan combination, and Sinclair's bed cannot be transported. The Jones abduction frame is cumbersome, expensive, and often very uncomfortable. All of these tie the patient and hold him so that he is unable to move. Sinclair's bed tilts him up the wrong way—head downwards—so that pus tends to track upwards. All of these appliances produce abduction at the hip-joint by swinging the leg away from the mid-line of the body; thus the leg protrudes from the side of a stretcher or bed and is bumped against in transport. There is another way of producing abduction, that is, by tilting the pelvis. The diagrams (Fig. 1) will explain this. By making use of this principle and bearing in mind that most high compound fractures of the femur are accompanied by extensive flesh wounds of the buttocks, thighs, or hips, I have devised a splint,

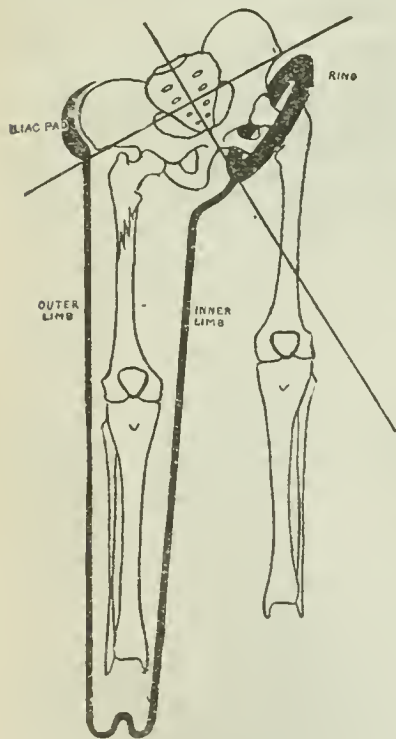


FIG. 2.

based upon the lines of the Thomas, which has proved useful in my hands.

The Thomas ring is transposed to the uninjured thigh, producing a base for extension against the ischial tuberosity on the sound side of the pelvis (Fig. 2). Coming from this ring is the inner rod of the splint, which has an offset near its origin for the genitals. This rod is continued as in the

ordinary Thomas into the outer rod which fastens to an iliac pad, since the ring is on the opposite thigh. This pad fits just below and parallel to the crest of the ilium on the same side as the fractured femur. The pad is continued into a broad band which passes round behind the pelvis and fits snugly to the hollow of the sacrum. When the pelvis is tilted by counter force on the opposite tuber ischium, this pad impinges, not on the iliac crest, but just below it on the plane of the ilium, which is well protected by the gluteus medius muscle. In front the ilio pad and the ring are connected by an iron rod running transversely across the body (Fig. 3). This is adjustable for width, so that the splint will fit any sized man. The band which passes around the back buckles to this transverse bar in front. The outer rod of the splint is also adjustable, and serves the double purpose of increasing the length of the splint and of varying the abduction angle. The material used is $\frac{3}{8}$ in. iron rod for all parts except the pelvic band, which is a strip of sheet iron 2 in. wide, curved on the flat to fit the back (Fig. 4). The ring is made in varying sizes, from 20 in. to 26 in. A 22 in. ring is the best for universal use. The adjustments are made by means of a coarse screw and nuts. The ring and the iliac pad are well padded. The pelvic band is lightly padded. These parts are covered with leather, and the pelvic band continued into a strap. The buckle is fixed to the transverse bar in front.



FIG. 3.

This splint is applicable to any case in which abduction is required. It produces a maximum true abduction angle of 45 degrees, and can be adjusted to any lesser angle. The absence of a ring round the wounded thigh leaves space for dressings. The hip-joint is fixed. The back, arms, and sound leg are free. This enables the patient to move about in bed, changing the pressure points, and thus preventing bedsores. He can sit up on a back rest. He can raise his buttocks off the bed by making a tripod of his shoulders and the heel of the sound leg, and thus use a bedpan in comfort. One patient has been able to roll over and sleep face downwards. The splint is light and inexpensive compared to other abduction appliances, and is as easily transported as the ordinary Thomas.

Fixed extension can be changed to weight and pulley extension when desired. I have been using a graduated spiral spring extension on the principle of the spring

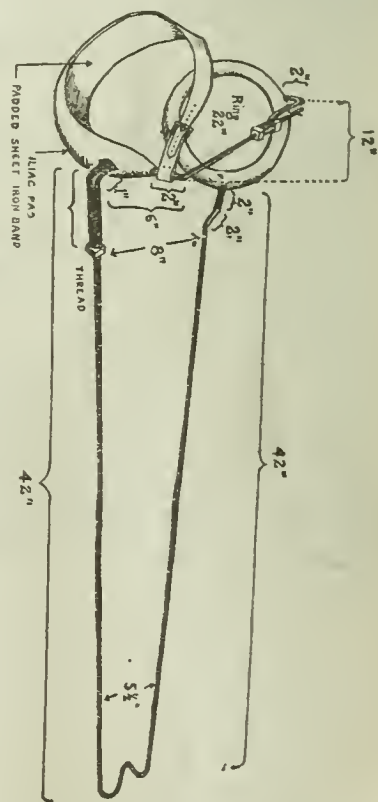


FIG. 4.

balance. This reads in pounds. I have seen the ischial tuberosity bear a push of 20 lb. for months without making the skin sore.

Flexion at the hip can be obtained by bending the splint or by elevating the feet as with a Thomas. I have seen no tendency for scoliosis to persist after the splint is removed. Within a day or two the lumbar vertebrae resume their normal position.

Two of the cases which I have treated with this splint follow. The x-ray plates are shown as black and white drawings, since the plates were too thin to make good prints.

CASE I.

Driver S. Bullet wound, September 30th, 1917. Entrance wound in left groin; exit left great trochanter. Operation same day: Wounds excised and cleaned; bipp. Comminuted fracture of femur—upper fragment in abduction. Abduction splint applied. October 20th: Comfortable; no fever; wounds clean. Body covered with boils due to pediculi. Boil over sacrum ruptured. October 25th: Boil over sacrum healed; no bed sore.

November 16th: X ray showed spiral fracture through lesser trochanter with a split running into great trochanter and moderate comminution. Upper and lower fragments in good alignment. Abduction at hip of 35 degrees. Some callus near lesser trochanter.

November 17th: Wounds healed. Bony union—all movements at hip and knee good. December 15th: Up and walking in calliper splint. Both legs are the same length.

CASE II.

Pte. J. Bullet wound, October 22nd, 1917. Fracture of left femur at lesser trochanter. Operation: Foreign body removed; wound cleaned; Thomas splint.

November 10th: X ray showed spiral fracture beginning just above the lesser trochanter and following the spiral line,



FIG. 5.—Tracings of x-ray plates of Pte. J. A, Fracture while on Thomas splint. Upper fragment in abduction. Angulation at fracture and consequent shortening. B, Fracture while on abduction splint. Fragments in line with slight over-correction and 1 cm. over-extension.

leaving the lesser trochanter intact on the upper fragment. Considerable comminution and loss of some cortex. Upper fragment is turned out in abduction and is flexed at the hip. Lower fragment in poor line. There is marked angulation at the point of fracture. Plate shows some hazy callus, probably not bony.

Operation, November 16th: Fragments forced into position; callus broken up. Nails driven into condyles for extension. Abduction splint applied. On November 18th x ray showed marked improvement. There was slight over-correction (Fig. 5). Abduction angle lessened from 45 to 35 degrees. Alignment perfect.

December 12th: Condylar nails loose; removed. Adhesive leg extension. December 25th: Union firm.

Measurements:

	Left.	Right.
Great trochanter to adductor tubercle	41 cm.	40 cm.
Anterior iliac spine to adductor tubercle	45 cm.	44 cm.
Anterior iliac spine to internal malleolus	85.5 cm.	85 cm.

The fractured femur is 1 cm. longer than the sound one.

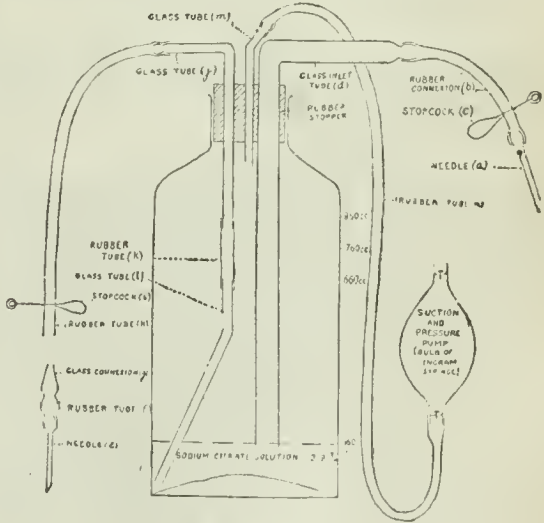
A METHOD OF CITRATED BLOOD TRANSFUSION.

BY
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TRANSFUSION with citrated blood has had a fairly wide use in civil practice during the past few years. Reports have varied concerning the satisfaction this method has given. Some workers report excellent results. Others have experienced certain drawbacks, especially the occurrence of reactions after transfusion. Although the method of citrate transfusion is very simple, definite precautions must be observed or the blood will undergo changes, while outside the body, that may render it toxic. The very fact of the apparent simplicity of transfusion with citrated blood has undoubtedly led in many instances to a lack of appreciation of the care necessary in carrying out the technique, with consequent undesirable after-effects; blood is a very delicate tissue, and must be handled accordingly. The chief consideration is to get the blood quickly and cleanly into the citrate solution so that coagulation changes, which always begin the moment the blood leaves its containing vessel, may be stepped as soon as possible. The passage leading from the vein to the citrate must be of large diameter, as short as convenience will permit, and absolutely clean. The blood must be well mixed with the citrate at once. With unsuitable apparatus, clotting will probably occur in the tube system, which, although it may not entirely occlude the lumen, will slow the flow to such an extent that the blood undergoes considerable change before reaching the citrate. This is the kind of blood which tends to produce reactions when transfused. With properly constructed apparatus and careful technique, reactions ought to be of infrequent occurrence.

APPARATUS.

The apparatus shown in the diagram has been found satisfactory. It is simple in use and can easily be made out of material at hand.



Transfusion apparatus.

A. Transfusion Bottle.

A wide-mouthed well cleaned drug bottle with a capacity of 900 to 1,000 c.cm. will serve as the transfusion bottle. It should be short and wide, rather than long and narrow, since this shape diminishes the length of intake tube necessary. Three marks are made on the bottle with a file, one at the 660 c.cm., one at the 760 c.cm., and the other at the 860 c.cm. levels, indicating 500, 600, and 700 c.cm. of blood respectively. It is well to use a glass pencil as well to make the marks more distinct. 160 c.cm. of a 3.8 per cent. solution of sodium citrate (isotonic), made up with freshly distilled water and filtered, is placed in the bottle, which is stoppered with a cotton plug wrapped

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in gauze. A second piece of gauze is tied on over the stopper and neck of the bottle. It is then autoclaved; half an hour at 105° C. should be the minimum. Where a number of transfusions are being given half a dozen or more of these bottles are prepared at once.

B. Bleeding System.

The needle (a) should be of a large bore—1.5 to 2 mm. internal diameter was found to work well—and not more than 3.5 cm. long (1.5 in.). It should have a fairly large olive-shaped base. The needle is the most important part of the apparatus, and requires careful attention. Before each bleeding it should be carefully sharpened. The most important consideration in the sharpening is to produce a good spear-point. If the point is well protected when not in use by a metal barrel or piece of rubber tubing, sharpening will require only a moment or so. The needle must be kept scrupulously clean, and after each bleeding should be washed out at once, all fragments of fibrin or clot removed from the base, and small pieces of cotton-wool soaked in liquid paraffin thrust through the lumen with the stilette. The whole needle is well oiled before being put away.

The rubber connexion (b) should be flexible, and not more than 8 cm. long (3 in.). The inner surface should be smooth, and the lumen slightly smaller than that of the glass inlet tube (c). If the rubber connexion fits snugly over the base of the needle, tying it on is not necessary.

The glass inlet tube (d) is made of a large-bore glass tubing about 6 mm. internal diameter. It should extend below the level (A) of the solution in the bottle.

C. Transfusing System.

The needle (e) employed has a bore about half the size of that used for bleeding. The length is not important. As shown in the illustration, the needle is attached to a short glass tube (g) by means of a small piece of rubber tubing (f).^{*} The free end of the glass tube is thrust into the end of the long rubber tube (h) after the needle is in the vein. The rubber tube (h) may be of any convenient length. The glass tube (i) is bent so that the end projects into the lowest part of the bottle. In this way almost every drop of blood in the bottle may be given.

D. Pump.

The bulb of an Ingram syringe serves as a pump with the valves arranged as in the diagram. Suction or pressure can be made by reversing the ends.

PROCEDURE OF BLEEDING.

The donor's arm is extended at a right angle to the body. The skin of the antecubital space is scrubbed up with soap and water, and the sterilization completed with alcohol. A tourniquet is applied to the arm high up, and a suitable vein chosen, remembering that the needle is to be inserted towards the hand. It is very important to have as large a vein as possible. Opening and closing the fist and flicking the skin below the point chosen for venepuncture aids much in dilating the veins. At the point selected to puncture a small amount of novocain is injected intracutaneously. The tourniquet is then released. The apparatus is assembled as shown in the diagram, great care being taken to keep all the open parts sterile. The stopcock (j) is closed and the open end of the rubber tube (h) protected with a piece of sterile gauze which is conveniently held on by a pair of Spencer Wells forceps. Sufficient pressure is made with the pump to fill the bleeding system with solution. When the air has been driven out of the needle, the stopcock (c) on the connecting tube is closed. The pump bulb is reversed so that suction can be made when needed. The apparatus is now ready for use.

The tourniquet is again tightened sufficiently to make the veins stand out well, but not enough to obliterate the pulse. The cuff of a blood pressure apparatus makes an excellent tourniquet with a pressure kept at 50–60 mm. of Hg. A small nick is then made through the skin with the point of a scalpel. The bottle is placed on a stand close to the patient's arm in such a position that there

will be no kinking of the rubber connexion when the needle is in the vein. Slight suction is next made in the bottle. The skin opening is mopped dry with a piece of sterile gauze and the needle inserted for a short distance beneath the skin before entering the vein. The stopcock (c) is then opened and the needle is pushed into the vein immediately. The blood follows the column of solution down the tube without leaving an air space. A moderate degree of suction is maintained, and the donor continues to open and close his hand slowly, care being taken that he does not move his arm. It is essential to keep the needle immobile. The operator should hold it throughout the bleeding, steadying his hand against the donor's arm. With the free hand the bottle is given a rotary motion every few seconds in order to ensure thorough mixing of the blood. In doing this care should be taken to avoid pulling on the needle. With these precautions 500 to 700 c.cm. of blood can be easily and quickly obtained.

If clotting occurs for any reason, such as the needle slipping out of the vein or air leakage, and the blood ceases to flow, the tourniquet should be released, the stopcock closed, the needle withdrawn from the vein, and another attempt made with a fresh apparatus (needle, rubber connexion, and glass tube), using the same receiving bottle. It is usually better to take the other arm.

When the blood has reached the desired amount the tourniquet is removed, the stopcock closed, and the needle withdrawn. The bottle is again agitated for a few seconds.

If the donor's veins are small and the needle method fails, the vein can be cut down upon and a cannula used. Inserting a cannula into a vein is more difficult and time-consuming than the needle method, and offers greater possibility for infection.

The bottle of blood is placed in a glass jar containing water of about body temperature, in which it is kept during transfusion. The pump is reversed and the blood is now ready for transfusion. It will be noted that a column of blood is left in the intake tube after the bleeding has been stopped. This is done in order to avoid drawing into the bottle any little clumps of fibrin which may have begun to form immediately after the cessation of blood flow through the tubes. Leaving this blood does no harm. The blood should be given as soon after the bleeding as possible. If it is left standing for some time, changes may occur which make the blood less beneficial or even toxic.

PROCEDURE OF TRANSFUSION.

The recipient's arm is prepared in a manner similar to that described for the donor and a small amount of novocain injected into the site chosen for the vein puncture. It is well to tie the rubber stopper down to the bottle with two strips of adhesive plaster in order to prevent it from flying out when the pressure increases. After these preparations have been completed, sufficient pressure is put on the pump to fill the transfusing system with blood. The stopcock (i) is opened to let the air out, then closed. The tourniquet is next tightened. As soon as the needle enters the vein blood flows out through the short glass tube; the tourniquet is immediately released, the apparatus is connected up, the stopcock opened, and the pump started.[†] This technique is simple, and, if carried out carefully, there is no danger of forcing air into the vein. If the veins are collapsed or constricted, as is the case in certain patients with shock and haemorrhage, it may be necessary to cut down on the vein and use a glass or silver cannula instead of the needle.

By using a needle it is scarcely possible to force the blood in too rapidly. With a cannula care must be taken to go slowly. Ten minutes should be the minimum time for the introduction of 500 c.cm. of blood. Care should also be taken to close the stopcock before the air bubbles begin to pass up the tube.

REMARKS.

The question may be raised whether it is not better to coat the inside of the bottle and tubes with paraffin. Theoretically this would be a good thing, and in "peace" times it can be carried out. In rush periods, however, it

^{*} A needle with a close-fitting metal connexion is more easily handled. The metal connexion is slipped into the open end of the rubber tube (h) beforehand.

[†] The operator should hold the rubber-glass connexion firmly throughout the transfusion.

is quite impractical on account of the time required for the coating. Furthermore, judging by the excellent results obtained without the use of paraffin it seems questionable whether a paraffin coating is necessary.

An isotonic solution of sodium citrate is used instead of the 10 per cent. solution customarily employed, since it is felt that this maintains more nearly normal conditions for the blood. The amount of sodium citrate contained in the 160 c.cm. of "isocitrate" is approximately 6 grams. No harmful effects have ever been observed from the injection of this quantity of citrate, which is very much less than the supposedly toxic dose; 0.5 per cent. citrate has been shown to be sufficient to prevent clotting when well mixed with blood. When 500 c.cm. blood are drawn into 160 c.cm. of a 3.8 per cent. solution the resulting mixture is 0.9 per cent. citrate. With 700 c.cm. blood it is 0.7 per cent. An amount of blood as large as 800 c.cm. may be taken into this amount of citrate with safety if the blood flow is well maintained and the blood and citrate are thoroughly mixed. The sodium citrate in this mixture equals 0.6 per cent. In bleeding quantities over 700 c.cm. the flow through the needle frequently begins to slow up and mixing the blood and citrate becomes more difficult.

RESULTS.

This method was used under rush conditions. Forty-four transfusions were given to 38 patients. The patients transfused were cases of haemorrhage and shock—chiefly the former. Donors were always tested beforehand for compatibility of blood. The amount of blood given in a single transfusion varied from 400 c.cm. to 700 c.cm. The average quantity was between 500 c.cm. and 600 c.cm. In cases of very marked anaemia a second transfusion was occasionally given. Briefly it may be stated that the immediate effect of citrated blood was the same as that seen after the transfusion of blood by the other methods in common use. The blood pressure increased from 20 to 40 points afterwards. On one occasion there was a rise of 50 points, after only 450 c.cm. of blood. The general improvement was maintained and increased. The patients stood operation well, and subsequent progress was fully as satisfactory as seen ordinarily following transfusion. Of the 38 cases transfused 25 were evacuated to the base in good condition, and 13 died—a mortality of 34 per cent.

No reactions of any consequence were observed. In several instances there was slight chilliness during or immediately following transfusion, which soon passed off without further discomfort. It was impossible, under the rush conditions, to keep temperature charts on the majority of the patients, but in a number of instances in which temperatures were taken no rise occurred afterwards.

ADVANTAGES.

Aside from the chief advantage of its being a "one man job," this method has several other considerations in its favour. The apparatus can be made from materials easily obtained. The technique of transfusion is simple and quickly carried out. The bleeding can be done in a conveniently arranged room outside the resuscitation ward. The blood is then carried into the ward and given at the bedside without the necessity of moving the recipient, thus avoiding injury, which is often done to the patient in shock by moving him to the operating theatre, or even on to a table near by.

SUMMARY.

The use of citrated blood for transfusion seems to fill a definite need in that the technique is relatively simple, easily acquired, and can be carried out entirely by one medical officer. Furthermore, this method obviates the necessity of having the donor and recipient together, and the blood can be given at the bedside. Stress is laid on the fact that, although the technique is apparently very simple, certain definite precautions must be observed in the handling of the blood in order to obtain good results. The chief considerations in the technique are to get the blood quickly and cleanly into the citrate, to obtain prompt and thorough mixing of the blood with the citrate, and to transfuse the blood as soon as possible after the bleeding.

An apparatus is described which can easily be constructed, and has been found to work satisfactorily. The

blood is received into isotonic sodium citrate—3.8 per cent. The amount of this solution—160 c.cm.—contains 6 grams of sodium citrate, which has no harmful effect. When a good blood flow is maintained through a needle of adequate calibre and the blood and citrate are well mixed, as large a quantity as 800 c.cm. blood may be obtained by this method.

A series of forty-four citrate transfusions were given under rush conditions at a casualty clearing station with good results. The immediate effect of the transfused blood and subsequent progress of the cases were fully as good as that seen following ordinary transfusion. No reactions of any consequence were observed.

DESTRUCTION OF NITS OF THE CLOTHES LOUSE BY SOLUTIONS OF CRESOL-SOAP EMULSION AND LYSOL.

BY

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THESE experiments were carried out with a view to assisting officers in charge of baths and wash-houses where the clothes of infected troops are treated in order to rid them of lice. From conversations with officers in charge of these establishments it appears that a precautionary measure frequently employed is to steep infected garments in a vat containing solutions of cresol-soap emulsion. There exists, however, some uncertainty as to the strength of the solution and period of immersion necessary to destroy the nits of *Pediculus humanus*. In this connexion it may be pointed out that overlapping methods of disinfection should if possible be avoided in the interests of economy. Hot water or dry heat at 55° C. destroys both nits and active lice within thirty minutes, even when protected by a covering of khaki cloth; while, if the temperature is raised to 60° C., fifteen minutes suffice. If at any period during the process of washing or drying garments they are subjected to the temperatures and periods above given, chemical solutions are unnecessary; if, on the other hand, the garments are steeped in effective chemical solutions, then it is unnecessary to use temperatures so high as those mentioned for washing or drying.

In utilizing the results of the present experiments for practical disinfection it must be borne in mind that solutions of both cresol-soap emulsion and lysol degenerate in their effectiveness for the destruction of bacteria in relation to the organic matter with which they become charged during use, and it is probable that a somewhat similar fall in their effectiveness for the destruction of nits may occur. It has not been possible, so far, to ascertain if this probable drop in efficiency occurs, owing to our lack of knowledge of the exact condition of use. If samples of solutions actually employed could be forwarded to the Lister Institute, with the necessary data as to strength and the relations of quantity of fluid and period of use, and the number of garments treated, it would be possible to carry out the experiments necessary to obtain information on this point.

METHOD OF TEST.

Pieces of army shirt flannel on which numerous nits had been laid were immersed in the solutions for the periods shown in the accompanying tables; they were then taken out, and the superfluous fluid removed by placing on filter paper for a few minutes. After this they were placed in small entomological boxes lined with a strip of dry flannel, and carried in a thin cotton bag, suspended from the neck between skin and shirt, to incubate.

On examination of the tables it will be noted that the lysol (crude carbolic acid and soft soap emulsion) solutions are decidedly more effective than the cresol-soap emulsion solution at the higher temperature but less so at 32° F. Why this should be the case is not evident. The difference

TABLE I.—Mortality of Nits of *Pediculus humanus* due to Immersion in Watery Solutions of *Liquor Cresoli Saponatus Fortis*.

Temperature and Period of Immersion.	Strength of Solution.	No. of Eggs.	No. Hatched.	No. Died while Hatching.	Percentage Mortality.
Per cent.					
Temp. 60-65° F.	2.0	94	3	7	97
	1.5	51	26	9	49
	1.0	69	37	10	46
	0.5	46	41	2	11
5 minutes ...	0.2	79	64	2	19
20 minutes ...	2.0	106	Nil	—	100
	1.5	82	1	—	99
	1.0	93	5	4	95
	0.5	68	24	10	65
20 minutes ...	0.2	37	30	3	19
20 minutes ...	2.0	68	Nil	—	100
45 minutes ...	1.5	92	Nil	—	100
2 hours ...	1.0	64	Nil	—	100
2½ hours ...	0.5	99	Nil	—	100
22 hours ...	0.2	90	Nil	—	100
Temp. 48° F.					
20 minutes ...	2.0	95	Nil	—	100
	1.5	104	Nil	—	100
Control* ...		85	66	1	23
Temp. 32° F.					
20 minutes ...	2.0	137	1	1	99.3
	1.5	123	Nil	—	100
Control* ...		51	46		10

* The controls were exposed to the temperature, but not immersed.

TABLE II.—Mortality of Nits of *Pediculus humanus* due to Immersion in Watery Solutions of "Lysol" (equal parts of Crude Carbolic Acid and Soft Soap).

Temperature and Period of Immersion.	Strength of Solution.	No. of Eggs.	No. Hatched.	No. Died while Hatching.	Percentage Mortality.
Per cent.					
Temp. 60-65° F.	2.0	120	Nil	Nil	100
	1.5	121	Nil	1	100
	1.0	82	2	6	98
	0.5	79	52	7	34
5 minutes ...	0.2	89	70	2	21
20 minutes ...	2.0	89	Nil	Nil	100
	1.5	82	Nil	Nil	100
	1.0	72	Nil	1	100
	0.5	103	46	8	55
20 minutes ...	0.2	94	60	8	34
Temp. 48° F.					
20 minutes ...	2.0	96	Nil	—	100
	1.5	102	Nil	1	100
Temp. 32° F.					
20 minutes ...	2.0	127	1	—	99.2
	1.5	99	7	2	93

in the latter case is not great, and may possibly be largely, if not entirely, a matter of chance, dependent upon uncertainty of action at low temperatures.

An interesting feature of the series is the regular rise in the percentage of lice which die while hatching as the action of the solutions become less fatal up to a mid point, when it again declines to a minimum in proportion as the hatching ceases to be checked owing to the weakness of the solutions. It is a matter of question whether death during escape from the egg is due to the action of the fluids on the eggshell, or to a want of robustness in the larvae.

The evidence as a whole seems to establish the fact that steeping for twenty minutes in a 2 per cent. solution, either lysol or the cresol soap, is quite effective provided the temperature is not below 50° F.

A PLACARD is to be posted in the offices of town and country clerks in the State of New York stating that no marriage licence will be issued until both parties make the following statement on oath: "I have not to my knowledge been infected with any venereal disease, or if I have been so infected within five years, I have had a laboratory test made within that period which shows that I am now free from infection from any such disease."

SOME SIMPLE HOT AIR APPLIANCES FOR FIELD UNITS.

By LIEUT.-COLONEL C. MAX PAGE, R.A.M.C., S.R.

THE rapid transference of the wounded from such organizations as regimental aid posts and advanced dressing stations to the active surgical centre at the casualty clearing station is one of the principal problems which confronts medical units in the forward areas. During this period of transport the main difficulty with which the medical officer has to contend is shock; and once the wounds have been protected and any fractures satisfactorily splinted, his efforts are directed to keeping up or improving the general condition of the patients. The maintenance of body heat plays a most important part in this respect, and is a matter which, if neglected at this stage, may prejudice the whole later course of the case by leaving the man unfit for the essential operation at the casualty clearing station. Various schemes to this end are already in use, but I think it is worth while to describe some apparatus which has proved of practical value in dealing with the problem. More elaborate and capacious plant can be designed on the same principles under stationary conditions, when time and labour are of less account. That described below is essentially portable, and can be made up by any practical man from material ready to hand.

The first need is for some means by which a constant supply of dry and warm blankets and pyjamas can be maintained, and for this purpose a blanket drying chamber is used.

Blanket Drying Chamber.

The apparatus consists of a frame 32 in. square built of 3 in. by 2 in. wood. Two sides are tenoned and the others morticed (Fig. 1); on one face of the two morticed sections

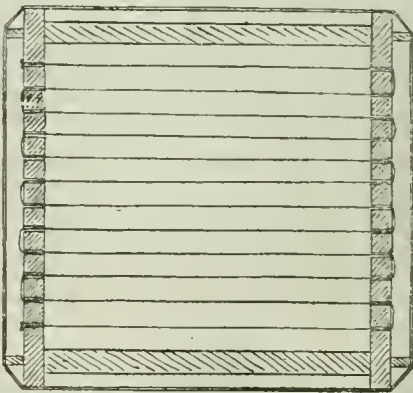


FIG. 1.—Plan of blanket rack, 32 in. square. The main frame is made of 3 in. by 2 in. wood. The central rails form a continuous length of wire or cord wound through the slots in the side members. The outer rail is made of wire or standard splinting.

are cut, at regular intervals, twelve slots half through the wood and wide enough to take ordinary telephone wire. The frame is carried as a bundle of sticks. For use they are fitted together to form a square frame. This is kept firm by lacing with a continuous cord or wire around the slots to form the rack, as shown in the drawing. The wood should be so cut that there is a ½ in. projection of the tenoned and morticed ends; a groove is cut in the middle of these projections and another wire passed round the whole frame through them to form a surrounding rail; if preferred, this rail can be made of aluminium or steel splinting (from fracture box).

To form a drying chamber the frame is suspended by cords in a horizontal position (or supported on a light stand) about 5 ft. from the ground. Blankets folded to fit are hung over the surrounding rail and fixed with a few pins. These blankets are so arranged as to form four complete sides of a box (with blanket walls). The floor will form the bottom, and another folded blanket is placed over the rack, after objects to be dried have been hung on the wires, to form the top.

Two Beatrice stoves, with a simple tin baffle plate to protect the flame, are put on the floor inside the box as the

source of heat. In use no obvious air entry or exit should be left. Under average conditions (with two double-wick stoves) the temperature inside the blanket chamber is raised to about 120° F. in twenty minutes; at this stage, when the apparatus is in use for ordinary drying, the roofing blanket is pushed a little on one side to allow of ventilation, and the contents will then rapidly dry off. If the contents are very wet the temperature in the chamber should be raised higher before free ventilation is allowed.

Simple suspension of the frame, as described above, is the most practical arrangement for forward area work; under stationary conditions it may be supported on a skeleton stand.

Use as a Hot Air Sterilizer.

The same apparatus can be used for sterilizing small batches of clothing when a steam disinfectant is not available. The chamber should then be formed by at least a double fold of blanket all round, and three Beatrice stoves used. With this arrangement the temperature in the chamber can be raised to about 200° F. in twenty minutes. An exposure to this temperature for half an hour will kill lice eggs and the scabies parasite, as the garments, turned inside out, or blankets, being suspended, have their surfaces well exposed. This method does not damage the leather of breeches.

Hot Air Generator.

In an advanced dressing station the first method for raising the wounded man's body temperature is the hot air bath. For this purpose a hot air generator, as shown in the figure, is convenient (Fig. 2). It is made from a standard biscuit tin, or a four-gallon petrol tin; the latter is the stronger. The side of the tin is cut away except for a strip about an inch wide at the top, and a door may be put in the gap so made. The top is cut out and a domed cap fitted in its place. Into one side of the domed cap a short length of tin pipe is set, and a further series of lengths of tin pipe,

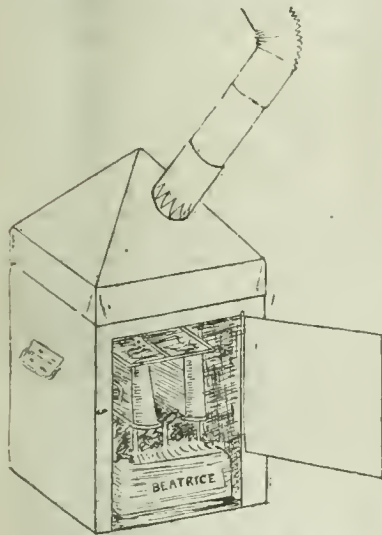


FIG. 2.—Heat generator made from biscuit box or four-gallon petrol tin.

prepared so as to telescope together, form the delivery pipe; the right angle bend is formed by an elbow of the ordinary pattern French stove piping. Solder, though useful for finishing off the dome, should not be relied on for the fixation of any part. If available, sheet asbestos may be applied to the dome and elbow. The addition of handles to the sides of the box is convenient. A double-wick Beatrice stove is placed in the box as a source of heat. The Primus pattern of stove is less reliable, and is not altogether safe for use in the closed apparatus described.

To give a bath, a properly blanketed stretcher on trestles is used, and an air chamber formed over the trunk of the patient by means of a simple cradle (Fig. 3), the whole



FIG. 3.—Skeleton cradle for hot-air baths. Made from aluminium splinting.

being covered by two or three blankets. The cradle frame may be made of skeleton splinting from the field fracture box or of stout wire. This arrangement allows dressings or operations to be carried out on the extremities while the heat is being applied. The box containing the stove is placed under the middle of the stretcher, and the piping arranged to deliver hot air just above the stretcher level. The box and contents are thus well out of the way, and only the pipe elbow projects from beyond the stretcher pole. With this apparatus a hot-air bath of from 130° F. to 300° F. can be given. For the wounded man a fifteen minutes' bath at about 130° F. is, I think, most satisfactory. The high temperature bath should be reserved for the treatment of urinary cases or myalgia under stationary conditions.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DISORDER OF THE RIGHT EXTERNAL SEMICIRCULAR CANAL.

THE two following cases, which present many points of similarity, are of interest:

1. A young woman who had previously suffered from three attacks of retrobulbar optic neuritis, after partaking at breakfast on January 15th, 1918, of rolled ham, which was noticed to be of unusual colour and from which fat was absent, found herself on the way to business falling towards a friend on her right. She struggled against this symptom and giddiness during three days. Then vomiting set in. When seen, there was constant lateral nystagmus. The patient could not stand unsupported, and there was vomiting of cerebral type. There was no deafness to speech test, and no tinnitus. The reflexes of the lower limbs were normal. Twelve days later the nystagmus could be barely elicited; the patient could walk and stand. The condition was that of one after nine days in bed.

2. A man aged 53, after partaking at breakfast on January 26th of ham which was noted to be watery, went to business. Some three hours later he suddenly collapsed on to the floor of his office. He was removed home. His gait as he was helped was to the uninitiated that of a drunken man, and many have been the jokes at his expense. Seen five hours later, he was retching and vomiting mucus like an alcoholic in the early morning; he is not alcoholic. Nystagmus, lateral, was most marked. He could not stand or walk unaided. There were no subjective aural sensations, nor was there any deafness to speech. Now, eighteen days after the onset, there remains only slight incapacity for mental activity. During a week there was slight hissing tinnitus, and for a few days there was a distinct tendency to fall to the right.

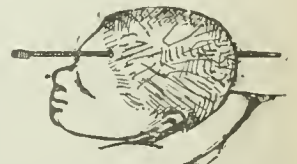
In neither case was there paralysis of cranial motor nerves, nor drowsiness, nor any definite ptosis.

H. D. O'SULLIVAN, B.A., M.B., B.C. Cantab.

Burton-on-Trent.

THROUGH-AND-THROUGH RAMROD WOUND OF HEAD.

On November 9th a girl, aged 8, was brought to me with the ramrod of a gun fixed firmly in her head. It appears that a gun had been left on a shelf, loaded with the gunpowder charge only, and the ramrod left in it. The child in pulling something off the shelf had caused the gun to fall forward, when it went off. The ramrod had entered the cranium one inch above the top of the forehead, half an inch to the left of the middle line, and was protruding for some four or five inches from a point half an inch to the right of the same line and two and a half inches above the occiput. On admission the child was conscious, but the pulse was scarcely perceptible. There was no bruising of the skin, nor any haemorrhage, and the ramrod was so firmly fixed in the skull that the point had to be sharply tapped with a mallet in order to loosen it sufficiently to allow of its withdrawal. For



this the child was given chloroform and the head shaved and the protruding end of the ramrod was painted with iodine before putting it back through the skull. Very slight haemorrhage at the point of exit followed the withdrawal. For the first two days the patient vomited when any food was given her by the mouth, and for the first day the pulse was very slow (48) and intermittent. By the morning it was regular and of good volume. The temperature was 100.8° on the first night, but by the morning of the second day both pulse and temperature were normal. During the next few days the pulse was occasionally irregular, and she complained a good deal of headache, but otherwise she made an uneventful recovery. The little punctured wounds healed in two or three days by first intention, and she was dismissed in perfect health in three weeks, having been kept in hospital long enough to make sure that no cerebral symptoms would develop later. The illustration shows the top of the head with the ramrod *in situ*.

EMMELINE M. STUART, M.B., C.M.Glas.,
Church Missionary Society, Women's Hospital,
Isfahan, Persia.

Reports of Societies.

PATHOLOGY OF MALIGNANT GROWTHS.

A MEETING of the Pathological Section of the Royal Society of Medicine was held on April 16th, when Professor W. BULLOCH, F.R.S., President, was in the chair.

Tumours Arising in Endothelium.

Dr. E. H. KETTLE, in a paper on this subject, said that such tumours were not easy to recognize, as the neoplastic endothelial cell presented no distinctive characters. Some of the accepted diagnostic features were: An undifferentiated polymorphic celled type of growth; a whorled arrangement of the cells with the formation of giant cells; the close association of the tumour cells with blood vessels; and the occurrence of narrow trabeculae or elongated channels, which might contain blood. Some of these features might equally be applied to carcinomata; others appeared to have been accepted with very little critical examination. The author had as yet examined in detail only two specimens.

1. A malignant endothelioma in a woman, aged 44, who had suffered from elephantiasis of the right leg since childhood. In 1914 the limb became extremely painful; several silk drains were inserted, but amputation was performed in 1915. Recurrence ensued, and the limb was amputated through the hip-joint. Histologically the growth consisted of alveoli of cells of very irregular shape, combined with large spaces which contained fluid blood. Clear indications could be seen of its origin, especially at the periphery, where the tumour cells occurred as branching syncytial masses closely resembling vaso-formative cells, or as endothelia lining vascular spaces. A constant feature was the formation of vacuoles in the cells, and it was by the confluence of neighbouring vacuoles that the larger spaces were formed. Blood was extravasated into the spaces from involvement and rupture of capillaries in the stroma.

2. A small infiltrating growth attached to the outer margin of the left erector spinae in an infant; this showed clearly capillary formation by vacuolation of the tumour cells, and the origin of the cells of the neoplasm from the endothelium of long complex capillaries, which established communication with healthy veins.

Autologous Grafting of Malignant New Growths in the Mouse.

Dr. J. A. MURRAY showed a series of charts illustrating the typical sequences which are met with in autologous grafting of malignant new growths of the mouse. In a series of 405 experiments 302 positive results were recorded. Of the 103 negative autoinoculations death occurred in 53 before the lapse of four weeks, and could be ignored as delay for this period was common. The significance of the remaining 50 negative results (15 per cent.) was discussed. It was shown by a study of individual charts that the negative results might be due to a variety of extrinsic causes apart from lack of vitality in the cells of the graft. The conditions of experiment made it impossible to utilize negative results in individual cases. The occurrence of delayed positive results made the method quite unsuitable for diagnostic purposes in the human subject.

TREATMENT OF SYPHILIS.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, on March 22nd, the President, Dr. HENRY O. DRURY, in the chair, a discussion on the treatment of syphilis was opened by Dr. T. PERCY KIRKPATRICK. After insisting on the importance of early treatment, he said that efficient treatment included the administration of salvarsan or some analogous drug. He had himself followed the procedure recommended at the Military Hospital, Rochester Row, using either kharsivan or diarsenol, and had no doubt that the procedure was efficient. But the question arose whether treatment by galyol or some of the other preparations might not be as good or better. In the treatment of some patients in the early secondary stage, and in practically all in the late secondary or tertiary stages the course of treatment had to be much longer than when it was begun in the early stages. He had followed the plan recommended at Rochester Row of courses of salvarsan accompanied by mercury, repeated till a permanent negative Wassermann reaction was obtained. Some patients actively treated until an apparent cure was effected—whose blood serum gave a persistently negative Wassermann reaction—afterwards developed such parasyphilitic affections as general paralysis of the insane and locomotor ataxia. In such patients the cerebro-spinal fluid continued, as a rule, to give a positive Wassermann reaction. It was doubtful whether a definite prognosis should ever be given without an examination of the cerebro-spinal fluid. In the course of his paper Dr. Kirkpatrick expressed his acknowledgements to officers of the R.A.M.C.

Major H. C. DONALD, R.A.M.C., who followed, said that the use of salvarsan combined with mercury had given very satisfactory results. Under mercury alone 83 per cent. of soldiers had been readmitted to hospitals, at least once during the first year, for relapse. Under salvarsan combined with mercury the percentage was less than 1.3. The latter statement was founded on the record of over 10,000 cases. Of the drugs in use in the army kharsivan, arseno-benzol, and galyol were the most usual, and had all proved successful; galyol had not been so efficacious as the other two, but it had the advantage that it was easily mixed and could be given intravenously with a Record syringe. It must be used at once, as it quickly became oxidized. Llargol, containing silver and antimony in combination, had been used recently with apparently good results, but their permanence could not yet be affirmed. At the beginning of the war the intravenous method of administration of kharsivan—allowing the solution to flow into the veins by gravitation—was most in use. Neo-kharsivan had given excellent results. Within the last year or eighteen months there had been a tendency to return to the intramuscular or deep subcutaneous injection, and he believed that some day it would prove to be the most successful and simple method, and well suited to dispensary practice. The objection was the amount of local pain sometimes caused. The addition of stovaine had not seemed to help much, and he preferred to mix the dose in 10 or 12 minims of distilled water, to diffuse as well as possible while injecting, and to massage the buttock well afterwards. The course at present in use in the army, as suggested by Lieut.-Colonel Harrison, R.A.M.C., was as follows:

Seven weekly doses of the arsenic compound selected were given intravenously, commencing with 0.3 gram for the first three doses, 0.4 gram for the next three doses, and then one dose of 0.5 gram, a total of 2.6 grams. If administered by the intramuscular method the doses were two of 0.45 gram, followed by five of 0.6 gram, a total of 3.9 grams. A weekly dose of 1 grain of mercury as cream was given by intramuscular injection. If at the end of the course the blood reaction was negative the patient was directed to have a blood test made at the end of two, four, six, and twelve months. If the reaction was positive or doubtful the man was put on a course of potassium iodide for fourteen days, and then given two weekly doses of 0.3 and 0.4 gram of the arsenical drug and 1 grain of mercury. Tertiary cases received the same course, repeated after intervals during which potassium iodide and mercury were administered. It was necessary to determine repeatedly the Wassermann reaction of the cerebro-spinal fluid before pronouncing a patient cured.

Major Donald had not seen many cases of syphilitic diseases of the nervous system in the army during the war, but had been struck by the marked improvement of

symptoms under salvarsan and mercury. He related the following case as an instance:

A discharged soldier, aged 49 years, but looking much older, with marked signs of tabes, practically crawling, with loss of control of bladder and rectum, presented himself for treatment, giving a history of syphilis contracted nine or eleven years before. He was treated as an outdoor patient after being detained a couple of days for spinal puncture—Wassermann positive. He was put on potassium iodide for a fortnight, and then attended weekly for kharsivan and mercury. The drug was given intramuscularly; after five injections he was walking much better, and had recovered the control of his bladder and rectum, was in good health, and looked much younger.

Major Donald thought that all cases of parasyphilis of the nervous system should be treated by salvarsan and mercury, even though at times the treatment seemed to aggravate the symptoms. He would begin by giving a course of potassium iodide and mercury for a fortnight, and then doses of 0.1, 0.2, 0.3 gram salvarsan weekly, allowing fourteen days' rest between each seven injections until four to five grams had been reached. Potassium iodide should be given in the intervals.

Captain H. S. LAIRD, R.A.M.C., said that he preferred the intravenous method of injection, on account of the pain and the liability to abscess which followed the intramuscular method. Mr. G. PUGN MILDON considered that the treatment should continue for three months; three weekly injections of salvarsan should be given and then three at fortnightly intervals, combined with mercury during the whole period. He believed that if parasyphilitic diseases were treated early, that is to say, before actual destruction of the nerve cells and while the disease was still confined to the vascular and intercellular tissues, good results might be expected.

Rebicus.

BLOOD PRESSURE.

THE third edition of NORRIS's textbook on *Blood Pressure*¹ is in every way a most complete and admirable work. After an account of the physiology, which, with the chapter on the venous pressure, is contributed by Dr. J. H. Austin, a fully illustrated description is given of the various forms of sphygmomanometers, and for ordinary work Nicholson's new instrument, a portable mercurial apparatus enclosed in a metal case, is recommended. The five phases of the auscultatory method, described by Korotkow in 1905, and introduced to the notice of the profession in this country some years later by the late Dr. George Oliver, are explained and illustrated by diagrams; this method is simple, rapid, and accurate, gives the diastolic as well as the systolic blood pressure, and among those familiar with it has supplanted all others for clinical work. Although those interested in blood pressure estimations may regard this as a truism, we believe that its adoption by those who possess and often use a sphygmomanometer is not so general as the value and easy application of the method deserve.

While admitting that there is no entirely satisfactory blood-pressure test for determining the functional efficiency of the circulation, the author considers that some of those described may throw some light on the question; he has used extensively Crampton's test for vasomotor efficiency, and places some reliance on its results. It consists in a comparison of the pulse-rate and systolic pressures in the lying-down and in the erect postures, there being normally an increase of about seven beats a minute and 10 mm. Hg in the latter. The systolic and diastolic pressures being commonly 120 and 80 with a difference, or pulse pressure, of 40, the "cardiac load" has therefore been considered to be $\frac{2}{3}$, or 50 per cent. of the diastolic pressure; in hypertension this pulse pressure percentage of the diastolic pressure may be greatly raised, and prognostic importance has been ascribed to it; but the author has not found "the cardiac load" of any value in the estimation of circulatory efficiency. A systolic pressure constantly at 160 mm. Hg or above, and a diastolic of 100, is regarded as definitely pathological at

any age, and as the diastolic is far less subject to temporary variations and a better index of the mean pressure than the systolic, it is often the more important of the two; thus a constant diastolic pressure of 100 mm. Hg indicates high blood pressure, whether the systolic is 180 or 140.

The thoroughness of the review of the whole subject is further shown by the summaries of the changing phases of opinion as regards the significance of blood pressures in various conditions; thus the view that a low blood pressure exists before the appearance of physical signs of tuberculosis is rendered more than doubtful, the author quoting Janeway's observations, and concluding that hypotension is seen in the later stages when it is due to toxæmia, and that the stethoscope is a much better means than the sphygmomanometer for diagnosing incipient tuberculosis. Again, Gibson's law, that when the blood pressure expressed in millimetres of mercury does not fall below the pulse-rate the prognosis of pneumonia is good, and conversely, is certainly far from infallible. Enough, perhaps, has now been said to show the character of this valuable book of reference, and it need only be added that it is well written and appropriately illustrated.

HEWLETT'S "BACTERIOLOGY."

SINCE its first appearance twenty years ago Professor HEWLETT's admirable *Manual of Bacteriology*² has been in constant demand and now is in its sixth edition. As the fifth edition came out in 1914 many changes have been necessary, and these have been incorporated clearly and succinctly, as is seen in the sections on septic wounds and gas gangrene. In the section on spirochaetosis icterohaemorrhagica the mode of infection is said to be uncertain, probably by water or by contact, possibly by insects, and no mention is made of rats. The work is so fully up to date as a whole and is so clearly written that it may be confidently recommended to the student as well suited to his needs.

NOTES ON BOOKS.

THE small book on the irrigation of wounds by the Carrel method, by J. DUMAS and ANNE CARREL,³ a short review of which was published in the *JOURNAL* of March 31st, 1917, p. 426, has been translated by Dr. A. V. S. Lambert, of Columbia University, New York, and issued with an introduction by Dr. W. W. Keen. It was intended by Madame Carrel primarily for the instruction of nurses, but it will be found useful by surgeons also who wish to make themselves acquainted with the details of the method.

Dr. TINEL's excellent manual of *Nerve Wounds*⁴ has been translated from the French by Mr. ROTHWELL and Mr. JOLL. The original work was reviewed in the *BRITISH MEDICAL JOURNAL* of September 30th, 1916 (p. 465). The translation has been well rendered and printed.

The second edition of *The Panel Doctor: His Duties and Perplexities*,⁵ by Dr. T. M. TIBBETTS, has appeared. The first edition, reviewed in our columns of February 10th, 1917, was, we learn, very quickly exhausted, and the author has taken the opportunity of revising the matter and bringing the subject generally up to date. The book has proved very useful to medical practitioners working under the Insurance Act, and we again commend it to their attention.

The *Minutes* of the General Medical Council for the year 1917 have been issued in a volume (Constable, 12s.), which contains also the minutes of the branch councils, of the executive and other committees, and various reports,

¹ *Blood Pressure: its Clinical Applications*. By George William Norris, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania. Third edition. Philadelphia and New York: Lea and Febiger. 1917. (Med. 8vo, pp. 413; 110 figures, 1 coloured plate. 3.50 dollars.)

² *Manual of Bacteriology, Clinical and Applied*. By R. Tanner Hewlett, M.D., F.R.C.P., Professor of Bacteriology in the University of London. Sixth edition. London: J. and A. Churchill. 1913. (Pp. 769; 31 plates and 69 figures in the text. 14s.)

³ *Technic of the Irrigation Treatment of Wounds by the Carrel Method*. New York: Paul B. Hoeber. 1917. (Cr. 8vo, pp. 90; 11 plates. 1.25 dols. net.)

⁴ *Nerve Wounds: Symptomatology of Peripheral Nerve Lesions Caused by War Wounds*. By J. Tinel, Ancien Chef de Clinique et de Laboratoire de la Salpêtrière. Authorized translation by Fred. Rothwell, B.A. Lond. Revised and edited by Cecil A. Joll, M.B., M.S., B.Sc. Lond., F.R.C.S. Eng. London: Baillière, Tindall, and Cox. 1917. (Sup. roy. 8vo, pp. xii+317; 323 figs. 15s. net.)

⁵ *The Panel Doctor: His Duties and Perplexities*. By T. M. Tibbetts, M.D., M.R.C.S., L.R.C.P., D.P.H. London: John Bale, Sons, and Danielsson, Ltd. 1918. (Cr. 8vo, pp. 59. 2s. 6d. net.)

including that of the Education Committee. The *General Index* to Volumes XL to LJV (1903-1917) has also been issued (2s. 6d.). A prefatory note states that the number of entries has been curtailed where experience has shown that this can be done safely without impairing the usefulness of the publication.

DIETARIES IN THEORY AND PRACTICE.

VISCOUNT DUNLUCE and Captain M. GREENWOOD have written a very interesting report of an inquiry into the composition of dietaries, with special reference to the dietaries of munition workers. The work was carried out under the supervision of the Food Investigation Committee appointed by the Minister of Munitions, and the report is published by the Medical Research Committee.¹ It is prefaced by a valuable sketch of the evolution of scientific opinion on the physiology of diet and metabolism, beginning with the researches of Voit in the early seventies. It appears that the literature on this subject is riddled with the results of quoting at secondhand without verification at the fountain head.

From the mass of information digested by them the authors conclude that the increase in demand for energy with increasing muscular work, the body weight of the subject being known, can be determined with fair accuracy, but only within comparatively narrow limits, and that no conclusion can be drawn as to the requirements of a man doing sedentary work. Current dietetic standards of energy needs are ultimately based upon statistical averages deduced from a sampling of diets actually eaten, but their validity is finally established by exact experiments. Further, external conditions have an immensely important influence on the energy demand. The authors deal shortly with the protein question, summing up the spirit of modern teaching in an ingenious metaphor.

In the section on working-class diet statistics collected before the war they remind us that such data only give the quantities of food purchased, not the amount of food consumed. "Waste, in the culpable sense of deliberately spoiling or throwing away edible food, is of hardly more than rhetorical interest," but there is an unavoidable waste of calories and protein in the preparation of food, especially of food containing much fat. In comparing statistical diets with theoretical diets, the reader is advised to subtract mentally at least 10 per cent. from the former. Allowing for various sources of error, the authors think that the pre-war statistics fail to demonstrate any necessity for the average working man to consume a diet equivalent to more than 3,500 calories a day. Nevertheless, the heavy incidence of disease upon the poorer classes and the prejudicial effect of underfeeding upon resistance to infectious disease shows that it is not well to build much upon statistics.

The authors' special inquiry was made during the spring and summer of 1917 in the hostels and canteens serving the munition workers in various factories. The general results and detailed analyses are shown in tabular form. The circumstances under which the census was made were peculiar in three respects: there was an acute shortage of potatoes at the time, there was coincidentally an energetic "eat less bread" campaign, while sugar was very scarce. These three factors combined to lower the proportion of carbohydrates, and the *contre-coup* of the bread economy was a remarkable increase in the consumption of fat and an appreciable rise in that of protein. Had the slogan been not "eat less bread," but "eat more fat," the response, they think, would have been the same—a curious and instructive instance of what may happen when national habits are disturbed. With regard to potatoes the authors state that, as was pointed out in our columns some months ago, the existence of large stocks of potatoes in the country is, owing to transport difficulties, by no means the same thing as the availability of potatoes in industrial centres. Dealing with war-time German dietaries the authors conclude that the German working man has been decidedly worse off than the English labourer since the war, and even since the intensive submarine campaign and the increasing world-shortage of foodstuffs; but the extent to which the German civilian population has suffered in health, and therefore in efficiency, from shortage of food is uncertain.

The authors' investigations afford no reason to suppose that those who served the nation in munition factories last year had any cause to complain of the provision made to sustain their physical strength and health. But time will force changes upon the nation; the provision of so many calories from fat and meat which could be made six months ago, is now no longer feasible. Happily, economic necessity and the teaching of physiology, tentative though the latter may be, seem to point in the same direction. The substitution of energy derived from potatoes and cereals for a large proportion of that yielded by fats and animal proteins, while involving hardship, cannot scientifically be condemned; and the lesson seems to be that popular tastes and prejudices are rooted more in social habit than in basic physiological demands.

As the Medical Research Committee points out in its introduction, this report not only supplies data of primary importance to those who have to solve the social and administrative problems of rationing the civilian forces of this country, but adds definitely to our general knowledge of the actual dietaries of the population. The coming of war caught the study of nutrition in a period of great activity in the collection of new facts; the sudden and exceptional demand for practical guidance found many gaps in the body of dietetic knowledge available for practical use. When the food shortage became imminent physiologists were able in some degree to state in quantitative terms the actual energy consumed in various kinds of productive work, but they could not assess at all fully the adaptability of the human machine to new and presumably less favourable conditions. As a guide to the application of existing knowledge as a whole to the problems of practice the present report should be of the utmost service.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee twenty-six cases were considered, and £278 voted to twenty-three of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 68, of L.S.A.Lond. who died in 1907. Present income from investments £22 4s. 11d., which is much less now. Has tried to supplement this by taking in paying guests, but not successfully. Requires help towards expenses. Voted £12 in twelve instalments.

Widow, aged 40, of a surgeon in the Royal Navy who died in 1906. Was left with three children, aged now 22, 16, 14. Income from pensions £98, investments £15, and receives £40 a year as matron of a boys' school. Desires help towards education of her son. Voted £5, and referred to the Guild.

Daughter, aged 77, of M.D.Glasg. who practised in London and Glasgow. Applicant's income from dividends £44, and she has one boarder at 17s. a week. Her main income is derived from letting her cottage furnished during the summer, but since the war has not been successful. Rent and rates £37. Voted £15 in twelve instalments.

Daughter, aged 49, of M.D.Glasg. who practised at Bawtry and died in 1872. Prior to the war was able to make a living by taking in paying guests, and as her house is on the East Coast she has had none since September, 1915. Lives in own house, and pays £8 for rates. Is now doing a little clerical work, but this is not sufficient to keep her. Relieved three times, £30. Voted £10 in two instalments.

Daughter, aged 51, of M.D.Dubl. who practised in England and died in 1904. Applicant had a school for some years, but is now completely blind in one eye, and has almost lost the sight of the other, and had to give it up. Has a small pension from a blind society, and help from the Guild. Relieved twice, £25. Voted £18 in twelve instalments.

Daughter, aged 60, of M.R.C.S.Eng. who died in 1873. Applicant has no means, and suffers from rheumatism. Entirely dependent on sister, who cannot afford to keep her. Relieved thirty-four times, £278. Voted £12 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

¹ Special Report Series, No. 13.

British Medical Journal.

SATURDAY, APRIL 27TH, 1918.

THE BUDGET.

DURING the first two years of the war, taxation increased at half-yearly stages, but the taxpayer is now apparently considered sufficiently hardened to be able to dispense with this particular method of tempering the wind for the time of shearing. We are, of course, assuming that there will be no second Budget for this year, and in view of the very heavy extra taxation proposed—£114,000,000 in addition to the new luxury tax—few will feel inclined to doubt the validity of that assumption.

The old adage, "il n'y a que le premier pas qui coûte," has, like many others, been completely reversed in this war, and the Chancellor's statement reminds us that in the financial as well as in the military world the severity of the struggle is intensified with the progress of the months, and that even the close of the war will leave us to face a period of grave difficulty. The huge sums borrowed in this country are to a large extent spent here in the manufacture of munitions, including the multifarious equipment of our own armies and those of our allies, and the abundance of money and the almost universal prevalence of war bonuses, foster a feeling of prosperity which is reflected only too thoroughly in the spending habits of the great majority of the people. The after-war transition period will test our powers of organization to the utmost, and the necessity for a sound and far-seeing financial policy arises very largely from the fact that it would be almost impossible for any government to deal with the post-war industrial and social problems and at the same time to increase taxation to cover current expenses.

The declared policy of both Mr. Bonar Law and his predecessor has been to maintain permanent, as distinct from temporary, taxation at such a level as to produce sufficient revenue to ensure that if the war comes to an end at the close of the financial year, the normal expenditure and the debt charge can be met without new borrowing or taxation. In an interesting passage he compared the policy of the German Government in this matter with our own, pointing out the widening margin between the German revenue and annual debt charge, and expressing the opinion that it was due to the fact that the wealthier classes in Germany held the political power and that the German Government were "absolutely afraid to force taxation upon them."

An examination of the Chancellor's proposals for raising the additional revenue necessary if our financial policy is to be continued, shows that in the main he has followed fairly closely the precedent of the past few years—it was put into operation in this country for the first time on a great scale in 1909—namely, that of looking to the wealthy class for the chief part of the revenue, and redressing the balance by indirect, and if possible direct, taxes on other classes, including the industrial worker, accepting gratefully the yield of such taxes but not perhaps regarding them as of primary importance from the point of view of the Exchequer. For instance, on this occasion the full rate of income tax is raised from 5s. to 6s. in the £, the super-tax and the death duties are increased, and a further attempt is made to bring

a bigger proportion of the large agricultural profits within the income tax net, while on the other hand further indirect taxes are imposed on sugar, tobacco, spirits and beer. One feature worth noticing is that, as regards income tax, the man whose total income is not greater than £500 is no worse off than before: in fact, if he is in a position to claim the new allowance of £25 in respect of his wife he will pay less. The further extension of the allowance in respect of children is a welcome sign of improvement in the incidence of the tax. The allowance was originally restricted to incomes which did not exceed £500 and amounted to £10 only; it now applies up to incomes of £800 and to the extent of £25; when any further change is made we hope that the restriction dependent on total income will be swept away, and that the amount of the allowance will be made to increase with the amount of the income—if a working man is fairly entitled to a deduction of £25 for a boy who in present circumstances is probably earning almost enough to support himself, it would seem reasonable that a professional man, who is keeping his son at school to the future good of the country, should have at least an equivalent or greater relief.

We note with pleasure that, though the rates of income tax on earned and unearned incomes exceeding £500 are to be increased, the rates for army and navy pay will remain as before. Even at that level they press heavily on scales of pay fixed originally with regard to pre-war conditions, but these are days when small mercies are more than ever welcome.

The most interesting of the Chancellor's proposals is the *ad valorem* luxury tax based on a levy of 2d. in the shilling for purchases of scheduled articles. The desirability of checking in some way the extravagance that undeniably exists—though not perhaps to the extent sometimes suggested—will be recognized as readily as Mr. Law's adroitness in leaving the schedules to be drawn up by a Select Committee of the House. The proposal breaks new ground in our fiscal system, and a thorough examination of the best method of collecting the tax will be essential; the experience of the French Government will no doubt point the way, but the trading methods of the two countries differ in several material respects, and much caution will be needed in approaching the problem. Given a sound system and a careful and willing administration, this new tax may quite possibly succeed in combining the virtues of both direct and indirect taxes while retaining little of their respective vices; in other words, it may become a valuable source of revenue, economical to collect and not burdensome to the payer; a hastily constructed or ill-considered scheme will court failure. From this standpoint it seems unfortunate that it was necessary to discuss the tax in public before it could be enforced; if it is now postponed for several months immediate buying of luxuries will "queer the pitch" for the new tax; on the other hand, if it is put in force quickly it may permanently suffer from a lack of foresight in its construction.

As we have already suggested, this Budget bears a family resemblance to its ancestors, and what we have said of them is true of this one, too—it takes the necessary money mainly from those who can afford to pay without acute suffering, but leaves out no one who can afford to pay anything worth collecting. No doubt a perfect system would relieve some and would tax others more heavily, but so far as the means at his disposal allow the Chancellor appears to have dealt out even-handed justice between various taxpayers. It remains for the latter to shoulder the burden with

what self-denial and fortitude they may possess, knowing that it is on the financial efforts of the country now that the future well-being of the nation will largely depend.

IF GOOD WHY NOT BETTER?

THERE was a letter in the *Times* on April 23rd which raised a point of some consequence, but in a way so confused and confusing that it may well have given the general public an erroneous impression. It dealt with the recent promotion of a number of medical officers to be major-generals. This promotion is, in fact, mainly a matter of terminology. The officers were all surgeon-generals before and ranked as major-generals. Their new titles do little more than bring them into line with officers in other branches. Technically all the surgeon-generals had ceased to belong to the R.A.M.C., the highest rank in which is lieutenant-colonel. An officer promoted to be colonel ceases, technically, to be an officer of the corps, which in this respect is regarded as though it were a regiment. The last point made by the writer may also be dismissed briefly. He is surprised that of eleven officers promoted nine came from Irish schools and only one each from England and Scotland. We have not verified his calculation, but assuming its correctness the explanation is simple. It is that at the time when these officers entered it the Army Medical Service was not popular in the English and Scottish medical schools. This unpopularity was, in the opinion of the British Medical Association, the Universities, and Royal Colleges in England and Scotland, well merited. These bodies combined to obtain reforms, the results of which are seen in this war, when for the first time in its history the Army Medical Service has won a success not surpassed, if indeed equalled, by any other branch of the army. The success is due partly to good administration, but chiefly to the application of scientific methods to the prevention of disease, and the surgical treatment of the wounded, which is mainly the prevention of wound infection—preventive surgery. The great merit of Sir Alfred Keogh, himself an Irishman, and of Sir Arthur Sloggett, his colleague in France, was that from the first they recognized that their true policy was to give as free a hand as seemed to them possible to the clinical physicians, surgeons, and pathologists who came forward to help the army. Unfortunately things did not move quite as fast at home as they did in France, and as we believe they have moved recently in the Mediterranean Command and in Mesopotamia, where bitter lessons had first to be learnt.

The regular Army Medical Service is still dominated, or was until very recently dominated, by the idea that seniority in the service meant competence, and that without seniority there could not be competence. There was this amount of justification, that the senior officers were the survivors of a much larger number who had been dropped by the way. But new conditions call for new methods, and the notion that only a senior regular officer can be a good administrator ought to be given up. The argument would seem to have been: such and such a berth at home is a surgeon-general's; which of the surgeon-generals shall have it? Some surgeon-general is appointed, even though he may have been tried and failed abroad. It is difficult to write about the matter without an appearance of animus, but the unfavourable impression these senior regular officers made, one after the other, when they appeared before the Select Committee on military recruiting medical boards

cannot be passed over or forgotten. The effect on the public mind was so unfortunate that the Secretary of State for War went down to the Committee one morning and announced that the Army Medical Service would cease to be responsible for the medical examination of recruits, and that the duty would be turned over to the Ministry of National Service acting through civilian medical boards. The Ministry of National service is now concerned also in the discharge of men from the army, but a cumbrous dual system is at present maintained.

Army medical administration was not successful at Gallipoli or in East Africa; it made a disastrous failure in Mesopotamia. It has been splendidly successful in France mainly, we suggest, because Sir Arthur Sloggett recognized the limitations of regular officers, and relied on physicians and surgeons and pathologists experienced in civil hospital work at home to settle certain principles of administration in consultation with him. It has achieved a large measure of success at home because Sir Alfred Keogh kept an open mind and encouraged civilian experts to give their best, as they were ready to do, in spite of the most discouraging obstruction in the Home Commands. We cannot see that the enemy activity on the Western front is any ground for delaying the institution of reforms at home. Rather is it an added reason for immediate action. We have no doubt that the new Director-General will receive valuable guidance from the highly competent Army Medical Advisory Board recently appointed.

It is a real misfortune, not perhaps so much for the Army Medical Service of to-day as for the future of the Royal Army Medical Corps, that there should be so much truth in the statement of the writer of the letter to which we have referred, to the effect that regular officers of the corps will leave, and are now leaving, the scientific—and, it may be added, the clinical—side for the administrative side, "as there, apparently, lies the only road to promotion." The courageous attempt to put the medical service of the Air Force on a sound footing as a scientific organization failed owing, if rumour speaks true, to the opposition of the Army Medical Department. But that is another story, too long and sad to tell now.

MEDICAL PRACTITIONERS UNDER THE MILITARY SERVICE ACT.

WE mentioned last week in a paragraph on this subject that the Central Medical War Committee was in conference with the Ministry of National Service and the Insurance Commissioners with regard to the position of medical practitioners under the Military Service Bill. The bill became an Act on April 18th, and renders liable to military service all medical men who had not attained the age of 56 at that date. The Ministry of National Service has undertaken to supply office assistance to the Central Medical War Committee towards carrying out the necessary arrangements, and a Government official to assist Dr. Cox in this way has been appointed by the Ministry, and will serve also as a liaison officer between the central professional committees and the Ministry. The official selected is Mr. S. P. Virian, who at one time was one of the senior clerks of the Insurance Commission and has more recently been employed in the Ministry of Food. Nominal lists of all medical men coming within the scope of the Act will be prepared according to areas, and arrangements will be made for their early physical examination by boards outside their own areas. They will be graded on ordinary lines and the professional committees will be able to obtain from the Ministry information as to the fitness

for practice of medical men in Grade 3. A certain number of those between 43 and 50 who are physically fit and surplus to local requirements may be sent directly into military service; but in general men over 45 will be urged to undertake substitution practice, to release for service fit men under 43. It is intended that wherever possible substitution shall be local and shall not involve the removal of a man from one area to another. A special inter-departmental committee will be set up to consider cases in which the adjustment of the interests of the Government departments concerned presents difficulties. The Local Arrangements Subcommittee of the Central Medical War Committee will continue its work on lines similar to those it has hitherto pursued. The Ministry of National Service will appoint medical men to visit areas and to advise the Local Medical War Committees and the central professional committees as to the rearrangement of civil practices and the transference of medical practitioners where this may be necessary. The reports of these officers will be made to the Ministry, but they will also be at the disposal of the central professional committees. These officers will attend the meetings of the Local Arrangements Subcommittee, and will, if required, submit to it reports on special areas which they have investigated. Representatives of the Ministry of National Service, the National Insurance Commissioners; and the Local Government Board, and other interested departments, will continue to attend the meetings of the Local Arrangements Subcommittee. A notification was issued by the Ministry of National Service on April 25th with regard to the calling up of older men under the Military Service Act, but it expressly states that it does not apply to medical practitioners, regarding whom special instructions will shortly be issued.

SOME MEDICAL ASPECTS OF AVIATION.

IN a pleasantly written article full of the experience gained at the Royal Naval Air Station, Dunkirk, Staff Surgeon S. F. Dudley,¹ R.N., though he never mentions the word, shows that he has a true insight into the psychology of the fighting aviator. The average flying life of these officers is very short, the wastage being mainly due to invaliding for loss of flying nerve, for they are of little use if they are not, to use their own language, "full on." The strain they are exposed to has manifold sources and falls on most of the senses in ways strange to the human machine with no heritage of experience in the air; in addition the loneliness, almost amounting to pain, when flying at high altitudes over the enemy's lines, and this is even worse over the sea, the extra work entailed by a spell of fine flying weather, the annoyance, to use a mild term, of anti-aircraft guns of foe and friend, must be taken into account. When, as a result of these and other causes, the pilot begins to calculate his chances and to lose confidence in his machine and his powers, he should be given sufficient leave, and it is essential that this should be managed before there are such definite signs as insomnia and tremor, otherwise he may never return really fit. But as the real aviator is the most courageous of men and, rather than run the risk of a suspicion of "cold feet," will carry on much too long, the medical officers endowed with sympathy and wise tact should be living in intimate contact with the aviators, and so with the help of the squadron commanders be in a position to detect the first signs of staleness and overwork and ensure a real and economical cure. It is not always enough merely to send the strained aviator to England or the country; many of them are colonials without ties or attractions in Great Britain, and to meet their needs a country club with plenty of sporting resources should be established. Leave, too, should be granted as occasion for it arises, and not merely at stated intervals, for in this way many more flying hours of better

quality will be secured and a true economy effected. Though on the whole temperate in alcohol, aviators smoke too much, especially cigarettes, and to obviate this habit that of chewing gum, so popular with many colonial officers, might, it is suggested, be more widely encouraged. When a crash occurs the other pilots and observers should be prevented from rushing out, as the sick berth ratings are competent to give first aid, to administer $\frac{1}{4}$ grain of morphine when necessary, and to convey the patient as rapidly as possible to the hospital. Wounds inflicted in the air usually do well, as infection is less prone to occur than in the trenches, and the pilot should descend at the nearest place where medical care is available and not return to a distant home. No aviator who has had malaria should fly until he has been free from recurrence for six months, for the conditions of chill and fatigue are extremely likely to cause a paroxysm. Many experienced aviators are ignorant of the relief given during and after a rapid descent by auto-insufflation of the Eustachian tubes. Unfortunately some pilots have an unreasonable prejudice against the use of oxygen, possibly bred of some irresponsible scoffer, and medical officers should therefore patiently explain in the mess or in individual talks the value of oxygen at high altitudes in preventing drowsiness and loss of rapid judgement and in accelerating reflex action.

GERMAN INFAMIES.

PROFESSOR GILBERT MURRAY, in his preface to an English translation of the memorandum by Prince Lichnowsky on his period as German Ambassador in London, makes a suggestion to account for the "strange brutalities and ferocities" of the Germans, especially German women, to prisoners captured at an early stage of the war which would save their ethics at the expense of their intelligence. He believes that it was due to their belief that the war was a treacherous attack, plotted in the dark by "revengeful France, barbaric Russia, and envious England." The emperor, the princes, the ministers, the bishops and chaplains, historians and theologians of Germany vied with one another in solemn attestations and ingenious forgeries of evidence, "and the people, docile by training and long indoctrinated to the hatred of England, inevitably believed and passionately exaggerated what they were told." But this explanation does not apply to the deliberate brutalities of the German authorities recorded in the report of Mr. Justice Younger's committee presented to Parliament this week. On February 7th, 1917, the British Government received from the German Government a note dated Berlin, January 24th. It complained that German prisoners suffered from inadequate food, defective accommodation (only tents being provided in many cases), and were subjected to hard work and to irregularities in the matter of their mails. The note went on to state that unless a reply was received from the British Government by February 1st, promising to remedy these alleged hardships, and to take measures to prevent German prisoners being again employed within 30 kilometres of the British front, a number of prisoners of war would be transported from camps in Germany to the area of operations in the western theatre of war, where, in respect of employment, accommodation, food, and mails, they would be treated in a manner corresponding to the practice of the British military authorities. It is now established that British prisoners of war were employed by the German Government within 30 kilometres of the firing line at least as early as July, 1916—that is, at least six months before the German note. An agreement was concluded between the British and the German Governments at the end of April, 1917, not to employ prisoners of war within 30 kilometres of the firing line, but British prisoners were so employed continuously down to, at least, February, 1918. It is also proved that on April 15th, 1917, British prisoners in German hands were told to write home that they would in future be subject to the

¹ S. F. Dudley. *Journ. Roy. Nav. Med. Service*, 1918, iv, 131-140.

following conditions: "Very short of food, bad lighting, bad lodgings, no beds, and hard work beside the German guns, under heavy shell fire. No bed, no soap for washing or shaving, no towels or boots, etc." As early as February, 1917, the German Government had been informed that 75 per cent. of German prisoners in British hands were accommodated in huts, and the remainder, as in the case of very many of the British troops, temporarily in specially warmed tents, provided with floor boards, and an ample supply of blankets. The postal arrangements worked perfectly, and strict orders had been issued that prisoners should not be employed in handling munitions or within range of the enemy's artillery. Only one casualty among them had occurred—a man who was wounded by a shell which must have been fired at exceptionally long range. The evidence is conclusive that the Germans have continuously employed British prisoners close behind their front, and within easy reach of shell fire, in digging trenches, loading munitions, and doing other military work. These men were, and no doubt, still are, half starved, the ration for a day consisting of $\frac{1}{4}$ lb. black bread, with coffee in the morning, soup at midday, and coffee again in the evening. The existence of these prisoners is concealed; they are allowed to write letters on printed forms dated from camps in Germany, but even these letters are not forwarded, and parcels do not reach them. At Limburg-aan-Lahn as late as November, 1917, there was an accumulation of between eighteen and twenty thousand parcels for British prisoners on the German western front which had not been delivered. One man who escaped from behind the German lines had weighed thirteen stone when captured; when he got back three months later he weighed eight stone. From a telegram in the *Times* of April 22nd, it appears that the *New York Times* has evidence that similar bad treatment is being meted out to American prisoners. The only ray of light throughout the report is in the evidence of a young wounded British officer in a ward of a German hospital in France. He said that the German university professor in charge of it admitted that he was ashamed of the "frightful" conditions to which his countrymen were subjecting prisoners. "The men were overworked, under shell fire, very much underfed, had not much clothing, and slept in sheds and shelters in the snow—filthy conditions." All were thoroughly ill treated behind the lines, and many died. By subscribing to the Hague Convention of 1907 the German Government entered into certain undertakings, two of which are thus stated in the German war book: (1) "Prisoners of war are protected against unjustifiable severities, ill treatment, and unworthy handling." (2) They "can be put to moderate work proportionate to their position in life. . . . These tasks should not be prejudicial to health nor in any way dishonourable, or such as contribute directly or indirectly to military operations against the Fatherland of the captives."

MEDICAL CERTIFICATES FOR NATIONAL SERVICE MEDICAL BOARDS.

THE Ministry of National Service has recently issued a leaflet to medical practitioners, dealing with certificates for men appearing before National Service Medical Boards. In the first place, it is stated that a well-drawn certificate from a private practitioner may be of great assistance to a Board, and receives full consideration before the Board gives its decision. All such certificates are either copied or filed for reference. A well-drawn certificate from the point of view of the Board is one which states name, age, and address of patient; date of last personal examination; length of time patient has been personally known to certifier; what diseases the latter has attended him for; patient's present physical condition; name, address, and qualifications of certifier. Such a certificate confines itself to matters which have actually come within the practitioner's personal observa-

tion and knowledge. If it be wished to draw attention to any other matter, such as the patient's statement about his previous medical history, the fact that it is based upon the patient's statement should be clearly indicated. It is particularly desired that the writer of a certificate should refrain from expressing any opinion as to the man's fitness or unfitness for military service. It appears that many certificates are still handed in to National Service Boards which do not conform to the type of certificate suggested, and even more certificates purport to prejudge a man's fitness or unfitness for military service. The circular ends by quoting from Sir Donald MacAlister's references in his presidential address to the looseness or irrelevance of statements in certain certificates which practitioners profess to attest by their signatures.¹

MEASLES AND PNEUMONIA IN CHILDREN.

A report has been issued by the Local Government Board on the prevention of mortality and disablement due to measles and pneumonia in children, by Dr. A. Salusbury MacNalty.² With regard to measles, Dr. MacNalty has collected and analysed much information bearing on pathology, clinical features, and treatment, on the circumstances determining death from this disease, and on practical measures for rendering it less fatal. This part of the report is prefaced by a memorandum by Dr. S. W. Wheaton, setting out in more detail the administrative measures which should be, and in some instances are being, taken by sanitary authorities against measles by providing for home visiting, adequate nursing, and medical attendance. The second part of Dr. MacNalty's report, on pneumonia in childhood, points to the need for further investigation of deaths from pneumonia complicating measles, for which purpose the information collected and analysed by him would form a useful preliminary. For the reduction of child mortality in pneumonia he believes that reliance must chiefly be placed upon the general measures of preventive medicine, especially those directed towards coping with the problem of infectious diseases, and upon skilled medical and nursing attention. Since bronchopneumonia is the most fatal complication, and the most frequent cause of death in measles, there is considerable advantage in bringing together in a single report the results of investigations, both statistical and clinical, into these two common diseases of childhood.

BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE subscriptions received by the Committee of the Belgian Doctors' and Pharmacists' Relief Fund during the last fortnight, in response to the second appeal, will enable the executive body to resume, though probably not on the original scale, the contributions which have been sent out to the committee of Belgian doctors and pharmacists sitting in Brussels for distribution among those most in need of help. The money received, however, will only restore for two months at most the possibility of sending a large monthly amount to the Brussels committee; hence further support is urgently needed. The anxieties of the present time, the vast increase in taxation, and the steady rise in the cost of living; make this an unpropitious moment for any charitable appeal, but we are sure that the medical and pharmaceutical professions in this country will do all that lies in their power to continue to aid their unfortunate colleagues in stricken Belgium. A much larger sum than has yet been obtained is necessary to make the present appeal a success. The executive committee will welcome regular monthly subscriptions from those who are unable to make a substantial donation; in this way the work could be kept going while time is gained for building up a capital sum.

¹ *BRITISH MEDICAL JOURNAL*, December 8th, 1917, p. 770, and SUPPLEMENT, December 1st, p. 109.
² *New Series*, No. 115. 1918. H.M. Stationery Office. 1s. 6d. net.

We regret to announce the death on April 21st, at Looe, Cornwall, of Lieutenant-Colonel John Michell Clarke, R.A.M.C.(T.), M.D., F.R.C.P., physician to the Bristol General Hospital, and pro-Vice-Chancellor and Professor of Medicine in the University of Bristol.

Medical Notes in Parliament.

The Budget.

THE proposals contained in Mr. Bonar Law's budget speech on April 22nd were very favourably received by the House of Commons. To make good a deficit of 110 millions he proposed increased taxation, which in a full year will, it is estimated, bring in 114 millions. The principle upon which he proceeded was that it was a duty to levy now as much taxation to bear the current expenditure of the war as could be borne by the nation without weakening it in the conduct of the war. Even the Chancellor of the Exchequer was moved by the readiness with which all classes had been prepared to pay.

With regard to indirect taxation, his chief proposal was practically to double the duty on spirits and beer, the actual increase in the case of spirits being rather more than double. From this source he expected in a full year nearly 21 millions. He justified the increase in the duty on tobacco from 6s. 5d. to 8s. 2d. on the ground, firstly, that all persons did not regard it as a necessary of life, and, secondly, that the consumption had increased during the past year in spite of the high rate of the then duty; he hoped to obtain 8 millions from this source in a full year. By an addition to the duty on matches, which would raise the price to 1d. a box, he expected to obtain £600,000. An addition of 11s. 8d. a cwt. on sugar would yield in a full year just over 13 millions. He also proposed to impose a tax of 16 per cent. by way of stamps on luxury expenditure, but as the commodities to be so taxed are to be settled by a special select committee no estimate of the yield was given. The change in the postage rates is expected to yield 4 millions in a full year. For letters the new rate will be 1½d., but this will cover any package up to 4 oz. The lowest rate for parcels will be 6d., but this will carry 3 lb. Inland postcards will now cost 1d. The lowest rate for letters to the troops, to any part of the British Empire, and to the United States of America will be 1½d.; postcards will remain at 1d. With regard to income tax, the rate on unearned income is raised to 6s. in the £, and the estimated yield in a full year is 41 millions. No change is to be made in the existing rates up to £500, nor in the rate on the service pay of soldiers and sailors. The children's allowance will apply also to a wife. The allowance for children up to 16 years of age will apply to incomes up to £800 instead of £700. The super-tax is to be 4s. 6d. instead of 3s. 6d. in the £, and is to begin at incomes of £2,500 instead of £3,000. The estimated yield from this source in a full year is 14 millions. The general effect of the alterations is shown in the following table:

Income Tax.

Income.	Wholly Earned.		Wholly Unearned.		With Super-tax.		
	Amount.	Rate.	Amount.	Rate.	Income.	Amount.	Rate.
£ 550	£ 67	s. d. 2 5	£ 84	s. d. 3 1	£ 2,750	£ 868	s. d. 6 4
700	94	2 8	118	3 4	3,000	962	6 5
1,000	150	3 0	187	3 9	4,000	1,362	6 10
1,500	281	3 9	337	4 5	5,000	1,787	7 2
2,000	450	4 6	525	6 3	6,000	2,237	7 5
2,500	656	5 3	750	6 0	7,000	2,712	7 9

The White Paper containing the estimated cost of Services to be provided for in votes of credit (1918-19) has many points of interest, of which we can only note a few. The vote for the Ministry of Pensions is 41½ millions. Mr. Law said that the total required by the end of the year could not fall far short of 50 millions. The vote for the Ministry of Food is put down at nearly 7 millions. The expenditure on central and local offices is about one million. The total, which includes a sum of 5 millions in respect of potatoes, does not, it is stated, show the whole expenditure of the Ministry. The net expenditure on the Royal Commission on Wheat Supplies is 46 millions; this

sum includes a net loss of 40 millions on the sale of the 9d. loaf. The expenditure for the Central Control Board (Liquor Traffic) is estimated at nearly £700,000; of this £16,500 is in connexion with canteens and £647,000 is the net capital expenditure on direct control undertakings, less estimated receipts. The budget of the Ministry of Reconstruction is £26,400. Relief of British prisoners of war and British subjects in enemy countries represents £737,000, and the maintenance of conscientious objectors £116,500. The budget of the Ministry of National Service is nearly 3 millions; nearly the whole, it would appear, is expended in salaries and office expenses. Recruiting and registration are estimated to cost nearly two millions. The estimate for National Service medical assessors, which appears under the Local Government Board, is £7,500. Other expenditure of the Local Government Board is estimated at £95,000.

The Army Medical Service Report.—In reply to Major David Davies, on April 23rd, Mr. Macpherson said no decision had yet been reached with regard to presenting the report of the committee of inquiry into the medical service in France to the House, and that in the present circumstances consideration of the request had been suspended. Sir William Collins inquired whether, in view of the exceptional demands being made on medical men under the new Military Service Act, Mr. Macpherson would not consider the desirability of allowing those interested in the matter to ascertain from this report the way in which medical men were being used at the present time. Mr. Macpherson said he would consider that.

The Medical Profession and the Ministry of Health.—On April 22nd Mr. Booth asked the Minister of Reconstruction whether he had considered the position of the medical profession in relation to the proposed Ministry of Health; what decision had been reached as to a state medical service; and whether it was proposed to decide these matters whilst so many doctors were away serving with the forces? In a written answer Dr. Addison stated that the matter of a state medical service would not have been relevant to the conferences he had held as to the establishment of a Ministry of Health, with, amongst others, representatives of the medical profession.

Medical Examination of Older Recruits.—Mr. Gulland asked, on April 22nd, whether, in view of the necessity of more careful inquiry as to the health of the elder men to be called up under the new Military Service Act, the Minister of National Service would arrange that the opinion of the private medical attendants of called up men should be taken more fully into consideration. Mr. Beck replied that under the instructions issued to medical boards—National Service Regulation No. 24—which had already been published, the boards were directed to give full consideration to medical certificates given by general practitioners or consultants, and he had every reason to believe that this instruction was being fully carried out. The instructions also provided that where necessary reference might be made to the man's usual medical attendant. It was intended to issue further special instructions dealing with the medical examination and grading of the older men.

Prisoners in Turkey.—Mr. Hope stated in the House of Commons, on April 24th, that an agreement with the Turkish Government has been ratified, providing, by a relatively easy medical test, for the repatriation of all invalid combatant prisoners irrespective of rank, and of all members of the medical staff not required for the care of the prisoners who remain. Civilians will also be repatriated subject to certain qualifications. The agreement provides also for the inspection of prison camps by representatives of neutral powers, for better delivery of supplies and correspondence, for sanitation and opportunities for exercise, and for the mitigation of punishment.

Treatment for Discharged Tuberculous Soldiers.—Mr. Dnke informed Mr. Nugent, on April 22nd, that a proposal to relax the regulation prohibiting expenditure of the unexpended balance of the capital grant under the National Insurance Act, 1911, as far as might be necessary to provide accommodation in Great Britain for tuberculous men discharged from the army and navy, was under consideration. Any action to be taken in Ireland would be governed by the decision of the Government on the general question.

Medical Treatment of Soldiers' Widows and Children.—In reply to Major Davies, Sir A. Griffith-Boscawen, on April 23rd, said it was not within the competence of Local War Pensions Committees to make general provision for medical advice and treatment of the wives or widows and children of soldiers. Special cases in which there was pecuniary need could be met by grants under the recently extended regulations of the Special Grants Committee, allowing substantial grants extending over a considerable period in cases of serious illness of the wives, children, and dependants of serving soldiers, and the widows and orphans of soldiers deceased.

THE WAR.

TREATMENT OF WOUNDS IN WAR.

THE fourth Inter-Allied Surgical Conference, which met at the French Army Medical School, Val-de-Grâce, from March 11th to 16th, discussed reports upon a number of subjects, and arrived at a number of conclusions. The following is a translation, slightly condensed, of the first section. Translations of others will be published in subsequent issues.

I. TRANSFUSION OF BLOOD.

The results obtained by the transfusion of blood justify its being looked upon as the method of choice in the treatment of serious haemorrhages.

(a) *Early*.—The clinical condition of the wounded man affords the main indications for transfusion, and in the advanced posts must alone be depended upon, but additional information may be obtained from repeated observation of the blood pressure, and by red blood cell counts which are of value in wounds of the limbs. In circulatory collapse due to a very acute infection (gas gangrene) no favourable result has been observed after transfusion. The indications for transfusion in the treatment of shock have not yet been sufficiently defined.

(b) *Later*.—Corpuscular anaemia after haemorrhage is generally well borne, and does not justify transfusion if the general condition of the wounded man is satisfactory. On the other hand, secondary haemorrhage, diminution in the coagulability of the blood, failure of regeneration of the corpuscles, and chronic infections causing anaemia, may afford indications for transfusion.

Preliminary Precautions.

(a) *Risk of Transmission of Diseases*.—Donors should be examined and classified in order to avoid transmission of diseases such as syphilis or malaria.

(b) *Incompatibility of Corpuscles*.—Fatal results have been observed in cases in which the corpuscles of the donor were agglutinated by the plasma of the recipient. Such results are rare, and can be completely avoided by agglutination tests which can easily be extemporized. This being so, it is indispensable to examine the agglutination in all cases in which the circumstances render it possible, or to have the donors classified beforehand. At advanced posts it is justifiable to resort to transfusion, even if it be impossible to test the agglutination, as the risk of serious results is relatively small, but it should be tested in all other units.

(c) *Asepsis*.—Transfusion should never be undertaken unless an appliance in perfect condition is available and unless strict asepsis is possible.

Method.

The method of transfusion employed should make it possible to measure the quantity of blood transfused. The use of blood which has been preserved for several days has given satisfactory results, and has proved specially valuable in advanced posts during intense military activity. Indirect methods for the transfusion of fresh blood are more easy to employ than vascular anastomosis. The three indirect methods have all given good results—namely, the use of citrated blood, the aspiration of pure blood into an ampoule treated with paraffin, and its aspiration in a syringe. The general principle should be to practise transfusion as early as possible after the receipt of the wound, but it must not be employed until haemorrhage has stopped. In haemorrhage from thoracic or abdominal wounds, or wounds of the limbs, transfusion should be practised either before or during the operation, the time of transfusion depending on the condition of the wounded man.

(To be continued.)

THE EVACUATION OF MEDICAL UNITS IN THE SOMME REVERSE.

THE daily papers of April 22nd contained articles by their representatives at the war correspondents' head quarters in France, describing the withdrawal of the casualty clearing stations during the retirement which began on

March 21st. These descriptions resemble each other very closely, and confirm the accounts we were able to publish in the JOURNAL of April 6th and April 13th, but add topographical details which we were not then at liberty to mention. Before the German attack the forward clearing stations were arranged in two tiers or groups. The most advanced were situated at Ham, Cagny, and Noyon in the Fifth Army area, and at Tincourt, Ytres, Gréville, and Achiet-le-Grand in the Third Army area. The more advanced clearing stations of the Fifth Army felt the pressure first and were evacuated on March 21st. From Ham the patients were evacuated by road to Villers-Carbonnel, but shell fire forced a further move to Amiens, and thence again further back. The clearing stations at Noyon and Cagny were diverted southward to the neighbourhood of Compiègne within the French area. In the Third Army area the clearing stations at Tincourt and Ytres were threatened first, and were sent on the move, followed by that at Gréville. At Achiet-le-Grand a clearing station was shelled on March 21st, and during its retreat westwards was bombed by German airmen. The units withdrawn to Puchevillers also were bombed by night. Temporary shelter only was afforded to these units in the second line positions at Roze, Maricourt, Dernancourt, and Aveluy in the Ancre valley; thence they moved backwards, for the most part to their present positions. At Roze seventy patients remained behind with a medical officer and twelve orderlies, but were brought away at the last moment by some motor ambulances which chanced to be available; as the last ambulance left it came under rifle fire from the advancing Germans. It is stated that the huts in many instances were destroyed, and the tents either taken away or burned. A great deal of the lighter medical stores and appliances was saved, but a quantity of iron cots, bedding, and heavy disinfecting plant had to be abandoned to the enemy. The surgical instruments seem to have been saved; some were packed on wheeled stretchers, which were pushed along the roads at night by medical officers. According to war establishments every casualty clearing station is equipped for 200 patients; this minimum equipment can be stowed at a pinch in nine motor lorries. On opening up, however, every clearing station has always expanded its accommodation, sometimes seven or eight fold. It appears that the general principle in hurried evacuation has been to reverse this process, sending back first a complete unit of 200 beds, with staff and equipment, which opens up on a new site ahead of the remainder of the station. Thus by the time the later detachments arrive the nucleus of the clearing station is already at work. During the dismantlement of the forward stations the nursing sisters were sent away in motor ambulances or lorries; the casualties among them amounted to one killed and one wounded.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

LIEUT.-COLONEL H. STEWART, D.S.O., R.A.M.C.

Lieut.-Colonel Hugh Stewart, D.S.O., R.A.M.C., was killed in action on April 10th. He was born on April 15th, 1881, the elder son of the late Captain Hugh Stewart, of Hatley, Foxrock, County Dublin. He was educated at Trinity College, Dublin, where he graduated M.B., B.Ch., and B.A.O. in 1904. Entering the R.A.M.C. as lieutenant on July 31st, 1905, he became captain on January 31st, 1909, major on October 15th, 1915, and acting lieutenant-colonel on February 1st, 1916. He received the D.S.O. on June 3rd, 1917.

CAPTAIN L. A. H. BULKELEY, R.A.M.C.

Captain Llewellyn Alfred Henry Bulkeley, R.A.M.C., is reported as having been killed in action on April 10th. He was the third son of the Rev. Canon H. J. Bulkeley of Coddington Rectory. He graduated M.B., B.S.Durh. in 1904, and, prior to settling in practice at Gateshead, had served as house-surgeon and house-physician to the Royal Infirmary, Newcastle-upon-Tyne, and house-surgeon to the Darlington Hospital and Dispensary. In 1915 he married a daughter of Dr. James Lawrence of Darlington. He

took a temporary commission in the R.A.M.C. about fifteen months ago, and was promoted to captain on completion of a year's service.

CAPTAIN A. L. GARDNER, R.A.M.C.

Captain Alfred Lintun Gardner, R.A.M.C., was killed in action on April 10th, aged 36. He was educated at Guy's Hospital, took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1912, and, after acting as assistant medical officer of the Poplar and Stepney Sick Asylum, went into practice at Ilfracombe. He took a temporary commission as lieutenant in the R.A.M.C. about two years ago, and was promoted to captain after a year's service.

Died of Wounds.

CAPTAIN J. CARMICHAEL, C.A.M.C.

John Carmichael, M.D., C.M. (Q.U.I. Kingston), Captain C.A.M.C., was born in March, 1889, at Collingwood, Ontario, and received his professional education at Queen's University, Kingston, Ontario, where he graduated in 1915. After acting as resident at the Western Hospital, Toronto, he joined the C.A.M.C. and preceeded to England in March, 1916. He had for two years been attached to the 35th Battalion Canadian Militia, and during his medical course had served as cadet instructor. After two months in England he proceeded to France, becoming attached to No. 2 and subsequently to No. 7 Canadian General Hospital. Later he went to the front as regimental medical officer, and there met his death from multiple wounds on April 5th.

CAPTAIN J. A. MACKENZIE, R.A.M.C.(S.R.).

Captain John A. Mackenzie, R.A.M.C.(S.R.), attached Durham Light Infantry, died of wounds on April 10th, aged 24 years. He was the elder and only surviving son of the late Mr. and Mrs. K. P. Mackenzie, Lechninver, Sutherlandshire. He was educated at Edinburgh University, where he graduated M.B., Ch.B. in 1916, and immediately took a Special Reserve commission.

TEMPORARY CAPTAIN D. MACKINNON, R.A.M.C.

Temporary Captain Duncan Mackinnon, R.A.M.C., died on April 12th of wounds received the same day. He was the youngest son of the late Professor Donald Mackinnon of Edinburgh University, and was educated at that university, where he graduated M.B. and Ch.B. in 1909.

Wounded.

Major R. F. Craig, Australian A.M.C.
Major C. B. Davies, M.C., R.A.M.C. (temporary).
Captain T. G. Allen, Australian A.M.C.
Captain A. Ball, R.A.M.C. (temporary).
Captain A. W. Berry, R.A.M.C. (temporary).
Captain T. F. Corkill, M.C., R.A.M.C.(S.R.).
Captain P. A. Creux, R.A.M.C. (temporary).
Captain E. Dempster, R.A.M.C.(S.R.).
Captain H. F. H. Eberts, R.A.M.C. (temporary).
Captain E. E. Isaac, M.C., R.A.M.C. (temporary).
Captain C. Jacobs, M.C., R.A.M.C.(T.F.).
Captain R. Kenefick, R.A.M.C. (temporary).
Captain P. McLachlan, M.C., R.A.M.C. (temporary).
Captain J. Manuel, M.C., R.A.M.C. (temporary).
Captain A. Merrin, R.A.M.C. (temporary).
Captain B. J. Mullin, M.C., R.A.M.C. (temporary).
Captain H. G. Pesel, R.A.M.C. (temporary).
Captain G. L. Pillans, M.C., R.A.M.C. (temporary).
Captain J. A. Tomb, R.A.M.C.(T.F.).
Captain A. U. Webster, R.A.M.C. (temporary).
Captain W. H. M. White, R.A.M.C.(T.F.).
Lieutenant G. N. Groves, R.A.M.C. (temporary).

Wounded and Missing.

Captain E. E. Mather, R.A.M.C. (temporary).

Missing.

Captain J. G. Anderson, R.A.M.C.(T.F.).
Captain J. B. Ball, R.A.M.C. (temporary).
Captain A. C. Bateman, M.C., R.A.M.C.(S.R.).
Captain A. J. Chillingworth, R.A.M.C. (temporary).
Captain S. J. Darke, M.C., R.A.M.C. (temporary).
Captain R. R. Duncan, R.A.M.C. (temporary).
Captain J. M. Eratt, R.A.M.C.
Captain H. B. Jones, R.A.M.C. (temporary).
Captain R. A. Leembruggen, R.A.M.C. (temporary).

Captain W. H. R. McCarter, R.A.M.C. (temporary).
Captain J. Tate, R.A.M.C. (temporary).
Captain J. P. Thierens, R.A.M.C. (temporary).

Prisoners of War.

Captain T. W. Leighton, R.A.M.C. (temporary).
Captain W. O'Brien, R.A.M.C. (temporary).
Captain D. M. Spring, R.A.M.C. (temporary).

Prisoner of War (formerly reported Missing).

Captain J. C. Muir, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Antill-Pockley, John G., Lieutenant Australian Imperial Force, son of Dr. Antill-Pockley of Sydney, killed March 30th.
Danne, A. W. Bryant, Lieutenant Gloucestershire Regiment, elder son of Dr. Danne of Bristol, killed March 30th.
Edmondson, I. E., Second Lieutenant Army Service Corps, son of Dr. H. Edmondson of Burnley, killed recently by a shell.

Gibbs, David Angus, Second Lieutenant Rifle Brigade, son of the late Dr. Cecil Gibbs, killed March 24th. He was educated at Winchester, got his commission in July, 1917, and went to the front the following month.

Grigson, Sydney Mark, Australian Flying Corps, younger son of Dr. R. C. Grigson of Sydney, died at Central Military Hospital, Aylesbury, April 17th, aged 20.

Smith, J. Noble, Second Lieutenant, youngest son of the late Dr. Noble Smith of Worthing, killed April 9th, aged 19.

Stalker, Daniel, Lieutenant Royal Field Artillery, eldest son of Professor A. M. Stalker of Dundee, died of wounds, April 12th, aged 27. He was educated at Dundee High School, and at Edinburgh University, where he graduated M.A., and became lieutenant on March 19th, 1915.

MEDICAL STUDENT.

Vassie, Richard, Lieutenant Cheshire Regiment, only son of James Arthur Vassie, died at Lanark on April 13th, of illness contracted on active service in France, aged 23. He was educated at Fettes College and at Edinburgh University, where he was a third year medical student at the beginning of the war, when he enlisted in the Scottish Horse. He got his commission in September, 1914, became lieutenant on January 14th, 1915, went to the front in September, 1915, and was invalided a month later.

News has been received by Dr. E. W. Martland that his son, Lieutenant E. N. P. Martland, R.A.M.C., reported missing in last week's JOURNAL, is a prisoner in Germany, and in good health.

In announcing last week the death of Lieutenant Edward J. Gray among the deaths of sons of medical men, it was accidentally assumed that his father, Dr. Alan Gray of Cambridge, was a medical man; Dr. Gray is a doctor of music and the distinguished organist of Trinity College.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE following medical officers are included in a further list of recipients of the Military Cross, in recognition of conspicuous gallantry and devotion to duty, published in a special Supplement to the *London Gazette* of April 22nd.

TEMPORARY CAPTAIN CECIL FRANCIS DILLON-KELLY, R.A.M.C.

Establishing his regimental aid post in the captured enemy line, he himself kept in touch with the advanced troops, and dressed the wounded under heavy machine-gun and rifle fire. He remained in the most advanced positions, dressing the wounded until every case had been evacuated, and showed an excellent example of disregard of danger and courageous determination.

CAPTAIN ARTHUR JOSEPH GORDON HUNTER, R.A.M.C.

His battalion being engaged on both sides of the river at points a considerable distance apart, he repeatedly went out in the face of heavy machine-gun and rifle fire to organize the collection and evacuation of the wounded. His gallant behaviour and magnificent coolness inspired the men working under him with the utmost confidence.

CAPTAIN LOUIS LAURENCE MCKEEVER, R.A.M.C.

During an engagement, hearing that there was no medical officer in the front line, he at once went forward under an intense bombardment and remained in the front line all night attending to the wounded under continuous and violent shell fire. He set a splendid example of courage and devotion to duty.

A special SUPPLEMENT to the *London Gazette*, dated April 23rd, contains the following records of conspicuous gallantry and devotion to duty for which the decorations announced in the *Gazette* (BRITISH MEDICAL JOURNAL, December 22nd, 1917, p. 839) were conferred:

Bar to the Distinguished Service Order.

Temporary Captain (temporary Lieut.-Colonel) Charles Derwent Pye-Smith, D.S.O., M.C., R.A.M.C.

He was in command of the three field ambulances of the division during ten days' operations. The weather conditions were

abnormal's bad and a large number of the wounded of another division had not been evacuated. Owing to his constant presence and influence all the wounded were got away promptly and without assistance from the infantry.

Distinguished Service Order.

Captain William Henry Collins, A.A.M.C.

Finding that his regimental stretcher-bearers were unable to find a regimental aid post which he had established in a German "pill-box," he personally led the first party of them through an intense artillery and machine-gun fire barrage. Although knocked down by a bursting shell, he immediately resumed the dressing of the wounded. Although, owing to casualties, he had only two men to help him, he courageously persevered with his work and himself helped to excavate a dug-out for the wounded under heavy shell fire, during which several of the wounded were killed. He remained on duty for sixty hours and refused to leave his post till the last wounded man had been evacuated. By his constant cheerfulness under the most adverse conditions, and by his utter disregard for his own safety, he kept up the spirits of the wounded and stimulated his surviving helpers to their utmost effort.

Major Eric Lloyd Hutchinson, A.A.M.C.

When in charge of the evacuation of wounded from the forward area he led a relief of stretcher-bearers along a track knee-deep in mud, and at times over his waist in water. Another time he led a party through an intense barrage, thus relieving a temporary congestion of the wounded. He had very little rest during the whole four days.

Temporary Captain William Howard Lister, M.C., R.A.M.C.

As bearer officer he took parties to the regimental aid posts, though they suffered heavy casualties on the way. When a regimental medical officer was wounded, he attended to the wounded of this battalion, searching our lines and "No Man's Land" from midday to dark for wounded, and then returned to his field ambulance for another twelve hours' work until relieved.

Major Philip Alan Maplestone, A.A.M.C.

When in charge of all stretcher-bearers and forward posts he showed the utmost coolness under very heavy fire, during which several shelters were hit. By his example he prevented any panic and prevented serious casualties from gas shells. Although gassed himself, he remained on duty till the forenoon of the following day, having been on duty for over thirty hours. Even then he refused to be treated as a casualty, but after a short rest he returned to the advanced dressing station and carried on his duties.

Bar to the Military Cross.

Captain Richard Thompson Caesar, M.C., R.A.M.C.

In evacuating the wounded under very heavy and continuous fire he systematically searched the battlefield from shell hole to shell hole for wounded, until he could report that all casualties had been removed.

Temporary Captain John Maitland Forsyth, M.C., R.A.M.C.

He went up to the front line several times to search for and tend the wounded under heavy shelling and sniping. It was owing to his tireless energy that the casualties, which were very heavy, were so well evacuated. His aid post was twice hit by shells, once causing nine casualties to his bearers.

Captain Cyril Jacobs, M.C., R.A.M.C. (S.R.).

His dressing station, formed under heavy fire, was once blown in on top of him and five casualties occurred, but he remained at his post and managed to evacuate all wounded. On the following day he cleared the battlefield in spite of heavy fire, and brought back twenty badly wounded cases.

Temporary Captain David Henry Russell, M.C., R.A.M.C.

He successfully evacuated a large number of wounded under constant shelling and in very bad weather conditions. He frequently helped to carry wounded, although himself exhausted.

Temporary Captain Philip Randal Woodhouse, M.C., R.A.M.C.

When the battalion was formed up in the assembly area all the battalion medical staff except himself were wounded. He carried the medical haversacks all day and tended the wounded under fire. He was slightly wounded, but continued to work single-handed for two days.

(To be continued.)

FOREIGN DECORATIONS.

The following decorations have been awarded by the President of the French Republic for distinguished services rendered during the course of the campaign:

Légion d'Honneur.—Croix d'Officier: Colonel (temporary Major-General) G. L. Foster, C.B., D.M.S., Canadian Forces. Croix de Chevalier: Colonel G. E. Beauchamp, C.A.M.C.

Croix de Guerre.—Colonel T. Du B. White, C.M.G., A.M.S., Captains J. F. Edmiston, R.A.M.C., J. H. P. Fraser, R.A.M.C., S. R. Gibbs, R.A.M.C. Temporary Captains E. G. Stanley, R.A.M.C., G. T. Cregan, M.C., R.A.M.C. Temporary Lieutenant R. J. Helsby, R.A.M.C.

The King has conferred the Distinguished Service Cross upon Surgeon (acting Staff Surgeon) A. G. Vavasour Elder, R.N.V.R., in recognition of his services in connexion with naval ambulance trains and sea hospital transport throughout the war. Acting Staff Surgeon Elder was frequently under fire at the Gallipoli beaches.

Major Kenneth MacCormick, of the N.Z.M.O., who received the D.S.O. for the services published in the *London Gazette* of April 6th, 1918 (BRITISH MEDICAL JOURNAL, April 13th, p. 440), was incorrectly described as belonging to the C.A.M.C.

NOTES.

TETANUS FOLLOWING INTRAMUSCULAR INJECTION OF QUININE.

The following report records a sequence of events which has, we believe, very rarely been observed:

Pte. B., aged 24, who was suffering from malaria contracted in Macedonia, received an intramuscular injection of quinine on March 8th, 1918. On March 19th he complained of stiff jaws, and later on of stiff neck. A subcutaneous injection of 8,000 units of antitetanic serum was given. On the morning of March 20th he had frequent tetanic spasms. At 10 a.m. on that day he received 8,000 units of antitetanic serum intramuscularly and 16,000 units intrathecally, followed by 16,000 units intravenously. He died from generalized tetanus at 5.30 p.m. on the same day.

A post-mortem examination was made. A saline emulsion of the muscle from the site of the quinine injection failed to induce tetanus in a guinea-pig inoculated with it, but a second guinea-pig, inoculated with a muscle extract of the first animal, developed true tetanus within twenty-four hours. The bacteriologist recovered the tetanus bacillus from the muscles at the site of inoculation in both guinea-pigs, while from the muscle of the patient only a few bacilli were cultivated which morphologically resembled the tetanus bacillus.

CEREBRO-SPINAL FEVER IN THE FRENCH ARMY.

In a paper read recently before the Académie de Médecine, Dopter (*Bull.*, lxxxix, 169-171), who a few months ago published an admirable book on the diagnosis and treatment of cerebro-spinal fever (reviewed on February 23rd, p. 233), gives an encouraging account of the recent incidence of the disease in the French army, and ascribes the improved record to fresh air and the absence of overcrowding. During 1915 there were 1,073 cases, or 4.2 per 10,000; 451 cases, or 1.8 per 10,000, during 1916; and 409, or 1.5 per 10,000, during 1917. He draws attention to a curious change in the bacteriological etiology of the disease during the war; in 1915 the great majority of the cases were due to the meningococcus, type A (Nicolle), but during 1916 the parameingococcus or meningococcus B and C (Nicolle), which before the war was rare, became prominent. The disease becomes more evident towards the end of December, reaches its maximum in March, diminishes to its lowest activity in the autumn, but contrary to its behaviour in pre-war times persists during the summer. The general aspect of the disease is that of an endemic affection with small foci of six to eight cases. During cold weather exacerbations coincide with sudden falls in the temperature, and recruits shortly after their arrival at instructional centres are the most subject, as a result of exposure to cold and fatigue on the journey.

Scotland.

THE OUTLOOK ON TUBERCULOSIS.

SIR ROBERT PHILIP gave his inaugural address as professor of tuberculosis in the University of Edinburgh, in the McEwan Hall, on April 16th. In some introductory remarks the principal, Sir Alfred Ewing, said that the University owed the establishment of the new professorship to the Royal Victoria Hospital Tuberculosis Trust. There was no other chair of tuberculosis in the world, and it was eminently fitting that the first should be founded in Edinburgh, as the system of dealing with that fell disease was being copied as the Edinburgh system all over the world. It was satisfactory that the chair was occupied by the man who had created that great organization.

Sir Robert Philip said that the ravages of tuberculosis, though still appalling, had been greatly reduced. From the Registrar-General's figures for 1915 it appeared that in England 54,295 persons died of tuberculosis, representing a death-rate from all forms of 151 per 100,000. In Scotland 7,819 died of tuberculosis, a rate of 165 per 100,000. From pulmonary tuberculosis alone, in England there died 41,676 persons, a death-rate of 116 per 100,000, and in Scotland 5,291 persons, a death-rate of 111 per 100,000. Comparable figures for England twenty-five years ago showed a death-rate of 168 per 100,000, representing a fall of 30.9. In Scotland the death-rate was then 193 per 100,000, so that the fall was 42.4 per cent. This fall was not due to natural causes which had influence in all civilized countries. In 1915 the figures per 100,000 of the population were: Scotland 111, England 116, Germany 142, Ireland 172, France 179. Such facts afforded a striking commentary on the view of Metchnikoff and others that a process of gradual immunization was in progress in thickly populated countries. The fascinating theory of communal immunization on natural lines failed when

tested by facts. The problem of tuberculosis was urgent, and the place occupied by tuberculosis in medicine was large. A return prepared by the registrar of the Edinburgh Royal Infirmary showed that during the year ending January 31st, 1918, some 650 cases, including tuberculosis of practically every organ and structure of the body, were treated within the wards. The list did not include out-patients, and the numbers were the more remarkable inasmuch as the Royal Infirmary was a general hospital, which in principle excluded infective conditions. He considered the prospect for the future full of hope. No disease was more tractable if its character were recognized sufficiently early. Nature cured tuberculosis every day. The treatment of tuberculosis had been revolutionized by the recognition of the principle of aërotherapy, and by fulfilment of physiological demands for rest, movement, and feeding. In the adaptation of aërotherapy to the prevention and treatment of disease there existed the potential of successes comparable with those obtained in surgery through the practice of aseptic methods. After discussing the possibilities of vaccine-therapy and chemotherapy, the lecturer spoke of the prevention of the disease. The war had only made more evident the urgent need for a wisely directed comprehensive campaign against tuberculosis. There were indications in some parts of the country of an increase in the death-rate from tuberculosis; the conflict was with an aggressive infection having immense ramifications, whose ravages could be checked only by unremitting effort on approved lines. One encouraging fact was that the British armies had suffered less than those of continental powers. In conclusion, he spoke of the need for training in the prevention and treatment of tuberculosis.

THE PHYSICAL WELFARE OF MOTHERS AND CHILDREN.

The reports issued by the Carnegie United Kingdom Trustees on the existing provisions for promoting the physical welfare of mothers and young children in England and Wales and in Ireland have already been reviewed in the columns of the JOURNAL. A third volume deals with Scotland.¹ The introduction by the Secretary of the Carnegie Trust emphasizes the importance of this work of collective investigation and report, because the rate of infantile mortality and its predominant causes, as well as the health supervision of children from infancy to the age of admission to school, are among the most important problems of the present day.

In preparing this report and survey of medical, statistical, social, and administrative materials, Dr. W. Leslie Mackenzie has tried to preserve freshness of outlook on the facts. Investigators visited the places under review, made notes of their inspections, interviewed officials, obtained from them directly such relevant printed or written matter as was readily available, and received verbally much valuable direction in a very complicated inquiry. By these means first-hand records were made of living experience—much that rarely finds its way into print. The effect has been to produce a book brimful of the most absorbing human interest and a record of the highest value to social workers of whatever grade.

One of the most interesting features of the report is that dealing with the distribution of the population. For the most part the people congregate along certain valley and coast lines and are but thinly scattered over the mountainous regions. In some of these valleys great cities have sprung up within recent years owing to the expansion of certain industries. There are steel cities and coal cities. The problems of life in these regions of widely different character require separate treatment. Even in the towns there are differences; the older towns or burghs have an established life of their own, very different from the life in the vast new industrial areas with their special problems of massed humanity. The report deals very illuminatingly with these different conditions and the special means adopted to meet their problems. Then there are parts of the land, in the highlands and islands, where life is at an almost primitive level, where are to be seen dwellings but little removed from prehistoric huts; the excellent photographs reproduced in the book would

suggest some distant clime were it not for the clothing of the people about the places. The diversity of the problems connected with maternity under such varying conditions may be illustrated by two examples. Writing from Dundee Miss Mary Paterson says:

As a result of my inquiry I feel convinced that mothers and children would both benefit if the period of absence from the mill after childbirth were extended. An amendment of the Act making a three months' absence compulsory now, the period of absence to be extended further at a future date, would give the child a chance which it does not seem to have now, and would no doubt result in the more general (and more wise system of) nursing by the mothers. Many women have to leave the mill some time before childbirth because their work fails to come up to the required standard, and this is often a blessing to them, little though they realize it. Compulsory absence would, I am assured, lessen the sufferings of the women and reduce the number of stillbirths, but the difficulty of enforcing the law would, of course, be great, and the responsibility necessarily rest on the woman herself.

Amongst the special studies recorded is a report of life in a Shetland island:

There a woman usually goes about her ordinary work up to the time of her confinement. At the first sign of labour coming on the midwife is sent for post haste. The patient goes to bed and remains there till, at the earliest, the "ninth day." Formerly it used to be thought dangerous to wash the patient at all after childbirth, any old pieces of cloth were thought to be good enough to use for absorbing discharges, and I often wonder how the poor women ever got well again. Up till quite recently the poor woman was practically starved for four or five days, but now a more common-sense view is taken and proper nourishment allowed. The infant spends most of the first two years of its life in a cradle, generally made of wood, with a wooden hood absolutely wind-proof. There is seldom any regularity observed in feeding; a cry is a sign that the child wants food, and, in consequence, the child is constantly over-flowing. Old wives still have great influence in these undiscovered territories.

Correspondence.

BOTULISM.

SIR,—Professor Arthur J. Hall's letter on botulism in the JOURNAL of April 20th (p. 467) is of special interest at the present time. The clinical picture presented by the Sheffield cases appears closely to resemble that of the classic accounts given of this very rare disease. Assuming that they are cases of true botulism and due to the ingestion of specifically infected food, it is of the first importance that the food at fault should be identified either by discovering the *B. botulinus* in portions of some of the material actually eaten by the patient, or by the method familiar to epidemiologists of finding in a detailed and exhaustive food history of a group of cases some food material which is not only common to, but in a certain degree peculiar to, them all.

In order that one or other of these methods of investigation may be applied at the earliest moment, while there is still a chance of obtaining a portion remaining over from any suspected food eaten, and while the memory of the patient or his friends is still fresh as to the foods recently consumed, it would be desirable for medical practitioners to communicate at once with the medical officer of health of their district when any suspicious case comes under their observation.

I shall be glad if medical officers of health who may have had such cases brought to their notice will send me as full particulars, especially as regards food history, as they can obtain. I will arrange to have examined for them any samples of food materials which they may have good reason to suspect of having given rise to this illness.—I am, etc.,

Local Government Board,
Whitehall, S.W.1.
April 23rd, 1918.

A. W. J. MACFADDEN.

THE VALUE OF THE WASSERMANN TEST.

SIR,—The memorandum by Dr. J. S. Robertson in your issue of April 13th, p. 427, is a typical example of a little knowledge being dangerous. He states that "the Wassermann test carried out in the usual way is useless," and in support of this far-reaching assertion what is his evidence? First, that in a pregnant woman with obvious syphilis the test was negative. Even the most inexperienced should know that this is the usual result, but

¹ *Scottish Mothers and Children. Being Report on the Physical Welfare of Mothers and Children, Scotland.* By W. Leslie Mackenzie. Medical Member of the Local Government Board for Scotland. The Carnegie United Kingdom Trust, East Port, Dunfermline. 1917. (8vo, pp. xxvii + 632.)

that after labour the test may be positive, and no pathologist would attach any importance to a negative test obtained during pregnancy. Second, that patients with obvious syphilis were declared to have a negative Wassermann, or that different results were obtained from the same case in different institutions, or even by the same worker. The obvious reply to this is either that the diagnosis was wrong—and even clinicians may err—that the blood was sent at an unsuitable time—for example, during treatment—or that the methods in doing the test were not properly carried out. As to the question of diagnosis, one has known clinicians of even lock hospitals to be wrong about "obvious syphilis," and, if the pathologist were as unscientific as the writer of the memorandum, he might say "my Wassermann tests show how fallacious is the diagnosis of syphilis by Dr. Robertson," or even the well-known surgeon to whom he refers.

The pathologist, however, does not assert this, because as one trained in scientific scepticism he looks at all the evidence, and is not prepared to say that a negative Wassermann test is absolute proof of the absence of syphilis; and further, he knows only too well that a test of this kind must be carried out with the greatest care and with all reagents properly standardized, and that the results must be interpreted by experienced workers. That these conditions are not always, or one might say even generally, fulfilled is also an obvious fact. When a test is being made in a chemical laboratory, the solutions used are standardized, all measurements are made with the greatest accuracy, and if the result is not what was expected, the worker generally asks, "Where did I go wrong?" but with the Wassermann reaction—a chemical test—the standardization of reagents and accurate measurements are too often ignored, and when the result turns out to be different from that expected then we are told, not that the work done but that the test itself is useless.

As I have said, I am not prepared to say that the test is infallible in the diagnosis of syphilis, but I am sure I voice the opinion of most experienced workers when I say that it is of extreme value in diagnosis, and in estimating the result of treatment, if it is carried out properly and with due consideration of the time after treatment at which the test is made, etc. Personally I feel that no case should be declared free with less than two negative reactions—one, one month, and the second three months after the cessation of all forms of treatment. Too often I have seen cases declared cured after a course of treatment, either without a test or with a negative result a few days after the last injection, with the result that a valuable aid to diagnosis—for I regard the test as an aid to, and not a substitute for, clinical diagnosis—is regarded as useless.—I am, etc.,

J. M. BEATTIE, M.D.,

University of Liverpool,
April 23rd.

Professor of Bacteriology.

ACUTE YELLOW ATROPHY IN SYPHILIS.

SIR,—In regard to Dr. Nathan Raw's memorandum in the JOURNAL of April 20th, p. 454, I should like to point out that acute yellow atrophy of the liver ("acute atrophy" or "subacute atrophy" are preferable terms) was well known as an occasional complication of syphilis before the days of the arsenical treatment by salvarsan, etc. In the *Proceedings of the Royal Society of Medicine for 1909* (Pathological Section, vol. ii, pp. 113-122) I described such a case, and endeavoured to give a summary of the already at that time very considerable literature on the subject. The acute hepatic atrophy seems in most cases to have occurred during the late primary or early secondary stages, like acute syphilitic meningo-encephalo-myelitis. Since the introduction of treatment by salvarsan, etc., both precocious syphilis of the nervous system and precocious hepatic symptoms have frequently been ascribed to the action of the arsenical treatment. The probability appears to be that in exceptional individuals the treatment in question does really favour the onset of such serious, and often fatal, complications.—I am, etc.,

London, W., April 20th.

F. PARKES WEBER, M.D.

DEFECTIVE UTILIZATION OF MEDICAL MEN IN HOME COMMANDS.

SIR,—In your comments upon the position of the medical profession under the new Act you express a doubt whether

the available material is always utilized to the best advantage. May I call attention to one direction in which this doubt seems justified?

Surgeons and physicians still engaged in active practice are employed to visit and inspect hospitals in the various commands. Their names carry prestige, but it is manifest that in occasional short inspections questions of actual practice cannot be dealt with, and all that the inspection can effect is to see that accommodation and general administration are satisfactory or otherwise. This could be quite as efficiently done by medical men whose time of usefulness in a purely medical capacity has gone by, but who have devoted some of their years of leisure to hospital administration. There are many such who would gladly undertake this work.—I am, etc.,

April 22nd.

F.R.C.S.

FUNCTIONAL HEART DISEASE AND RECRUITING.

SIR,—As a member of a medical board I have been much impressed with the large number of young men brought up for examination who exhibit a very definite form of functional heart disease, for which in some instances they have previously been "deferred." These youths exhibit a syndrome of three well-marked signs which I have observed for some twenty years or more to be invariably associated with a certain vicious habit. I have seen scores of such cases, and have never once been mistaken in the diagnosis since first learning to recognize the three signs. Sometimes the youth, when first accused, denies the practice; but when the examiner says to him, "I am not asking you, I am telling you; do you practise it now?" he almost invariably acknowledges it, but adds that he gave it up some weeks or months ago. The habit referred to is masturbation. The following signs constitute the syndrome:

1. Widely dilated pupils. This sign in a young man who is not suffering from marked anaemia should at once raise in the mind of the examiner the suspicion of masturbation as the cause.

2. The examiner then places his hand over the heart to feel the apex beat. In these cases the beat is felt to be markedly accentuated, giving the impression of a thin-walled ventricle. The beat is short and sharp, and in the normal position.

3. The pulse, which one might expect from the character of the heart's action to be full and fairly strong, is small and very compressible. Its rate is little, if any, beyond the normal.

The contention is that large pupils, marked accentuation of the cardiac impulse, and a small compressible pulse, form a syndrome which is the result of the above-mentioned vicious habit, and which, when seen in the same individual, are pathognomonic of the condition.

The hints given in textbooks as to the indications of this habit are, in my experience, quite unreliable, and a recent article on masturbation in a leading medical periodical is also, from the point of view of diagnosis, absolutely valueless.

As regards the "grading" of these men, there is no necessity to "defer" them, or to place them in a low category, if they are otherwise quite sound; indeed, the graduated training will be so beneficial that I never hesitate to place them in Grade L.—I am, etc.,

Wrexham, April 22nd.

H. DRINKWATER.

THE National Health Society, which during the forty years of its existence has done much excellent work, especially in instructing women in hygiene and preparing some of them to hold public appointments under local authorities, is making an appeal for £5,000 to provide small bursaries for suitable candidates during their period of training. Full particulars of the objects of the fund and of the courses arranged for women desirous of becoming sanitary inspectors, health visitors, superintendents of infant welfare centres, and factory inspectors, can be obtained from the secretary, Miss Lankester, 53, Berners Street, London, W.1. The appointments of sanitary inspector (Kensington and Lewisham), superintendent of infant welfare centre (Lambeth), and health visitor (Blackburn) have recently been obtained by students of the society.

Obituary.

C. F. M. ALTHORP, M.B.LOND.,

Senior Surgeon to the Bradford Royal Infirmary.

WE regret to announce the death of Dr. Charles Frederick M. Althorp of Bradford, which took place at his residence on April 8th. Dr. Althorp was a native of Bradford and was educated at the Grammar School and at the Leeds School of Medicine. He took M.R.C.S. and L.R.C.P. diplomas in 1887 and the M.B.Lond. degree in 1891. After qualifying, he held resident posts at the Leeds General Infirmary and the Bradford Royal Infirmary. At the latter he remained two and a half years, resigning his post to be appointed one of the first assistant surgeons to that institution. He became full surgeon in 1898, remaining in office until a short time before his death, when he tendered his resignation on account of ill health. When the St. Luke's (Bradford) War Hospital was established Dr. Althorp accepted an appointment as one of the visiting surgeons, continuing to act until a few weeks ago. His work for the war also included the medical officership of the "Bradford Pals" Battalion, the 16th and 18th W. Yorks, during their training in Bradford. Dr. Althorp was a consistent supporter of the British Medical Association, and for some years occupied a seat upon the Ethical Committee of the Bradford Division. His chief interest, however, lay in the affairs of the Bradford Medico-Chirurgical Society, and he was a regular contributor to its proceedings of papers of great surgical interest, as well as being a frequent participant in the scientific discussions. He served the society for some years as an energetic and enthusiastic secretary; was president in the session 1904-5, and long acted as honorary librarian.

In 1916 a serious breakdown in health laid him aside for nine months, but he returned pluckily to work, and his last visit to the War Hospital was the last occasion upon which he left his house. His death is mourned by hosts of friends in the profession and amongst his hospital and private patients. Modest and retiring to a fault, he was a generous colleague, a loyal friend, and a sound surgeon.

GEORGE ROWELL, F.R.C.S.Eng.,

Anaesthetist, Guy's Hospital.

WE regret to record the death of Mr. George Rowell, senior anaesthetist to Guy's Hospital and president of the Section of Anaesthetics of the Royal Society of Medicine. Mr. Rowell received his medical education at Guy's Hospital, and obtained the M.R.C.S. and L.R.C.P. in 1886, and the F.R.C.S. two years later. His former appointments included those of anaesthetist to the Royal Dental Hospital, the West End Hospital for Nervous Diseases, and the Royal Orthopaedic Hospital, and since the war he had served as honorary anaesthetist to the King George Hospital and to the Royal Flying Corps Hospital. In 1891 the Council of the British Medical Association appointed a special committee to investigate the clinical evidence with regard to the effects of anaesthetics upon the human subject, and especially the relative safety of the various anaesthetics, the best methods of administering them, and the best methods of restoring a patient in case of threatened death, and Mr. Rowell was appointed honorary assistant secretary. Ten years later he was member of the Special Chloroform Committee appointed by the Council of the Association to investigate methods of quantitatively determining the presence of chloroform in the air and in the living body. In addition to his work on these committees, Mr. Rowell contributed a number of practical papers on anaesthesia to medical periodicals.

We are indebted to Sir W. ARBUTHNOT LANE for the following appreciation:

George Rowell, who died on April 17th at the age of 54, occupied for many years a very prominent and respected position in the anaesthetic world. He held many appointments, the chief being that of senior anaesthetist and lecturer on anaesthetics at Guy's Hospital. He was an excellent teacher, and was most popular with the students; the care and attention which he gave to their instruction have proved most useful to them in practice. As an anaesthetist he was perfect. He inspired his patient with absolute confidence, while the surgeon knew that he could rely

implicitly on his skill and judgement, which, within the recollection of his friends, were never known to fail in a single instance. He was one of the first to recognize the value of open ether, which he advocated very strongly when he held the post of joint secretary to the British Medical Association's commission on chloroform anaesthesia. Since the commencement of the war he has given his services freely to several voluntary hospitals, and it is largely due to the excessive strain which this additional work entailed that his vitality was so lowered as to render him unable to withstand the infection from which he died, and which he may well have acquired in the performance of his professional duties. He was one of the most warm-hearted, generous, and loyal men one could ever meet, and the name and recollection of George Rowell will always occupy a very warm and cherished spot in the hearts and memories of a much larger circle of friends than it is given to most men to enjoy. Their devotion to him was truly remarkable, and it will ever be a matter of regret to them that he did not better employ his exceptional abilities to his own personal advancement. He leaves behind a most loyal and devoted wife and son, to whom his loss is irreparable.

DR. EDWARD THOMAS WILSON, for many years one of the leading physicians of Cheltenham, died on April 19th, at the age of 85. He studied medicine in the University of Oxford, where he gained first class honours in natural science, and at St. George's Hospital. He obtained the M.B. degree in 1858, and became M.R.C.P. in 1860 and F.R.C.P. in 1870. His connexion with the Cheltenham General Hospital, which he served as physician for thirty-one years, began with his appointment to the medical staff of the branch dispensary nearly sixty years ago. He was also for many years medical officer to Cheltenham College, to the Cheltenham Ladies' College and Dean Close School, and consulting physician to Winchmore Cottage Hospital and the Cotswolds Convalescent Home. At the annual meeting of the British Medical Association at Nottingham in 1892 he was vice-president of the Section of Public Medicine; and nine years later, when the annual meeting was held at Cheltenham, he was president of the Section of Medicine. Dr. Wilson published a number of papers on infectious disease, and was the author of Sanitary Statistics of Cheltenham, of which the first series was published in 1865, and the second in 1872. In former days he was a keen microscopist, and served as president of the Cheltenham Natural Science Society. He was a brother of Major-General Sir Charles Wilson, who went up the Nile to open up communication with Gordon at Khartoum; and one of his sons was the late Dr. Edward Adrian Wilson (head of the scientific staff of the national Antarctic expedition, 1910), who perished heroically with Captain Scott on the return journey from the South Pole.

DR. M. PROSSER JAMES, who died recently at his residence in North Kensington, aged 82, was in former years well-known in laryngological circles. He received his medical education at the London Hospital, and took the diplomas of M.R.C.S. in 1856, L.S.A. in 1857, and M.R.C.P. in 1867. He graduated M.D. St. Andrews in 1857. He was consulting physician to the Children's Home Infirmary, Victoria Park, and had been physician to the Hospital for Diseases of the Throat, Golden Square, and to the North London Consumption Hospital, and lectured on forensic medicine and therapeutics at the London Hospital. He was a corresponding member of the Academies of Medicine of Madrid and Lyons, and was the author of several books on diseases of the throat and nose, and also on climatology and therapeutic mineral waters. He was one of the founders, in 1887, of the British Laryngological and Rhinological Society, and was one of the earliest workers with the laryngoscope and rhinoscope. For many years Dr. Prosser James took a deep interest in the affairs of the Western Skin Hospital, of which he was honorary treasurer, and he was a strong supporter of the Hamilton Association for trained male nurses. In 1875 he had a severe attack of rheumatic fever, and for the remainder of his life was unable to walk. Throughout this invalid existence he found solace in his library, where he indulged his strong literary taste and love of reading.

THE death, on April 8th, of Dr. ROBERT STEVENSON of Bootle, came as a shock to many of his friends. He died after a few days' illness, from acute pneumonia, at the age of 56. He was born in Scotland, graduated M.B., C.M. Glas. in 1837, and became M.D. in 1897. He had been in practice at Bootle for over twenty years; he became a member of the Liverpool Medical Institution in 1901, and was an active member of the Council in 1917. Dr. Stevenson held many public appointments, and was honorary anaesthetist to the David Lewis Northern Hospital, Liverpool. He was held in high regard by his fellow townsmen; to a native shrewdness he added painstaking skill, and was in consequence a busy practitioner. Of a somewhat retiring disposition, he took no prominent part in public affairs, but secured the esteem of his professional brethren and a large circle of friends. The funeral took place on April 11th at Bootle Cemetery. A large number of friends and representatives of the institutions to which he acted as medical officer were present to testify to the sterling merit of Dr. Stevenson. He leaves a widow to mourn his loss, and many Bootle residents to cherish his memory.

We regret to announce the sudden death, on March 24th, of Dr. H. ALDERSMITH, formerly medical officer to Christ's Hospital, first of all when it was still in the City of London, and afterwards when it was removed to Horsham. Dr. Aldersmith studied medicine at St. Bartholomew's Hospital, obtained the M.R.C.S. diploma in 1870, and the fellowship two years later, and graduated M.B. Lond. in 1875, obtaining the university scholarship and gold medal. He also won the gold medal of the Apothecaries' Society, and a senior scholarship at St. Bartholomew's Hospital, where he held the appointments of house-surgeon and house-physician. Dr. Aldersmith was the author of a small work on ringworm and alopecia, which reached its fourth edition in 1897. He took a deep interest in the welfare of the Horsham Cottage Hospital, of which he was honorary secretary.

DR. VERNON HAROLD STARR, Church Missionary Society, was stabbed by a fanatic at Peshawar on March 17th, and died twelve hours later, aged 35. He was the son of the late Mr. H. P. Starr, and was educated at King's College Hospital, London, graduating M.B. and B.S. Lond. in 1908. After acting first as assistant and then as senior house-surgeon of the Royal Devon and Exeter Hospital, he went to Peshawar in 1910 as surgeon in charge of the Church Missionary Society's mission hospital in that city.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved in both parts of the examination in Sanitary Science: D. W. Beswell, Edna M. Goffe,* J. L. Gregory, May I. T. Reid, A. J. H. Russell,* Jane Stalker, E. J. Tyrrell.

* Distinguished in bacteriology.

Medical News.

THE late Sir James Alexander Russell, M.D., of Edinburgh, left £33,766 gross.

SURGEON-GENERAL SIR ARTHUR W. MAY, R.N., K.C.B., has been appointed a deputy lieutenant of the county of Cornwall.

DR. EDWARD BUXTON, M.D., F.R.C.S.E., J.P., has been unanimously elected chairman of the Great Crosby Urban District Council for the ensuing year.

DR. SIDNEY MATTHEWS (Crawley) has been added to the Commission of the Peace for Sussex.

DR. DONALD MURRAY, M.O.H. for Stornoway, has been adopted as the prospective candidate for the representation in Parliament of the Western Isles.

AT a meeting of the Central Midwives Board on April 18th Sir Francis Champneys was unanimously re-elected chairman. Fifteen midwives were removed from the roll on their own application.

A PROCLAMATION has been issued under the new Military Service Act cancelling as from April 24th all exemptions granted by tribunals or Government departments to men between 19 and 23 in grades 1 and 2, or categories A, B 1, B 2, and C 1, with certain exceptions, which include duly qualified medical practitioners.

DR. J. M. H. MACLEOD will give a course of demonstrations on skin diseases, especially those met with in military wards, at Charing Cross Hospital on Tuesdays, at 3 p.m., commencing on Tuesday, May 7th. The demonstrations are open to all medical practitioners and medical students.

A SERIES of lectures and demonstrations on the feeding and care of infants will be given by Dr. Truby King, C.M.G., in the Governors' Hall, St. Thomas's Hospital, on Tuesdays and Fridays. Sir Arthur Stanley will take the chair at the first lecture at 5.30 p.m. on Friday, May 3rd. Members of the medical profession, nurses, and infant welfare workers can obtain tickets from the secretary of the hospital.

DR. CHAUVÉAU, representative of the Côte-d'Or, has been elected chairman of the French parliamentary group by thirty-one out of thirty-four votes. In thanking the members for the honour done him, Dr. Chauveau pleaded for a closer union between the group and the medical press and professional associations so that parliament might be kept in touch with the profession.

COLUMBIA UNIVERSITY has received £10,000 from an association of medical women, and contributions from other donors amounting to £3,600, to enable it to begin the erection of buildings in the medical department for the accommodation of women students. The university has lately received a gift of £600 from an anonymous donor for research in war problems, and another of £1,000 from Mr. Clarence Mackay for surgical research work.

A MEETING of medical men, jurists, and philanthropists representing every part of Switzerland has been held to discuss the formation of a Swiss association for the prevention of venereal disease. Professor Bloch, director of the dermatological clinic of the University of Zürich, and Colonel Hauser, head of the medical service of the Swiss army, were appointed to draw up reports on the campaign against syphilis in the civil population and in the army.

DR. FRANCISCO DOMÍNGUEZ ROLDAN, who was recently appointed secretary of Public Instruction and the Fine Arts, one of the highest administrative posts in the Republic of Cuba, is a distinguished member of the medical profession. After graduating at the University of Havana he studied for a long time in Paris, devoting himself especially to anatomy. On his return to his native island he was appointed professor in the University of Havana, and won a great reputation and influence as a teacher.

THE London County Council, at its meeting on April 23rd, agreed to the establishment for one year of an experimental centre for remedial exercises as part of the Council's scheme for the medical treatment of school children. The treatment is intended for the more pronounced cases of such deformities as lateral curvature of the spine, and a voluntary committee is to manage the centre, which will be in Hampstead, where selected children from schools in the district will be sent for treatment.

AT a meeting of the National Baby Week Council on April 11th, under the chairmanship of Sir James Boyton, M.P., it was announced by Dr. Eric Pritchard, chairman of the executive committee, that this year the national celebration would be held from July 1st to 7th, but local committees would be free to choose dates to suit their own convenience. Exhibitions of the practical side of infants' welfare work and mothercraft competitions would be held. It was agreed to co-operate with the National League for Health, Maternity, and Child Welfare. The offices of the National Baby Week Council are at 27A, Cavendish Square, London, W.1.

DISTURBANCES of the reactions of the pupils after recent shell shock without external wounds are probably common, but, as vision is not affected, little attention has been called to the subject. From an analysis of twenty-six cases, Guillaumin and Barré (*Ann. de méd.*, 1917, v, 503-513) find that the following changes may occur: Dilatation, without reaction to light or accommodation; inequality, with failure to react to light on one or both sides; inequality only; the Argyll Robertson pupil; and the paradoxical reaction to light. As a rule, these disorders do not last more than three weeks. The explanation of the pupillary abnormalities is difficult; there is no gross damage to the eye, and there is no evidence that they are hysterical. In six of the cases examined the cerebrospinal fluid was yellow as the result of haemorrhage; possibly in these cases there was a toxin which acted on the roots of cranial nerves or on the fibres of the pupil reflex; possibly the shock affected the retina or the ciliary nerves and muscle, causing asthenia; or possibly there was local compression by blood clot, but in most of the cases there was no sign of meningeal haemorrhage.

Letters, Notes, and Answers.

The telegraphic addresses of the British Medical Association and Journal are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Atitology, Westrand, London*; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

PART-TIME MEDICAL OFFICERS OF HEALTH.

MEDICUS, in reply to Dr. Lemarchand (p. 350), points out that a doctor may gain or may lose by entering public life, or by holding public appointments. He maintains that if a general practitioner is to be excluded from part-time medical officership of health by reason of the advantage it might give him over his colleagues in private practice, he should equally be excluded from other part-time appointments, such as hospital posts, factory surgeons, etc., and even from taking an active part in municipal or church life.

A CASTOR OIL DRESSING FOR WOUNDS.

DR. JOHN WISHART (Newcastle-on-Tyne) recommends the following method of dressing wounds, which he has used since 1904. He employs castor oil 2 ounces, anaesthetic ether 2 ounces, liq. iodi fort. 1 drachm, and then applies white lint soaked in castor oil. The wounds done in this way only require dressing once weekly, and there are none of the sticking troubles which one has to face in removing gauzes. In circumcision wounds, and ordinary incised and contused wounds, the redressing causes no pain.

VAGINAL DOUCHING.

DR. HENRY DUTCH (London, W.) writes with reference to Dr. W. E. Fothergill's paper (p. 445) on vaginal douching: I have long since recognized the futility of this procedure, which I agree frequently aggravates the condition. The presence of vaginal discharges is very annoying to the patient. Some years ago I suggested a "vaginal applicator," something after the style of Kelly's rectal speculum. This instrument is passed into the vagina by the patient, and a long swab-holder is passed through the speculum, which, gently rotated, brings away any discharge present. I frequently order the swab to be moistened with hydrogen peroxide, which cleans and helps to collect the discharge. It is obvious that something must be done locally to relieve the condition and the patient's mind. The instrument has been made for me by Allen and Hanbury.

TUBERCULIN TREATMENT OF PULMONARY TUBERCULOSIS.

DR. ADAM MOSS (West Kirby) writes, with reference to Dr. A. E. Prest's note (p. 444) commending rest in the treatment of early cases of pulmonary tuberculosis, to state that he treats such cases with tuberculin and lets them go about, and obtains a cure in practically every one. Even in comparatively advanced cases, he continues, with temperature of 100° or 101°, I do not insist on absolute rest. They come to me twice weekly for injections, and rest as much and exercise as much as they feel inclined. Three years ago a man came to me from a sanatorium, which he had entered eight months before as a very early case. His temperature was 101° and the disease so far advanced that I thought it was hopeless to expect a cure. In six months the temperature was normal, and at the end of twelve months I had worked up his dose to 1 c.cm. of old tuberculin. He was then without cough or expectoration and physically absolutely fit. He has done his full work for eighteen months without a day's illness. By all means let the leaders of the profession lay aside prejudice and the rank and file learn how to use tuberculin. I follow Dr. Camao Wilkison's method and I am more than satisfied.

BRANCH SECRETARIES IN THE BRITISH MEDICAL ASSOCIATION.

SURGEON-GENERAL GEORGE J. H. EVATT, M.D., C.B. (Junior United Service Club, London, S.W.), writes: In view of the difficulty that often exists in getting an effective local secretary for a Branch, may I submit the following suggestion? I propose that several Branches should agree to employ jointly a paid secretary, who, living anywhere within the Branch districts, could attend all Branch meetings, and do the secretarial work for all. From secretaries so trained a general secretary might one day be chosen for the British Medical Association. From time to time medical men retire from official medical services with pensions. Such persons, not too old, could well be chosen as joint secretaries of united Branches, and they would, I believe, contribute to the local efficiency of the British Medical Association.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

It was decided at the last meeting of the Executive Committee of the Fund that a second appeal must be made to the medical profession on behalf of our suffering Belgian colleagues, their wives and families. A statement has been widely circulated during the week showing directions in which the large sum contributed to the Fund by the generosity of the medical and pharmaceutical professions has been distributed, and giving also the reasons why every endeavour must be made to maintain the Fund in all its great sphere of utility.

In response to the circular, Dr. H. A. Dea Vœux, the treasurer, is now receiving a large number of subscriptions, so large that only a portion of them can be acknowledged in our columns this week.

Subscriptions to the Second Appeal.

The following subscriptions to the Fund have been received during the week ending April 15th:

	£	s.	d.		£	s.	d.
Lient-Col. G. H. Mott, I.M.S. ...	5	0	0	Surg.-Col. H. Hahgood ...	1	1	0
Dr. John H. Teacher ...	2	2	0	Dr. C. E. Michael ...	1	1	0
Sir Kennedy Dalziel, M.B. ...	5	5	0	Dr. Hector Mackenzie ...	5	5	0
Dr. Frank Boxall ...	1	1	0	M.D. ...	0	5	0
Mr. R. R. James ...	1	1	0	"Kappa" ...	1	1	0
Dr. John Hamilton ...	1	1	0	Dr. and Mrs. Reichwald ...	5	0	0
Dr. Bannerman ...	1	1	0	"A Sympathiser" ...	1	1	0
Dr. Watson-Williams ...	6	6	0	Dr. A. E. Causton ...	2	2	0
Dr. Clifford Beale ...	5	5	0	Dr. J. W. Sandoe ...	1	1	0
Dr. Abraham Cohen ...	1	1	0	Dr. V. A. Chapman ...	10	0	0
Dr. Cecil E. Salt ...	1	1	0	Dr. J. C. Guthrie ...	1	1	0
Dr. Thomas Procter ...	0	10	0	Dr. Neville ...	1	1	0
Dr. Jane H. Turnbull ...	2	2	0	Dr. A. S. Wilson ...	2	2	0
Dr. Louisa Hamilton ...	2	2	0	Dr. H. M. Stewart ...	1	1	0
Dr. George Bate ...	1	1	0	Dr. E. G. Cameron ...	2	0	0
Dr. E. M. Goldie ...	1	1	0	Dr. N. H. Pike ...	1	1	0
Dr. H. L. Hatch ...	1	1	0	Dr. S. H. Lee ...	5	5	0
Mr. E. Treacher Collins ...	3	3	0	Dr. R. V. Solly ...	1	1	0
Dr. Beckett-Overy ...	5	0	0	Dr. D. Matheson Mackay ...	2	2	0
Dr. Hamilton Bland ...	10	10	0	Dr. J. A. Sanderson ...	1	1	0
Dr. Violet Coghill ...	1	1	0	Dr. Lambert Lack ...	3	3	0
Mr. Sidney Spokes ...	2	2	0	Dr. J. H. Witham ...	1	1	0
Dr. Frank Fawcett ...	2	2	0	Mr. E. H. Howlett ...	1	1	0
Dr. E. A. Seymour ...	0	10	6	Dr. G. Baynton-Forge ...	5	5	0
Dr. Hugh Playfair ...	5	5	0	Dr. C. Elliott ...	2	2	0
Mr. A. E. Kisey-Taylor ...	1	1	0	Dr. C. H. B. Shears ...	2	0	0
Dr. A. E. Godfrey ...	2	2	0	Dr. J. Medley Wood ...	1	1	0
Dr. W. Bradbrook ...	0	10	6	Dr. G. H. Stowe ...	2	2	0
Dr. Roche ...	1	1	0	Dr. T. M. Strang ...	5	0	0
Dr. Isabella Macdonald ...	2	2	0	Dr. John Watson ...	1	1	0
Dr. J. S. Swain ...	0	2	6	Dr. H. S. Renshaw ...	5	0	0
Sir Seymour J. Sharkey ...	2	2	0	Drs. Hartham and Harrison ...	5	5	0
Dr. E. Hamilton Kyle ...	2	2	0	Dr. Joseph Horne ...	2	0	0
Dr. E. H. Walker ...	1	0	0	Dr. A. T. Simpson ...	5	5	0
Dr. G. C. King ...	3	3	0	Dr. H. A. Mawdsley ...	1	0	0
Dr. C. Andrews ...	1	1	0	Dr. A. Marshall ...	1	1	0
Mr. W. R. Rollison ...	10	10	0	Dr. Murdoch ...	2	2	0
Sir Dyce Duckworth, Bt. ...	3	3	0	Dr. F. Stevenson ...	1	1	0
Mr. H. H. Marsden (collected by) ...	1	5	0	Dr. J. Gordon Black ...	2	2	0
Dr. Crawford Watson ...	1	1	0	Dr. E. W. Dewey ...	1	1	0
Dr. J. P. Scatchard ...	2	2	0	Dr. Roper ...	2	2	0
Dr. J. Wallis B. Rason ...	1	1	0	Dr. A. H. Radcliffe ...	2	2	0
Dr. F. J. Nicholls ...	1	10	0	Dr. Frank Godfrey ...	2	2	0
Dr. R. Mathewson ...	1	0	0	Major H. E. Martis ...	3	0	0
Dr. G. A. Grace-Calvert ...	5	0	0	Mr. W. F. Brook ...	10	0	0
Dr. Stopford Taylor ...	5	0	0	Dr. R. M. Fraser ...	1	0	0
Dr. Thomas Wilson ...	2	2	0	Dr. Claude Wilson ...	2	0	0
Dr. Hammond ...	1	1	0	Dr. Arnold Lyndon ...	2	2	0
Mr. David Wallace, C.M.G. ...	10	10	0	Dr. Sinclair White ...	5	0	0
Dr. Sunderland ...	1	1	0	Dr. Thomas Drapes ...	2	2	0
Mr. J. B. Lawford (for eight months) ...	4	0	0	Miss S. M. Wits, M.D. ...	3	3	0
Dr. James Taylor ...	3	3	0	Mr. E. Lawford Knaggs ...	2	2	0
Dr. J. H. Arthur (for twelve months) ...	6	0	0	Professor Delépine ...	2	2	0
Dr. F. J. Turner ...	0	5	0	Professor Sims Woodhead ...	3	3	0
Dr. J. P. A. Gabb ...	2	2	0	Dr. J. Mitchell Wilson ...	1	1	0
Mr. Harbord ...	2	2	0	Dr. Priestley Leech ...	1	1	0
Dr. J. M. N. Popple ...	1	1	0	Dr. Annacker ...	2	2	0
Dr. Hugh Davies ...	3	3	0	Dr. J. F. Forster ...	3	3	0
Dr. E. Croft Watts ...	1	1	0	Mr. Robert Jaques ...	1	1	0
Dr. Jacob Pickett ...	0	10	6	Dr. John Grimes ...	2	2	0
Major Cyril H. Walker, R.A.M.C. ...	3	3	0	J. G. C. Mancunensis ...	5	0	0

Monthly (m.) and Quarterly (q.) Subscriptions.

Sir Alfred Pearce Gould (m.) ...	5	0	0	Sir Thomas Barlow (m.) ...	0	10	0
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Dr. K. J. Dougall (m.) ...	0	10	0	Mr. J. B. Lawford (10s. per m. for 8 m.) ...	4	0	0
Dr. Legat (to continue for 6 m.) ...	0	10	0	Dr. J. H. Arthur (10s. per m. for 12 m.) ...	6	0	0
				Dr. D. Elcum (for 12 m.) ...	6	0	0

It will be observed with pleasure that the system of monthly subscriptions has begun to attract attention, and it is trusted by the Committee that this method of supporting the movement, which in these times may have its advantages for many willing subscribers, will prove a source of steady income for some time to come. It will be seen that several contributors in sending donations have indicated that although the payment is made in bulk it is to be taken as representing a series of monthly subscriptions; the names occur in both lists of acknowledgements.

Subscriptions to the Fund should be sent to the Treasurer,

Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

DIRECT TRANSFUSION OF BLOOD.

CAPTAIN H. H. KING, I.M.S., writes: With reference to Colonel Hull's article on artery-vein transfusion of blood in the JOURNAL of November 24th, 1917, p. 683, would it not be possible and more convenient to use vein to vein transfusion? If the venous circulation of the donor be obstructed by a rubber bandage round the arm the pressure in the veins of his forearm would, I should think, be quite sufficient to transfer 600 c.cm. or more of blood into a vein of the recipient in a short time. Certainly the venous pressure in the forearm on occasions when I have performed venesection has appeared high. Donors would more readily consent to the ligation of one of the superficial veins of the forearm than allow of the ligation of their radial arteries.

LEMON JUICE IN SEVERE JAUNDICE.

WE are indebted to Dr. J. Pereira Gray (Exeter) for the notes of the following case: I was called a year ago to see a man, aged 72. I was informed by his sister that he was suffering from cancer of the liver and was very seriously ill. The patient stated that his illness was of two years' duration and that he had been seen by five general practitioners and one consulting physician, who were unanimous that he had cancer of the liver. He was given hypodermic injections of morphine three times a week. The skin and conjunctivae were deep yellow. There was a lump the size of an orange in the epigastrium. He was unable to sit up on account of excruciating pain in the dorsal region. The urine was black and the motions white. I told him the former opinions he had as to his condition were probably correct, and by way of treatment advised him to drink daily the juice of half a lemon. Two days later I found the urine had assumed a brown colour and that the man himself felt much better. In a week the urine was amber-coloured. Within a month there was no trace of yellow in the skin or conjunctivae and the lump in the epigastrium had disappeared. There was no pain in the back. Two months later I saw him running to catch a tram. This case shows the proverbial difficulty of definitely diagnosing malignant disease of the internal viscera. It also shows that in all cases of jaundice so simple a remedy as lemon juice is well worth a trial.

UNUSUAL LENGTH OF MENSTRUAL LIFE.

DR. ALEXANDER BLAIR (Helmley, Yorkshire) writes: A patient whom I am now attending has been menstruating regularly, except during pregnancy and the puerperium, for the long period of forty-five years. She informs me that she began to menstruate at the early age of 11 and she is now in her fifty-sixth year. She has been pregnant eleven times and has borne ten healthy children, the confinements being quite normal; the other pregnancy ended in miscarriage at the sixth month. Until the last four years she has lived the healthy life of a busy housewife of the middle class. The periods are still perfectly regular, lasting for about six days. For several years she has suffered from periodical attacks of vomiting, which become intensified, sometimes to a distressing extent, immediately before and during the menstrual period. The condition has persisted in spite of treatment. Some time ago, on my advice, she consulted a specialist, who agreed with my diagnosis of "nervous vomiting probably uterine in origin." The uterus appears to be quite normal with the exception of a somewhat unusual hardness apparently due to fibrosis. Her elder sister began menstruating at the age of 15, and, in her case also, the menopause did not come until she was 56. There is no history of any other female relative having been the subject of such a lengthened menstrual life. The patient is a big woman of fine physique.

AN OBJECT LESSON FOR ANTIVACCINISTS.

The Ohio Public Health Journal for December, 1917, records an instructive example of the danger to which neglect of vaccination exposes a community. A coloured girl from North Carolina soon after her arrival developed small-pox at Waterbury, Connecticut, in June, 1916. The case remained unknown until another person contracted the disease from her. Investigation then revealed ten other cases, all in Waterbury. Other people known to have been exposed were vaccinated and no other cases were reported in July or August. Several other cases, however, came to light in September, and it was found that unreported cases had existed during the preceding two months. From that time onwards further cases were reported in Waterbury and neighbouring towns, and there were others in various places throughout the State of Connecticut. In all but two of these infected localities, however, the exposures were traced to Waterbury. Of the 378 cases reported during the ten months from June, 1916, till March, 1917, practically all were traceable to the coloured girl. Only 10 had been vaccinated within the fifteen previous years. Five of these 10 had been vaccinated thirty years or more before exposure. Waterbury, according to the Secretary of the State Board of Health, has for years been "the Connecticut stronghold for antivaccinationists." It is estimated that only 45 per cent. of its population had been vaccinated at the time of the outbreak of small-pox. Compulsory vaccination of children was not achieved until January 1st. Before that date fifty school children had been

attacked; from January 1st till April 1st not one contracted the disease. In Bridgeport, New Haven, and Hartford, cities with populations of from 110,000 to 150,000, within thirty to thirty-two miles of Waterbury, vaccination had been thorough in the past, the percentage of protected persons being estimated at 80 to 85 per cent. These places escaped infection by small-pox during the Waterbury invasion, except for a single case in Hartford. Not one death occurred in the 25,000 vaccinations performed in Waterbury during the ten months of the epidemic and among several thousand factory hands.

FLAMES FROM WOUNDS.

A STRIKING title to catch the wandering eye is a device well known to the journalist, and sometimes, it must be confessed, the title is the best part of an article. On the other hand, the seeker after curiosities may plume himself, like the successful hunter of bookstalls, on finding a treasure concealed under a modest title. Thus it is surprising to find that Temporary Surgeon K. A. I. Mackenzie's article, "Some Observations in a Recent Action" (Journal of the Royal Naval Medical Service, 1918, iv, 205-6), is an account of two cases of wounds received in action which emitted flames. The first case was that of a leading signalman killed in action and found at the medical distributing station to have a transverse wound on the dorsum of the hand; on separating the apposed edges of the wound a small flame about the size of a finger-nail shot out accompanied by a smell of acetylene; this flame went on for some hours. The second case was also that of a signalman, whose foot, almost blown off, had a similar minute flame in the base of the wound. The explanation was that the men had been standing together at the time when a shell hit a lifebuoy with its attached case of calcium phosphide close to them, and, besides killing one and wounding the other, drove small pieces of calcium phosphide into their wounds. The blood of the wounds made the calcium phosphide burn just as water ordinarily does.

A BOGUS M.D.

AT Greenwich police court, on April 12th, Emmanuel Lawrence, of 195, High Street, Lewisham, pleaded guilty to wilfully and falsely pretending to be, and taking and using the name, title, addition, and description of M.D., thereby implying that he was registered under the Medical Acts. Mr. W. E. Hempson, prosecuting on behalf of the Medical Defence Union, said that defendant was manager to an optician, and it seemed that when people came to him about their sight, his custom was to suggest they were suffering in a manner which called for medical treatment. Defendant professed to have medical knowledge, examined the patients, and gave them prescriptions, which it was contended no chemist would have dispensed unless misled into the belief that they were written by a medical man. It was for this purpose, Mr. Hempson suggested, that the title M.D. was used. Defendant, moreover, charged fees quite equal to those of a general practitioner. In one case, under the guise of being a medical man, he induced a patient to allow him to examine her with a stethoscope, and told her that she had advanced valvular heart disease. This so frightened her that she went to her medical adviser, who, finding no such disease, wrote to defendant, and received an impudent reply. One of the prescriptions contained strychnine in small doses and another nitroglycerin. It was stated on behalf of the defendant that he had borne a good character, was partially paralysed, suffered from heart disease, and his mind was not stable. He had a great idea of his own importance and ability, and a mania for imposing prescriptions upon people, including his own brother. The magistrate observed that the state of defendant's health was irrelevant; he was a most dangerous man, guilty of offences against the Medical Acts, of fraud, and of assaults on women under the pretence that he was a doctor. He imposed a fine of £40, with 20 guineas costs, or three months' imprisonment in default.

NICE AND BOYS.

DR. MILLER (Govan) writes: During my school medical inspection this week a poorly nourished boy was brought to me by his mother. After giving her explicit directions regarding his diet, she told me she had been recommended to give him a field mouse, but had not done so as she thought it would give him "the jaundice."

THE following appointments for certifying factory surgeons are vacant: Motherwell (Lanarkshire), Newton Abbot (Devonshire).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *postes restantes* letters addressed either in initials or numbers.

CEREBRAL OEDEMA (EXCESS CEREBRO-SPINAL FLUID):

ITS CAUSATION AND SURGICAL TREATMENT.

BY

L. BATHE RAWLING, M.B., B.C., F.R.C.S.,

MAJOR R.A.M.C.(T.F.),

SURGEON, WITH CHARGE OF OUT-PATIENTS, ST. BARTHOLOMEW'S HOSPITAL.

ON my return recently from India I read with interest an article by Professor Halliburton on the possible functions of the cerebro-spinal fluid.¹ The article terminated with an appeal for closer co-operation between the physiologist and the neurologist in an attempt to elucidate some of the problems relating to cerebro-spinal fluid. May not the surgeon be invited to this conclave? Surely his experience is likely to be of some value, more especially when he has spent a good many years of his life in the study of injuries and diseases of the brain, and when he has practical experience of problems relating to cerebro-spinal fluid. I have discussed such questions for many years in the wards of the hospital; I have demonstrated on many occasions in the operating theatre the existence of *plus* cerebro-spinal fluid; and now, as the result of Eastern experience, I have further points to bring forward showing the conditions that may lead to excess fluid, the pressure symptoms associated therewith, and the results obtained by surgical treatment.

In discussing this excess of cerebro-spinal fluid, I would utilize the original term applied to a description of the naked eye appearances of brain and membranes when soaked in an excess of fluid, "cerebral oedema." It is both comprehensive and expressive, and it harmonizes with my ideas as to causation. It will therefore be retained throughout.

DEFINITION OF CEREBRAL OEDEMA.

To obviate any possible misconception as to what I mean by cerebral oedema, let me first picture the conditions as seen by the veriest novice in any typical case.

When the dura mater is incised in an operation for subtemporal decompression, carried out for the conditions under discussion, clear cerebro-spinal fluid at once escapes from the subdural space, often spurting out as if under considerable pressure. Under normal conditions there is no fluid in the subdural space, and none escapes when the subdural space is exposed. In the event, however, of considerable excess, the cerebro-spinal fluid which normally occupies the subarachnoid space is forced by the increasing pressure between the cells of the arachnoid membrane into the subdural space. This escape of fluid from the subarachnoid space is not problematical. It can be seen in any typical case of cerebral oedema when the dura mater is incised. The arachnoid presents a "weeping" appearance, the tears collecting into rivulets and running away at the lower part of the exposed area. In relation to the cortical veins, lying in the cerebral sulci and embedded in the subarachnoid tissue, little rivers of fluid can be seen with the naked eye, fluid exuding therefrom and contributing to the general pool that collects below. The brain presents a boggy appearance, and the general surface cortical oedema can be very prettily demonstrated by applying gentle pressure with a sponge, the excess fluid being momentarily squeezed aside, to return as a wave so soon as the pressure is removed. The surface of the brain looks like a very wet sponge.

This excess fluid, seen at the operation, will continue to run away during the sewing up of the wound, and that it continues to run away from the surface of the brain into the subtemporal tissues, both during the healing process and subsequently, is shown by the frequent presence in the temporal region of a fluid swelling; it demonstrates the success of the operation, being the proof that the intracranial pressure has been relieved by the draining away of the fluid excess. That this swelling is a fluid collection can be proved directly both by transillumination and by aspiration, and indirectly by means of lumbar puncture. I have frequently carried out lumbar puncture when it seemed advisable to lessen the degree of temporal swelling, the removal of fluid being followed by considerable diminution in the size and tenseness of the swelling. In the more favourable cases, such as those mentioned in this

paper, the swelling is never very marked, and it gradually recedes till eventually the temporal region lies flush with the surrounding area.

If lumbar puncture be carried out in a case of cerebral oedema, as a preliminary diagnostic measure, the excess fluid is demonstrated, both by the pressure under which it escapes and the quantity that can be collected in a given period of time.

CAUSE.

What is the cause of this cerebro-spinal excess? Professor Halliburton, from physiological experiments, states that there are three groups of substances which promote the flow and increase the pressure of the fluid, independently of those which effect it secondarily by altering the blood pressure—excess of CO₂, volatile anaesthetics, and extract of choroid gland or brain. I leave these physiological causes and turn attention to the cerebro-spinal flow in relation to alterations of blood pressure. Professor Halliburton says that the arterial pressure has but little effect on the amount of secretion. I pin my faith, however, on a very definite relation between the amount of cerebro-spinal fluid present intracranially and the intracranial venous pressure, for the following reasons:

1. It is accepted that the cerebro-spinal fluid is formed either as an active secretion from the choroid plexuses of the lateral, third and fourth ventricles, or by a process of filtration through the choroid capillaries.

2. It is accepted that the greater part of this fluid passes from the ventricular spaces through the foramina in the roof of the fourth ventricle to the cerebral subarachnoid system and spaces.

3. It is accepted that it exists at very much the same pressure as the intracranial venous system, but slightly above the venous pressure.

4. It is accepted that, under normal conditions, it is absorbed, as formed, into the cerebral venous channels, more especially into the lateral lacunae of the superior longitudinal sinus. It would be unwise, in the present state of our knowledge, to make any very definite statement as to whether this is a mere mechanical transmission of one fluid of a lower specific gravity and of higher pressure into another, through a permeable wall, or whether the walls of the veins possess a certain selective action. In all probability the vessels do exercise a selective action, but, under the more ordinary conditions, the absorptive process is probably purely mechanical.

Anyhow, this venous absorption, as I may call it, must be dependent on the healthy condition of the walls of the cerebral venous channels, and on the intracranial venous pressure. Consequently, if for any reason the absorptive capacity of the veins is impaired, either by disease or injury, due absorption cannot take place and cerebro-spinal fluid collects in excess in all possible spaces—in the subarachnoid system, in the ventricles, on the surface of the brain and in the subdural space, producing, as a result, a typical state of cerebral oedema.

For example, if, as the result of heat-stroke, the tunica intima of the cerebral sinuses and veins is impaired, temporarily or permanently, cerebro-spinal fluid will collect in excess. Again, if as the result of some head injury the intracranial venous pressure is considerably raised, so as to be well above the tension of the cerebro-spinal fluid, the normal rate of absorption of cerebro-spinal fluid will be impeded, and it will collect in excess.

There is a third hypothesis, that toxic conditions, acting on the choroid plexuses, lead to an increase in the rate of secretion. Of this, however, there is no considerable evidence.

In the earlier stages of cerebral oedema the excess fluid will escape in the following manner: a small quantity passes down the neural canal, to be withdrawn, perhaps, by lumbar puncture, with some temporary relief to the increasing intracranial pressure; a still smaller quantity permeates through the various emissary channels at the base of the skull, to be absorbed by the extracranial venous channels. As the fluid increases in quantity these means of escape prove inadequate, and it accumulates first in the subarachnoid region, bogs the surface of the brain, and finally exudes through the arachnoid into the subdural space, giving rise to the typical picture of a case of cerebral oedema.

Some further light is thrown on the question by my work in the East. A large number of cases were admitted

to hospital with the diagnosis "heat effects," the great majority coming from Mesopotamia, in batches according to the climatic conditions prevailing in that country. It is obvious that many difficulties were encountered when we endeavoured to classify these cases and group them according to the diseases from which they really suffered. Some proved to be malarial, others were suffering from diseases of the typhoid group, and so on, but there remained a considerable number, running into hundreds, who proved negative to all tests, and concerning whom, therefore, I retained the original diagnosis (heat effects).

SYMPTOMS.

The symptoms from which these men were suffering were as follows:

1. Headache, and General Mental Condition.

Headache, dating from the beginning of the attack, was very severe at first, and then became chronic. When in hospital it was observed that the men were very listless, disinclined to leave the ward, and then only after the heat of the day. They suffered from more or less persistent pains in the head, and were indeed seldom free from headache. They were always worse towards the evening, especially between 5 p.m. and 8 p.m. The pain was usually frontal. During the many exacerbations, the men sometimes retired to bed or to the quieter and darker parts of the ward, disliking the light and their fellows, and burying their heads beneath the bedclothes. They were irritable and despondent. Drugs were of little avail for the relief of the headache, procuring only temporary alleviation at the best.

Operative measures, when proposed, were usually accepted with eagerness, and in some two or three cases the men implored me to do something, at whatever risk, for their relief. The general severity of the headache and the mental effects produced on the patients can be gauged by this ready acceptance of operative measures.

2. Vomiting.

This was present only in the worst cases, and then only in definite relation to the exacerbations of headache. Nausea, of the "sick headache" type, was almost constantly present.

3. Ocular Changes.

Photophobia, more especially during the heat and glare of the day, was a marked feature. True papilloedema was never observed. Every case was examined by our ophthalmologist, but, with the exception of a few in which the retinal vessels appeared rather fuller than usual, there was no definite fundus changes. I anticipated more, in view of the very definite relation between papilloedema and considerable increase of intracranial pressure. However, as papilloedema is not necessarily present in intracranial new growths, even when of considerable size, the absence of any fundus changes in the cases under discussion is quite explicable.

4. Pulse-rate and Blood Pressure.

During the exacerbations of headache the pulse-rate was slowed to 50 or 60, and the systolic blood pressure raised to 140 or 150 mm. Hg—no great rise of blood pressure, but, by taking controls, it was found that the average blood pressure of patients in India was below the normal.

5. Reflexes.

There was a marked tendency to exaggeration of reflexes, both superficial and deep. The men themselves were very shaky and nervous, with tremors of the hands, etc.

6. Temperature.

The temperature was slightly raised as a general rule, with further elevations during the more severe periods of headache, etc.

7. Epileptiform Convulsions.

Epileptiform convulsions occurred in eight of eleven cases here recorded—an unusually high percentage, but capable of explanation. The convulsions were sometimes of the most violent description, each succeeding attack tending to be more severe than the preceding. The men usually knew when to expect the seizure, warned by some excess of headache, curious tinglings, etc. Consciousness was not always lost, the senses perhaps being sometimes

retained throughout a mild attack, and in the early stages of the more severe fits. The duration was variable—from five minutes up to three hours. These men required supervision, and during the convulsions as many as five men were required to hold them down and protect them from self-hurting. Lips and tongue were seldom bitten. Frothing at the mouth was unusual. Struggling was violent, and the face was markedly congested. The blood pressure was raised, and the pulse-rate slowed. After the convulsion was over there was much prostration, sometimes lasting two or three days, associated with headache.

In frequency the fits varied; sometimes a day or two intervened between the attack, or the patient might be free for a week or more.

When the attack lasted two to three hours the patient passed from fit to fit without regaining consciousness. The convulsions were general and it was quite exceptional to see any localizing features.

Several of the cases in which these epileptiform convulsions were observed gave a previous history of brain disturbance of some sort or other—fits, brain fever, head injury, etc. In three cases only were the men normal in every respect. This rather strengthens my views as to the cause of cerebral oedema. If the excess cerebro-spinal fluid is dependent on deficient absorption into the cerebral venous channels, it is only to be expected that antecedent injury or disease would add to the liability to the conditions as pictured. The strain of active service, heat-stroke, shell shock, overwork, etc., would still further impair the rate at which the fluid is absorbed and tend to the accumulation of cerebro-spinal fluid and the advent of definite cerebral oedema.

Interpretation of Symptoms.

All these symptoms, pointing as they do to a general increase of intracranial pressure, together with the *plus* cerebro-spinal pressure (lumbar puncture), and the very satisfactory results obtained by decompression, show that the excess of cerebro-spinal fluid was directly responsible for the development of the symptoms enumerated. Pressure alone might suffice to produce the convulsions, exercised as it was on a highly excitable cortex, the result of heat-stroke, cerebral malaria, etc. It is possible, however, that certain toxic products contained in the fluid may have led to the development of these explosive attacks. Still, by reason of the immediate benefit obtained in every case by simple drainage of excess fluid and the normal characteristics of the fluid collected at the operation, I am inclined strongly to the view that pressure alone sufficed.

TREATMENT.

Many cases presenting these symptoms were admitted to hospital during my fifteen months' service in the East, and seven were submitted to operation. I give a short account of the first case so treated, with an abstract of the six other cases, and, as a control, a brief account of four cases refusing operation.

CASE I.

A R.A.M.C. orderly was admitted to hospital at Amara, Mesopotamia, on June 10th, 1915, suffering from heat-stroke. After recovering he was put on light duty in the wards. There he had several fits which were not controlled by bromides, etc. He was invalided to India; he suffered from two fits at Basra whilst awaiting ship, and one during the voyage. He was admitted to hospital in India on August 13th, 1916, complaining of severe headache, with ready excitement and frequent prostration. His eyesight was said to have been failing for the past few months. The retinal veins were rather dilated and tortuous, especially on the right side. The headache persisted throughout the day, becoming worse in the evening. It never actually left him free, and there were marked exacerbations. All reflexes were *plus*. Tremors of the limbs on exertion. Blood pressure equal to 150 mm. Hg. The pulse-rate tended to be slow during periods of headache. The temperature was never above 100°, and was usually normal.

August 18th. Fit, heralded by abdominal pain and tightness of the chest. Did not lose consciousness; fit lasted fifteen minutes. Twitching of limbs general, then stiffness and general rigidity, followed by severe headache.

August 25th. Severe headache and feeling of a fit coming on. Staved off by walking about.

September 2nd. Severe headache which preceded a violent epileptiform seizure; first clonic spasms of arms, then tonic contraction, spreading to both lower extremities and equal on the two sides. Conscious during the first part of the fit, then senses lost. Fit lasted thirty minutes. Restless afterwards, with severe headache.

September 6th. Numb feelings in both hands, but fit staved off as before.

September 7th. Another fit, more intense and violent than any previous one. Lasted an hour and a quarter. Strugglings very violent, requiring control from four orderlies and convalescent patients. Quite unconscious the whole time. Did not bite tongue. Did not pass urine or motion.

September 14th. No more fits, but headache very violent at times. Getting depressed and miserable. Keeps to bed and sheltered parts of the ward.

September 15th. A still more severe fit, lasting an hour and a half. Very fierce strugglings. Quite unconscious. Followed by headache even more severe than before.

Operation.

Lumbar puncture showed great increase of cerebro-spinal fluid tension and amount. Fluid otherwise normal. Operation advised, and the idea readily accepted by patient, who was willing to undergo any treatment for the relief of headache and fits. I had watched this man daily since his admission and had ordered all available narcotics, with but the slightest momentary effect. For three days previous to operation I kept him under the influence of morphine in order to cut short the possible development of further fits, the result of the operation being obviously more hopeful if performed during a more or less quiescent period. The diagnosis appeared reasonable that, as the result of heat-stroke, the patient was suffering from cerebral oedema, with great excess of cerebro-spinal fluid.

On September 21st I carried out a right-sided subtemporal decompression, choosing that side on the ground that the retinal veins were the more engorged in the right eye. The bone was cut away so as to leave a gap of about two and a half inches in the antero-posterior direction and one and a half inches in the vertical. The dura was opened the full extent by crucial incision. Cerebro-spinal fluid spurted out when the dura was opened, the arachnoid wept copiously, and fluid ran away in rivulets—a typical picture of cerebral oedema.

After-History.

With the exception of some neuralgia and pain in the right face, a common result after subtemporal decompression, due in part to the interference with the temporal muscle, the patient was practically relieved of headache the following day. There was no headache, except of a very mild character, and no fits developed from the day of operation till his arrival in England three months later. The further history of the case is scheduled towards the end of this paper.

Shortly afterwards other cases were admitted to hospital with similar symptoms, some of a mild character, others very severe. The general pressure symptoms were more or less identical, merely varying in degree. There were eleven serious cases, nine with epileptiform convulsions; seven were subjected to operation, and four refused surgical treatment. All cases were watched for an average period of three months, and previous to operation all other known remedies were given full trial.

CASE II.

Fits began at the age of 12. Joined in 1914, but was sent home because of the fits. Rejoined in 1916 and was sent to India. Later, when in Mesopotamia, the fits recurred and became much worse than before, the result, as attributed, of an attack of heat-stroke. The fits were associated with giddiness, headache, and vomiting; they were preceded by attacks of blindness or giddiness, and sometimes lasted forty-five minutes; consciousness was not always lost. When in hospital he had fits on several occasions, three or four days usually intervening. All were very severe and headache was more or less continuous.

Subtemporal decompression, right; much fluid escaped on opening the dura, the arachnoid weeping, etc. No trace of headache, and neither fits nor vomiting subsequently. (Further history below.)

CASE III.

Patient, aged 19, had suffered from fits for many years; infrequent occurrence, but much worse after service in Mesopotamia. Many fits when in hospital, all typically epileptiform. Headache very severe. Subtemporal decompression brought about great relief, and during the two months' residence in hospital after operation the fits became ever less intense and less frequent. (Further history below.)

CASE IV.

Said to have enjoyed excellent health till December, 1916, when, whilst carrying rations during the heat of the day in Mesopotamia, he had a fit, diagnosed as heat-stroke. Mentality poor, headache more or less continuous and very severe at times. Several fits after admission, with loss of consciousness and followed by severe headache. The fits tended to become more severe, the most serious lasted one to two hours, fit following fit, with subsequent prostration. Subtemporal decompression revealed a typical condition of cerebral oedema. After the operation, quite free from headache and fits till leaving hospital. (Further history below.)

CASE V.

Patient had an attack of meningitis when 14 years of age, since when he had suffered from periodic attacks of headache. After service in Mesopotamia he became very much worse. Headaches were very severe, and he declared that his life was not worth living. After several weeks of treatment, he accepted

readily the chance of improvement by operation. Subtemporal decompression showed a condition of typical cerebral oedema and, after the operation, he rapidly improved. Mentality good when discharged, and there were neither headaches nor fits. He said that he was free from headaches and happy, the first time since he was 15 years of age. (Further history below.)

CASE VI.

In this case there was a history of injury to the head some years previously. For some time he had suffered from periodic headaches and vomiting, both of which became much worse in Mesopotamia. Subtemporal decompression showed typical cerebral oedema. He was completely relieved. (Further history below.)

CASE VII.

Quite well in every respect till heat-stroke in Mesopotamia, falling down in the heat of the day in a fit which lasted twenty minutes. A second fit, of three hours' duration, six months later. Subsequently an average of three fits a month. Then invalided to India. During stay in hospital fits became very much more frequent and more severe. Consciousness lost on most occasions. Fits lasted sometimes two to three hours—a succession of fits. Subtemporal decompression showed typical cerebral oedema. No fits afterwards and headache almost entirely relieved. (Further history below.)

As a contrast to these seven cases, I have the notes of four who refused operation. They presented similar symptoms; both fits and headache became more severe and more persistent as the days passed by. I urged operation, guided by my previous experience, but all surgical remedies were refused. The four patients were eventually discharged in a rather pitiable condition.

Reasons for Subtemporal Decompression for Cerebral Oedema.

The drainage of this excess cerebro-spinal fluid, the result of deficient absorption into the cerebral venous system, by means of trephining and dural opening, permits of the escape of the fluid from the confined space in which it is pent up and allows of its coming into contact with new tissues where it can be absorbed. The primary cause (? temporary or permanent changes in the walls of the cerebral veins) is beyond the scope of surgery, but, by the relief of the general pressure symptoms, time and opportunity are afforded for some recovery on the part of the defective venous system, and, if that does not happen, a secondary path of escape has been made for the superabundant fluid.

All the cases that came to operation, both in India and since, recovered, so that I have not yet had the opportunity of putting my views to the test by obtaining microscopic evidence as to pathological changes in the cerebral veins. And, so far as I can see, there should be considerable difficulty in proving my point—there should be no mortality connected with the operation.

Lumbar Puncture.

Lumbar puncture, however frequently repeated, cannot be expected to bring about more than a temporary improvement at the best. This was my experience in several cases. More radical measures are required for the relief of the accumulating fluid.

In addition, there are two points concerned with lumbar puncture which are disconcerting. Firstly, I found that lumbar puncture sometimes made the patients worse, in spite of the fact that a good deal of fluid was withdrawn—one to two test tubes full; and, secondly, lumbar puncture sometimes failed to show any excess at all, but rather the reverse. In one of my last cases, four punctures carried out immediately previous to operation showed a great diminution in the amount of cerebro-spinal fluid; and, in the operation performed immediately afterwards, the opening of the dura showed a most typical condition of cerebral oedema, with very great excess of fluid. Possibly some swelling of the membranes in the region of the fourth ventricle, together with considerable local excess of fluid, closes the normal communication between the cerebral and spinal arachnoid system. Consequently, although lumbar puncture should be carried out in every case, the absence of fluid excess does not by any means negative the diagnosis of cerebral oedema. The general clinical symptoms are a far surer guide.

Indications for Operation.

Operation is indicated in severe and intractable headache, with or without epileptiform convulsions, whether due to heat-stroke, cerebral malaria, shell shock, or neurasthenia. It is obvious that in every case all

ordinary remedies, including prolonged rest in bed (the most important of all), should receive a fair trial, but in view of the injurious effect produced on the cortical cells by prolonged soaking in superfluous fluid, operative measures should not be unduly delayed. I would suggest three months as a fair probationary period.

Region Chosen for Decompression.

The temporal region offers the most suitable site for decompression. The operation is carried out over a silent area of the brain; drainage is conducted at the most dependent part of the brain; the scar is hidden subsequently by the hairy scalp; the bone defect is in a reasonably safe situation, and the operation involves no special risk when carried out by one possessing reasonable skill in head operations. The right or left side is chosen according to the distribution of the headache, but if there is no such localization the right side should be selected to avoid any possibility of disturbing the functions of the motor speech area.

The Opening in the Skull.

The trephine opening should be made low down, immediately above the ear, in the angle between the anterior and posterior branches of the middle meningeal artery. The opening is enlarged mainly in the anterior and posterior directions and downwards towards the base of the cerebral fossa. The bone is cut away so as to leave an aperture not less than two inches in the antero-posterior direction, one and a half in the vertical. The size, however, varies—the more severe the symptoms the larger the opening, and vice versa.

The dura is opened in every case by crucial or other incision. The intradural tension is *plus*, and in consequence the dural incision must be carried out with caution to avoid damage to the underlying cerebral vessels. The temporal muscle, turned down previous to trephining, is sewn into position at the end of the operation. Drainage to the surface should never be employed.

After-Treatment.

The patients should be sat up in bed as soon as possible. I advise small doses of morphine for one or two days following the operation, then bromides for a week or two; they should be gradually discontinued. Patients should be kept quiet in hospital for one month and then sent for prolonged convalescence at some quiet place with open-air treatment and no worries.

Plating the Gap in the Skull.

The situation of the opening, its muscular covering and subsequent protection with the fibrous tissue that develops later, usually render subsequent plating unnecessary. In some cases, however, especially when an extra large opening has been made, protection with a plate may be required. This can be done after the lapse of six months or so.

RESULTS OF SUBTEMPORAL DECOMPRESSION FOR CEREBRAL OEDEMA.

Immediate.

In the seven cases submitted to operation immediate benefit resulted. In some the patients were quite free from headache the day after the operation, the first time for many months. In other cases two or three days elapsed before real improvement occurred. In all cases, however, headache of any severity was a thing of the past. Minor attacks occurred now and then, but nothing compared to the previous severity. As regards the epileptiform convulsions, in spite of the fact that in some cases the fits had been not only numerous and severe but also dated back for some months, and even longer, there were no further fits of any sort (except in Case III) from the time of the operation till the discharge of the patient from hospital, an average period of two months. The mental condition improved in direct ratio; patients previously miserable and depressed became bright and cheerful, eager to get home. All other pressure symptoms disappeared in direct proportion.

Remote.

The later histories of these seven men confirm, with certain modifications, the early results as expressed above. All seven cases arrived home, and communications have

been received carrying on the history of the case down to eighteen months subsequent to the operation, thus giving a reasonable guide as to the result of the measures carried out.

CASE I.—“I am glad to say that I am fairly all right so long as I keep quiet. I often get a head, but nothing like the old days in India. Have only had about four attacks since arriving home.”

CASE II.—“Sometimes I am well in my head and sometimes I am so bad that I cannot do anything. The fits I have not had any more.”

CASE III.—“I am very well sometimes, at others I cannot do anything. I have had no more fits.”

CASE IV.—“I am getting on quite well, and my master is very pleased with my work. I hope you are in the best of health, as it leaves me at present.”

CASE V.—“I am thankful I am able to give you a good report. My head gives me no trouble whatever beyond an occasional headache, which all of us are liable to at times.”

CASE VI.—“I am keeping fairly well. I am getting pains and sickness now and then in dull weather. I get dull headaches, but nothing to worry about.”

CASE VII.—“Up to the time of writing I have had one or two attacks, the last in August of last year, since when I have been in the best of health.”

The first three cases are less satisfactory than Cases IV to VII. This, I believe, is due in the main to the experience gained in the earlier cases, as to points in the operative method, more especially in reference to the size and position of the decompression opening in the bone. But, taking all things into consideration, these results may be regarded as highly satisfactory.

Finally I would add that I have carried out the same operative procedures on three cases recently for chronic headache the result of eight gunshot wounds, being blown up, buried, etc. Two of these men were operated on very recently. In both the early result is eminently satisfactory. One man, the last case, said to me this morning: “My headache is all gone, and I feel a treat.” This man had been blown up and buried, and had suffered from headache for five months.

REMOVAL OF WORM (FILARIA LOA) FROM THE EYE.

BY LIEUT.-COLONEL R. H. ELLIOT, I.M.S.(RET.).

Mr. T. W., of the West African Civil Service, was sent to me by Dr. C. W. Daniels on April 2nd, 1918, suffering from a worm under the conjunctiva of the right eye. The patient is highly intelligent and educated. In addition he is an excellent observer, and has taken a very close interest in the evolution of his case, with the result that he has been able to contribute some new and interesting items of information on the subject of this form of filariasis.

History.

He believes that he contracted the disease in Benin City, where he was resident for eleven months (from June, 1909, to May, 1910). He knows of two other Europeans who contracted it whilst there with him, and he considers the district the commonest endemic centre of the disease in West Africa. He has discussed the disease with Sir Patrick Manson, Dr. Daniels, and other well-known authorities, and has taken considerable interest in the flies responsible. He recognized *Chrysops dimidiata*, figured on page 783 of Manson's *Tropical Diseases* (sixth edition), as a very common pest there; he states that this fly is of a yellow colour, and that it settles on its victim “in a very sly and unobtrusive manner, in this resembling the tsetse fly.”

The first signs of infection he exhibited were calabar swellings in the hands and feet; these began ten months after his arrival in Benin district, and have continued off and on up to the present time, but latterly they have only attacked the hands. He describes them as very painful, and complains bitterly of “the tightness of the skin over them.” The first really bad one of these attacks was thirteen months after his arrival in Benin; the previous ones had been quite slight.

His next trouble was the appearance of the worms in and about the eyes. This commenced very shortly after he first noticed the swellings, and has continued off and

on throughout the whole of the past eight years. Although he has felt the worms moving about in various parts of his body, they have occasioned him comparatively little inconvenience, except when they have invaded the neighbourhood of the eye and ear. In the former situation they cause great irritation, which becomes intense when they find their way under the conjunctiva. The combination of itching, pain, and irritation caused by their movements he describes as "simply maddening." He has learnt to obtain sleep during these attacks by instilling cocaine into the eye, and he believes that, apart from the anaesthesia of the conjunctiva, an important accessory action is the toxic influence of the drug on the parasite, causing it to become sluggish and abate its movements.

In this connexion he quotes an interesting and suggestive experience, which might possibly be followed up with advantage by surgeons. On one occasion, on embarking for England on leave, he consulted the ship's surgeon on account of a *Filaria loa* in his upper lid; full of enthusiasm, the surgeon gave a subcutaneous injection of cocaine, and completely lost the worm in the resulting oedema, though he cut down upon it. When the swelling subsided the patient felt a hard linear mass lying in the position the worm had occupied at the time. Subsequently, while he was home on leave, "a cyst developed at this spot, and was incised and scraped out by a surgeon." He does not think any effort was made to ascertain the contents of the cyst, but he is absolutely satisfied in his own mind that the hard linear mass he felt was the dead worm, and that it had been killed by the cocaine injection. The suggestion seems likely to be correct, and is supported by the writer's experience with cocaine to be mentioned later in the paper. Mr. T. W. has had worms removed from his eyes on four previous occasions—namely, once in 1911, twice in 1914, and once in 1917.

The patient's observations on earache, caused by the *Filaria loa*, are the more interesting, because this would appear to be the first time that any account of the kind has been placed on record. The earache, from which he has suffered on several occasions, consists of an intense neuralgia behind, below, and in front of the ear, and is accompanied by great hyperaesthesia of the skin in these neighbourhoods. These attacks are so definite that he is able to diagnose their cause without hesitation. On the present occasion, the trouble began with earache on the night of April 1st, which led him to remark to his wife, "I am sure this is another of those beastly worms." A few hours later the pain passed away with a suddenness which he has learnt to regard as characteristic of such attacks, and he then felt the worm moving about in the neighbourhood of the orbit of the same side (the right).

The visits of the worms to the surface occur with great irregularity. Sometimes he feels nothing of them for months at a time; then he may have trouble for varying periods of from one to ten days or more. He is quite unable to say what brings on the attacks, though he thinks

that some of the worst have been at the commencement of the hot weather. Questioned as to the influence of the heat of fires in drawing the worms to the surface, he had no evidence to give, but added that possibly this was because he "had seen so little of fires for many years." The rate at which the worms travel is considerable; in the loose tissue round the orbit, he has felt them pass from one side to the other in the course of a few minutes; there is always, however, the possibility that more than one worm may be present, though he does not admit this as an element of confusion, stating he can "feel the brutes travelling." He has noticed on at least two occasions before the present, that the removal of one worm from the eye has been followed by the appearance of a second

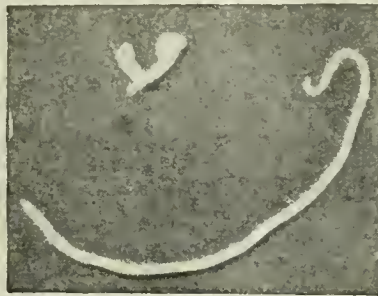


FIG. 1.—Adult female *Filaria loa*, 36.5 mm. long; the mouth end is to the left; magnified ($\times 2$).

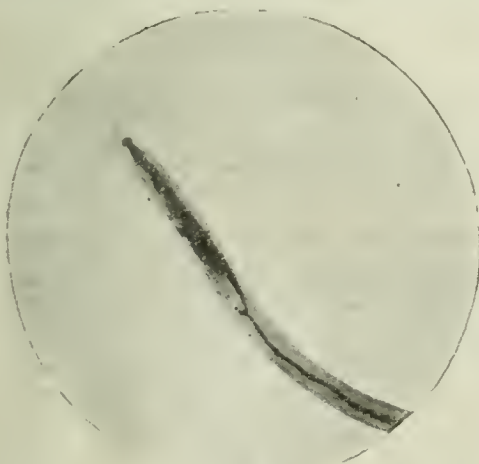


FIG. 2.—The mouth end of the worm ($\times 10$).



FIG. 3.—The tail end, showing the opening of the ano-genital orifice ($\times 10$).

The present, therefore, makes his fifth experience of the kind. All the others were, however, extracted from his lids. This was not because the worms did not pass under the conjunctiva, but for other reasons. Thus, he had several times travelled long distances to consult a doctor, only to find the worm had gone deep again when he arrived. On other occasions medical men, who were willing to remove the visitor from skin areas, declined to interfere with it on the eyeball. He has had a variety of experiences, owing to the fact that some of his surgeons were ignorant of the habits of this parasite. Thus, one seized the worm in a pair of forceps and cut down on it, but released his grip of the animal before he had captured it with a fresh pair of forceps, and to his chagrin saw it disappear from his sight. Another tried to cut down on it without first fixing the worm, and was naturally disappointed with the result of his operation.

parasite on the following day, and he suggested that probably they were a pair. On this occasion one worm was removed on April 2nd, and he was feeling a second round the opposite eye all the following morning. On several occasions previously he has felt two worms at one time, one round each eye.

Two explanations of this phenomenon suggest themselves: (1) That the conditions, atmospheric or otherwise, which attract one worm to the surface, might equally readily attract two or more, and (2) the idea, suggested by the patient, that the second worm is a male with nuptial designs following the first, a female, in the course of her peregrinations. The explanations are on all-fours with those which cover the well-known Indian experience, that if one kills one snake near one's house, one must be on the look-out for its fellow shortly afterwards.

An interesting feature and one very difficult to explain is that the worm which was removed in 1911, that is, within two years of the first possibility of infection, was 60 mm. in length, whilst this one, removed seven years later still, was 36.5 mm. long, and the others, removed in 1914 and in 1917, have all been shorter than either of these. From the commonly accepted views, one would rather have expected to find an increase in the size of the worms extracted as years passed by.

The patient was sent home from West Africa for a low form of fever, with evening temperatures of from 99° F. to 100° F., which, it has hesitatingly been suggested, might be due to filariasis.

Operation.

The patient was sent on April 2nd, 1918, by Dr. Daniels, who had seen the worm in the eye, and advised immediate extraction. On examination, the conjunctiva was congested, but no worm could be seen. The patient stated that it had just left the eye, but that he believed it might come back. He felt it moving about, and seemed to have no difficulty in localizing it. At one time he said it was in the outer part of the upper lid near the skin; shortly afterwards it was close to the conjunctiva above the inner canthus; then it had passed over again to the outer side of the eye, but this time just below the lower fornix. After waiting some time, there seemed little hope of it appearing, and so, acting on the knowledge that these worms tend to come to the surface under the influence of heat (as has been shown by their causing eye trouble when the patients sit before a warm fire), hot fomentations were applied. Very shortly afterwards the worm could be seen wriggling freely in long sinuous loops beneath the conjunctiva, below and close to the cornea. Cocaine was instilled, the patient was told to look up, and the lower lid was pulled down. The interference alarmed the worm, which quickly endeavoured to escape, its movements being extraordinarily rapid, but just as it was disappearing under the dense tissue of the lower fornix a dive was made for it with a pair of conjunctival forceps. It was difficult to say whether it had been caught or not, but a curved needle armed with a silk suture was passed through the fold of conjunctiva included in the grip of the forceps; the suture was tied tightly and the forceps removed. For some time no movement could be observed, and the patient suggested that this was due to the toxic action of the cocaine on the animal; but an elongated oedematous swelling on either side of the suture suggested that the worm had been caught. The conjunctiva was thoroughly anaesthetized, and blanched with cocaine and adrenalin, and the part was kept under careful observation by a nurse. Suspicious movements were noted from time to time. On manipulating the suture, one end of the worm was suddenly seen, freely moving to the inner side, and was at once seized through the conjunctiva with a pair of conjunctival forceps. A small incision was made with scissors, and the coils of the worm could then be recognized through the sub-conjunctival tissue; suddenly one end wriggled itself free, and stood right out from the wound; it was seized with a pair of forceps, and gently drawn upon. The tightness of the suture was such as to prevent the worm from getting free by its own efforts, but it added very little to the difficulty of extraction.

The specimen was placed in 5 per cent. formalin, and was photographed shortly afterwards. On removing it, what looked like another small worm was found lying imbedded in mucus in the lower cul de sac of the conjunctiva. This presented a curled-up end, and distinctly was either part of a small worm or was the macerated end of a larger one. This small mass was unfortunately lost, owing to an accident. The larger worm was a well-grown female *Filaria loa*, showing some embryos in its uterus. When fresh it measured 36.5 mm. It is shown in Fig. 1, double the actual size. Figs. 2 and 3 show the head and tail ends of the worm respectively, under a magnification of 10 diameters.

Unfortunately no examination of the blood was made.

A VACCINE for the treatment of dysentery, prepared in Hamburg, and called "Ruhrheilstoff-Boehnecke," has been recommended in a Government order of December 15th, 1917. It is said to differ from an earlier preparation with the same name in containing no free dysentery toxin. The therapeutic results are said to be good.

THE PROGNOSIS IN WAR NEPHRITIS.

AN ANALYSIS OF 171 CASES.

BY

RODOLPH G. ABERCROMBIE, M.D.,

TEMPORARY CAPTAIN R.A.M.C.

WITH the aid of the Medical Research Committee the subsequent history has been investigated in an unselected series of 171 cases of war nephritis.

During their initial stage the cases had been under my care in a base hospital in France, to which they were admitted between April, 1915, and February, 1916, inclusive. Their after-histories have been traced until November, 1917—that is, for periods varying from twenty-one to thirty-two months. The symptomatology of the cases has been previously fully detailed.¹ Their initial stage was an acute illness, exhibiting albuminuria with oedema.

Mortality.

Six deaths occurred: one in France, three in English hospitals, and two after discharge from hospital in England.

Results of First Period of Home Treatment.

From France the cases were evacuated to English hospitals, from which they were discharged direct, or transferred to convalescent hospitals or command dépôts. Taken together, this comprised the first period of home treatment; the results of it were as follows:

- 32 men were invalided as permanently unfit on account of nephritis (23 being invalided from hospital, 3 from convalescent hospital, 4 from command dépôt, 2 from Canadian Casualty Assembly Centre).
- 131 were discharged to some form of duty.
 - 1 was discharged from command dépôt for rheumatism.
 - 1 was discharged on termination of engagement.
 - 3 died in hospital.
 - 1 died after having been discharged to light duty.
 - 1 died after having been invalided.

The last two cases have been included only amongst the deaths. In the case of seven men who had been discharged from hospital to duty, the subsequent history could not be traced for various reasons; these seven men have therefore been altogether excluded from the series.

Subsequent History.

Of the 131 cases discharged to duty, 22 subsequently either relapsed or showed chronic renal symptoms, and were ultimately invalided for nephritis; the remaining 109 showed no further history of the disease.

Table giving Percentages of Results in the whole Series.

	No. of Cases.	Percentage of whole Series.
Died	6	3.5
Invalided for nephritis during first period of home treatment	32	18.7
Returned to duty, but subsequently invalided for nephritis	22	12.8
Showing no further history of nephritis ...	109	63.7
Variously accounted for... ..	2	1.3
	171	100.0

Adding together the deaths, the number invalided during the first period of home treatment, and those invalided after return to duty, the total loss was 60 men, or 35 per cent. of the whole number.

The average stay in hospital and convalescent hospital (excluding command dépôts) during the first period of home treatment was for all cases 89 days; for the cases invalided during the first period of home treatment, 130 days; for those invalided after return to duty, 107 days; for those returned to duty and showing no further nephritic history, 72 days.

With regard to the 22 cases returned to duty but subsequently invalided, the average interval between discharge from hospital and final invaliding was six months. Of these cases 12 were readmitted to hospital; 10 were invalided by medical boards without readmission to hospital; the final breakdown must therefore frequently have been due to gradually developed renal symptoms rather than to definite relapse. Since cases are also invalided from command dépôts without readmission to hospital, it is evident that the study of hospital readmissions affords

only imperfect evidence of the invalidism following nephritis.

With regard to the 109 men who showed no further nephritic history, their military efficiency cannot be exactly stated. Approximately, 79 became first-line troops, 30 being relegated to garrison duty or some form of home service. These 109 men are not, of course, all still in the service; 8 have been killed, others wounded, gassed, made prisoners, and 3 invalided for diseases other than nephritis.

The number of cases known to have proceeded again overseas on military service is 71; of these, three relapsed in France, one man having had three distinct attacks. None of these three men had had nephritis before the war; all were ultimately invalided.

The different hospitals varied greatly in their handling of the patients: some cases were kept in hospital for long periods; others were discharged to duty after a few days, frequently relapsing; others were invalided after two or three months in hospital, not having had time to recover. One case invalided as permanently unfit showed no evidence of disease on medical examination about a year later.

Influence of Age on Prognosis.

The cases have been arranged in five groups, according to age; the numbers and percentage of the loss from death and invaliding due to nephritis are given in each group.

Age Groups.

	Under 26.	26-30.	31-35.	36-40.	Over 40.
Number of cases...	46	45	42	21	15
Loss due to nephritis ...	13	12	14	6	10
Percentage of loss ...	39	25	33	28	66

The cases over 40 thus did badly; and the youngest group also showed higher invalidism than the remainder. The fatal cases were aged 54, 39, 38, 32, 29, 20.

Influence of Previous Attacks.

Of the cases, 32 gave a history of previous renal disease; of these, 2 died, 10 were invalided during the first period of home treatment, and 4 were invalided after returning to duty, making a total loss of 16, or 50 per cent. In one of the invalided cases the previous attack had been in France during the war.

In 134 cases no previous renal history was obtainable; of these, 4 died, 22 were invalided during the first period of home treatment, and 18 were invalided after returning to duty—a total loss of 44, or 32 per cent. In 3 cases, all of whom recovered, information as to previous attacks was not recorded.

Prognostic Indications during Initial Stage.

Prolongation of the initial stage is unfavourable. The cases were not evacuated from France until free from oedema and uraemic symptoms, and until the urinary flow was re-established; the average period from the onset (as given by the patient's history) to the date of evacuation was twenty-four days. Of 68 cases in which this period was above twenty-four days, 50 per cent. died or were invalided; whereas of 97 cases in which this period was twenty-four days or under, only 27 per cent. died or were invalided.

Cases showing severe uraemic symptoms during the initial phase are slightly more unfavourable with regard to remote prognosis than the ordinary type of case. Five of the cases had convulsions in France; of these, two were ultimately invalided, and three returned to duty, two of them proceeding again overseas. Eight cases showed other severe uraemic symptoms (deep torpor, twitching, amaurosis); of these, four were ultimately invalided, and four returned to duty. Convulsions were thus less unfavourable than other severe uraemic manifestations; this accords with the observation¹ that after convulsions a severe case often begins to improve rapidly.

Definite ascites is unfavourable; of fourteen cases, eight were invalided. The abdominal tumidity sometimes mistaken for ascites has no prognostic importance.

No special symptoms marked the initial stage of the fatal cases.

Pathological Sequelae.

Cardio-vascular changes were noted in the hospital records or invaliding documents of fourteen cases, in which

such changes had not been observed during the initial phase.

Tuberculosis appears to have a definite consecutive association; in one fatal case, dying seven weeks from the onset, early active tuberculosis of the lungs was found in addition to nephritic lesions; in a second case, invalided for nephritic symptoms one year after the onset, tubercle bacilli were present in the sputum at the time of invaliding; a third patient, who during the initial stage had shown typical renal dropsy, was invalided for tuberculosis of the kidney and epididymis nine months after returning to duty; and a fourth case was invalided for pulmonary tubercle about a year from the onset of nephritic symptoms.

Persistent albuminuria was the most frequent cause of invaliding.

Prognosis in "Lower Tract" Nephritis.

This name has been suggested¹ for a condition, not uncommon in France, of febrile haemorrhagic pyelitis, sometimes associated with cystitis, tending to relapse, showing neither oedema, uraemic symptoms, nor raised blood pressure, but with urine containing granular casts. Six such cases (not included in the series) have been traced. Five returned to and remained at duty; one, aged 38, was invalided for headache and accentuation of the cardiac sounds; a few months later the albuminuria had completely disappeared.

Such cases are therefore more favourable than the true nephritis cases. In none of them was there mention of the occurrence of oedema.

Remarks.

During the early stage of the war it was necessary to evacuate the cases from France as soon as possible. With greater hospital accommodation, it may now be possible to keep them longer in France, with advantage, for early transport unquestionably sometimes provokes relapse. This, together with more experience in English hospitals, should lead to improved results.

The records permit conclusions other than those expressed statistically. Cases arriving in England ought not to be discharged from hospital until they have been tested by full diet and ward work, with subsequent examination of the urine; they should not be sent to duty till the albuminuria is absent or minimal. Men should not be invalided as permanently unfit until a reasonable time (say, five months) has been allowed for recovery; two attacks during the war should justify invaliding.

Although against instructions, cases with abundant albuminuria are constantly sent to command dépôts, which are ill adapted for such cases. Better results might perhaps be obtained by collecting the cases in special convalescent camps, where their final convalescence and early hardening could be under experienced observation.

SUMMARY.

Approximately 3 per cent. of the cases died, 18 per cent. were invalided during the first period of home treatment, 12 per cent. were invalided after return to duty, 63 per cent. showed no further nephritic history. Men over 40 years old did badly; 71 cases proceeded again overseas.

My acknowledgements are due to Dr. Matthew Young, of the Medical Research Committee, for his help in the collection and collation of the records.

REFERENCE.

¹ Abercrombie: Observations on the Acute Phase of 500 Cases of War Nephritis, *Journal of Royal Army Medical Corps*, August, 1916.

INVALID RATIONS.

BY

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SENIOR PHYSICIAN, DUFF HOUSE, BANFF; LATE SENIOR ASSISTANT PHYSICIAN TO ST. GEORGE'S HOSPITAL.

MEDICAL men have been placed in much difficulty of late in the matter of giving certificates to invalids for special rations, and the issue of definite instructions by the Ministry of Food (Regulation M.G.R.M. 27) will be welcomed by them as well as by Food Control Committees.

Diabetes and Tuberculosis.

The regulations allow a greatly increased ration to two large classes—namely, sufferers from diabetes and tuberculosis.

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The term "diabetes" may be taken in this connexion to include all subjects of persistent glycosuria who are in need of special diet. They are allowed a maximum of 2½ lb. of butcher's meat, 1 lb. of bacon, and 1½ lb. of butter or margarine weekly. These quantities are intended for a large number of cases of mild diabetes or glycosuria who are able to keep well and active by simple restriction of, or abstinence from, carbohydrate food, and who require to make up their intake of energy entirely, or almost entirely, from protein and fat. The ration is not, of course, suitable for patients suffering from acute diabetes with acidosis. For them such quantities would be excessive and harmful. Indeed, the ration alone, without any other foods, gives about 1,500 calories a day, whereas the diabetic who has been made sugar-free and is gradually recovering his tolerance to carbohydrate, fat, and protein often does not take much more than 1,500 calories of total food for a considerable period.

In tuberculosis a maximum of 2½ lb. of meat, 1 lb. of bacon, and 1 lb. of butter is allowed weekly, giving roughly 1,300 calories a day from these foods. It is common knowledge that a good allowance of protein and fat is of great value in helping the tuberculous subject to keep thoroughly well nourished, and that by thus maintaining nutrition and avoiding overfatigue, the infective process may be prevented indefinitely from advancing or from recurring, as the case may be.

The medical grounds, therefore, for making special regulations for the subjects of diabetes and tuberculosis are obvious, and there can be no doubt that the people of this country will desire that they, like other sick folk, shall receive the diets suited to their complaints. On administrative grounds it is convenient to separate them because they are so many. On national grounds also their special treatment is justified, because there are great numbers of glycosurics and of those who are or have been tuberculous, who are doing a good day's work, and not a few who are carrying out duties of more than usual value to their fellow men. The disablement of such a large body of home workers from a lack of the special food they need would be an unnecessary loss to the country at this time.

Lactation and Pregnancy.

The nursing mother is allowed an extra quantity of meat and fat indirectly, as, soon after the baby is registered, she is able to draw for it a child's ration, which she should consume herself. She is also entitled to a preferential allotment of a pint and a half of milk daily until the child is 18 months old. These allowances will cover the 500 to 1,000 calories which the infant may receive from the breast. Indeed, in most cases there will be a good margin in the mother's favour.

During pregnancy such large additions of food are not required, as though both the growth of the infant and the laying up by the mother of a store of fat for lactation have to be provided for, yet the daily addition of tissue is but small. A pint of milk extra a day in the last three months is allowed in addition to the ordinary diet.

Other Invalids.

If extra food is required by any other classes of invalid except those who are the subjects of diabetes, tuberculosis, and one or two rare complaints mentioned below, it should be supplied in the form of milk, for which a priority ticket may be issued by Food Control Committees on a medical certificate; or in the form of non-rationed foods. Most of the articles of food, besides milk, which are important in cooking for the sick, such as eggs, fish, arrowroot, rice, and flour, are not rationed.

Acute Illnesses.

A broad survey of those invalids whose diet requires special regulation shows that the greater number are suffering from temporary acute or subacute illnesses, including febrile affections of all kinds. Of these a large proportion take less food than ordinary folk and many cannot take solids at all. For all who need it extra milk may be obtained.

Beef-tea.

The beef-tea which in years gone by was used in large quantity for the sick cannot now be made, and medical men should be especially careful not to order it. Our profession has long been explaining to the public that

beef-tea does not possess the food value with which it has been credited for generations. At the present time it is especially wasteful, as it uses up good meat, the food value of which can be utilized fully when it is cooked and eaten by others. The real use of beef-tea is not to feed the sick, but to comfort, satisfy, and stimulate them. Its place may be taken by a mixture of meat extracts with boiling water, or with barley or rice water, to which food value may be added in the form of dried milk.

Neurasthenia.

Neurasthenia, in its many forms, is commonly treated by a liberal diet, containing a large proportion of protein and fat. But it would have been impracticable to allow extra rations for that complaint, as there is no possible limit to the number of claims that might have been made. For the severer cases, which are comparatively uncommon, a sufficiently nourishing diet can be obtained from non-rationed foods, particularly fish and eggs.

Malnutrition.

There appears to be greater hardship in withholding extra rations from cases of severe malnutrition following acute or chronic illness. Some of these patients would undoubtedly make good use of a larger allowance of meat and fat. It would, however, be difficult to draw up a definition which would include them and them only, and there is no reason why, with the help of fish, eggs, and an extra allowance of milk, they should not receive all the food they need. The cereal foods, which are not rationed at present, are plentiful, and will remain the most important source of energy in their diet. It must be remembered also that probably the greater number of such cases will be found in hospitals. In the military hospitals more meat is available. In civilian hospitals the fixed ration of meat and fat is drawn for each patient, but, as those who are acutely ill do not need so much, more is available for the convalescent.

Indigestion.

The numerous sufferers from indigestion do not, as a rule, require extra food, rather the reverse. There is, however, one form of indigestion—the hyperacid form—which is benefited by a diet containing a higher proportion than usual of protein and fat. A free use must be made in such cases of eggs and fish, whilst those who are able to take olive oil, in a dose of an ounce before a meal three times a day, will receive benefit and incidentally a food value of nearly 800 calories. Milk is often badly borne by such patients. These remarks refer only to hyperacidity as ascertained by analysis of the gastric juice. The diagnosis made from symptoms alone is often mistaken.

Chronic Diseases.

There is a large class of chronic diseases, such as gout, colitis, and diseases of the heart, liver, and kidneys, which require adjustment of the diet, but not as a rule any increase of meat and fat. In rickets plentiful fat is beneficial, and has even been thought to be specific; it can be supplied in good milk, or as olive oil, cod-liver oil, or any medicinal preparation of fat that can be obtained. In scurvy, as in other cases of deficiency of vitamins, it is a suitable variety of diet that is needed, and not necessarily any increase of quantity.

Rare Diseases.

Special rations will be allowed for certain diseases, such as coeliac disease, pancreatic insufficiency and sprue. All these are of such rarity that there are many medical men who have never seen a case.

Coeliac disease is a disorder of childhood, arising usually at the age of 2 to 3 years. The symptoms are chronic diarrhoea with large pale motions, weakness and sometimes tetany. There may be deficient absorption of fat. It is treated by giving a diet of ½ lb. to 1 lb. of raw minced meat daily.

The term "pancreatic insufficiency" is used in two senses. It is sometimes applied to cases showing no gross disturbance of the absorption of food in which mild pancreatitis or early diabetes is diagnosed from the occurrence of sugar in the urine or from more complex examinations of the urine and faeces. Such as these, unless they come into the diabetic class, do not require extra rations.

Genuine pancreatic insufficiency comprises cases in which, owing to inflammation or disease of the pancreas or obstruction of its duct, the pancreatic juice is in good part or entirely absent from the intestine. In such cases the digestion of fat is greatly interfered with, as is that of protein, and in some the assimilation of carbohydrate is also impaired. Much of the food is then wasted and extra food has to be given, especially meat, if nutrition is to be maintained.

Sprue is somewhat commoner than either of the above, but it is not every case of sprue which needs a special allowance. There are, however, cases which improve wonderfully on a diet of meat alone, and are able to take large quantities, more than 2 lb. a day, with relish.

In such cases as these, and doubtless in others in which sound reason can be given, the ration may be varied on detailed application being made to the Food Control Committee, who will communicate with the Medical Section of the Ministry of Food.

Sugar: White Flour.

Extra sugar will only be allowed in severe cases, such as are fed by tube. Applications for white flour should be reduced to the minimum, since it has been shown that war bread, when properly baked and chewed, is as digestible as white bread, though it may not be so palatable.

Restricted Tastes.

The doctor's chief difficulty is not with the sick. It is with those, not obviously ill, who assume that the food to which they are accustomed is the food that is necessary for their health, and appeal to him to support this view by a certificate. Many people have grown up in the belief that their digestion is peculiar. Occasionally that is true, but nearly always it is not. Every one of experience will agree that genuine idiosyncrasies are among the rarities of medicine. The thoughtless indulgence of parents is sometimes to blame for restricted tastes; but whatever the cause may be all doctors know what a handicap to the individual such special dislikes are in illness; and at the present time they prove most inconvenient to their owners. No one would pretend that the foods now available are what we would prefer either in health or sickness, and those who feel the change most will have general sympathy; nevertheless, it is the duty of the medical man to explain to such applicants that their condition is not one for the treatment of which it is justifiable to ask for a larger share of the national store.

Conclusion.

For those who are really ill it will often be necessary to draw up a diet scheme in some respects different from that which would have been drawn up in former days. But, with the allowances made by the Food Controller, it is possible to secure that invalids of all classes shall receive suitable food, and enough of it for their needs.

A CASE OF PROMPT RECOVERY AFTER NERVE SUTURE.

BY

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My reason for recording this case is that I do not know and have not read of so early a recovery of practically all functions in a severed nerve after operation. When a nerve is bound up in scar tissue, or has simply been bruised, operation to rectify this condition is usually at once successful, but not if the nerve is severed, except after a long period.

Sergt.-Major —, a German, aged 26, wounded left elbow, in France, June 22nd, 1917; the internal condyle of the humerus and part of the olecranon process of the ulnar were smashed. On August 3rd operation for septic condition of the wound was performed, and some sequestra removed; x-ray examination showed fracture of the internal condyle and olecranon process, and three foreign bodies in the forearm. On November 23rd I removed one foreign body from the front of the elbow-joint. The wound gradually healed, leaving a triradiate scar on the inner side of the joint.

Sensation was lost over the cutaneous distribution of the ulnar nerve in the hand, both front and back. He could not flex his little finger, and only very slightly the ring finger. He had a trophic sore over the dorsum of the little finger. There was no doubt that the ulnar nerve distribution was almost completely paralysed.

Operation.

On January 24th, 1918, an incision was made over the inner side of the elbow-joint. The ulnar nerve, exposed above and below the joint, was found to be severed in the region of the internal condyle of the humerus. The proximal and distal portions were dissected, found slightly bulbous, with some intervening scar tissue between the two ends. The upper and lower segments of the main trunk were electrically stimulated. Some slight response was seen on stimulating the lower segment, and a very feeble response on stimulating the upper segment. The severed ends were cut off transversely as level as possible, and brought together with fine catgut sutures, and the junction surrounded with Cargile membrane. Exact apposition of the cut ends was aimed at.

After-History.

January 27th, 1918. The patient could feel very slightly on the fourth and fifth fingers.

January 30th. The wound had healed by first intention. Sensation had increased over the whole of the ulnar distribution. To my intense surprise the patient on being asked to flex his little finger and his fourth finger did so quite well.

February 27th. Sensation had completely returned over the whole area formerly insensitive. His grip grew stronger every day. He could hold a book or a weight quite well, and even use a hammer. The only defect present four weeks after operation was a feebleness in the action of the third and fourth dorsal interossei muscles. All this, notwithstanding the fact that his wound was formerly septic, and though now perfectly healed, he still has two small foreign bodies in his forearm.

We are told that, according to the theory of Wallerian degeneration, a nerve severed completely degenerates in its whole distal portion. Again, there is ample evidence that regeneration does occur when the cut ends are joined by fibres growing down from the proximal end. In this case there was no doubt whatever that section of the nerve had taken place at the time of injury by the bullet, yet the fact that there was some response in the distal portion when electrically stimulated may be accounted for, because probably some nerve fibres were present in the $1\frac{1}{2}$ in. of scar tissue between the two separated ends of the nerve. Most recent writers on nerve injuries—for example, Sir Purves Stewart and Mr. Evans—say that regeneration seldom takes place in less than three months, and that it is often eighteen or twenty-four months; that sensation returns first and motor function some time after, the earliest known recovery of sensation alone being ten days. Moreover, after considerable septic infection results are longer delayed.

Professor Waller, to whom I wrote, has kindly sent me a few lines on the case. He says that "in those few cases of prompt recovery which have been recorded no satisfactory explanation has been offered. I am inclined to think that prompt recovery may be due to the stirring up by the operation itself of recurrent sensory fibres belonging to other nerves that may form part of the peripheral distribution, and may have had their action in abeyance during complete paralysis before operation. Increased knowledge in the present day of the extensive halo of functional disturbance aroused by an organic focus of real injury would lead me to be on the watch for the possibility of prompt reappearance of sensation, by the cerebral suggestion as well as by the peripheral excitation afforded by the operation itself. I am at the present moment engaged in measuring the 'emotivity' of shock and other cases, and it would be useful to know if your patient was of high or low emotivity."

As far as one can judge clinically this patient is of low emotivity.

I am indebted to Dr. Charles Corben for assisting at the operation, and to Lieut.-Colonel Guthrie, R.A.M.C., for permission to publish the case.

THE Carnegie United Kingdom Trust has published a most elaborate report on public baths and wash-houses, prepared for the trustees by Miss Agnes Campbell, B.A. The report sets out with lavish detail the present provision of baths and wash-houses throughout the United Kingdom, the use made of the facilities provided, the finance of such undertakings, and a discussion of the factors which bear upon the subject generally. Without wishing to minimize the value of such an exhaustive investigation, the question occurs to us whether, in the present situation, with an extreme scarcity of paper, the publication of a monograph weighing 2½ lb. is expedient.

A SPECIAL CRUTCH FOR MEN WHO HAVE LOST BOTH AN ARM AND A LEG.

BY
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DUBLIN.

THE accompanying illustrations show a crutch designed by me for a man who has suffered a double amputation (Figs. 1 and 2). He has lost the left leg below the knee, and the left arm at the surgical neck of the humerus, so that there is no axilla capable of bearing weight on that side. The appliance enables a man so disabled to move about either while he is waiting to have an artificial leg fitted or when he is tired of using the new leg.



FIG. 1.—Crutch for loss of left leg and left arm: the patient standing beside it.



FIG. 2.—The patient using the crutch.

The appliance consists of two crutches of the bifurcated type morticed into one axillary piece in the form of the letter A. The crutch, on the side on which the leg is lost, slopes more than that on the sound side and its timbers are morticed inside the latter (Fig. 3). Cross-bars of wood complete the horizontal part of the letter A, but project to the outer side of the more sloping crutch to form, with a curved aluminium plate, a shelf on which the man places his flexed leg stump. The two crutches are braced together above, and a steel wire truss takes up the side strain on the more sloping crutch. A handle is fitted in the usual place on the sound side. The legs of the crutch are two feet apart at their base.

In use the man places his stump on the shelf and swings

his sound leg between the crutch legs. No weight need be borne on the axilla of the sound side.

The total height of the appliance should be at least two inches less than that of ordinary crutches intended for a man of the same height. This is necessary to enable the man, by fully straightening his sound leg, to lift the crutch forward clear of the ground. A man with only one hand can stand on the appliance and remove his hand from the handle to open a door, or use his hand for other purposes. If the patient has lost an arm on the opposite side to the leg, the handle is placed outside the stump shelf, the axillary piece of the crutch being on the armless side, not necessarily carrying any weight.

Both types are being used in the Duke of Connaught's Hospital for Limbless Soldiers at Bray, co. Wicklow, for



FIG. 3.—Crutch for loss of left leg and either arm.



FIG. 4.—Extemporized crutch for loss of left leg and either arm.

double amputations as well as for cases of crutch paralysis.

For emergency work the appliance may be rapidly constructed, as shown in Fig. 4, by lashing together two strong bifurcated crutches with the head of one crutch below the other; a few pieces of timber lashed crosswise serve to brace them firmly and by their projecting ends to form the shelf. Vertical pieces of timber lashed from the shelf to the foot of the more sloping crutch relieve the side strain.

It is made by Messrs. Smith and Sheppard, of St. Stephen's Green, Dublin, in its various forms, and the following measurements should be given: Height from sound axilla to ground, height from sound axilla to middle of sound hand, height from perineum to ground, and state which arm and leg are lost.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TOXIC JAUNDICE: ATROPHY OF LIVER: REGENERATION AND RECOVERY.

THE observations of Dr. Crawford (p. 450) on the recuperation of the liver tissue after an attack of toxic jaundice caused by the action of T.N.T., agree closely with those which I have been able to gather at another big filling factory.

Of the number of cases reported since notification came into force we have 33 still remaining at work with us. Ten of these were notified erroneously and there is doubt as to the nature of a further three; but the remaining twenty were apparently cases of true toxic jaundice. I have made a full examination of all these within the last six weeks. I am not able to say in every case to what extent the area of liver dullness was diminished during the attack, as in the early days of the factory the patients were allowed to go to their own homes about the country for treatment; but when I made this examination, from six to eighteen months after their return to work, the fact was marked that they did not show diminution in the area of liver dullness nor interference with nutrition or the digestive functions.

The most noticeable thing about some of the cases is that though the liver seems to have recovered they show signs of deterioration of heart muscle, with inability to undergo sustained exertion, and general signs of heart distress—in fact, they present the same picture as those workers who have suffered from severe toxæmia without jaundice, and my experience here is that those workers who recover from toxic jaundice do not afterwards suffer from damage to the liver function so much as they do from degeneration of heart muscle. I feel that the toxæmia is the general affection, and that jaundice is an accidental symptom in certain cases, determined by some at present unknown cause in certain of the victims of toxæmia. One very general feature is the complaint for the first few months after convalescence of pain in the right side, either over the liver area—front or back—or in the abdomen just to the right of the umbilicus.

I note with interest Dr. Crawford's statement that in her cases the motions were not completely bile-free; this, to my mind, should be a common sign in toxic jaundice, owing to the fact that some of the liver tissue is operative, and that the bile ducts are not occluded. My experiences also coincide with Dr. Crawford's statement that cyanosis is not a necessary antecedent to toxic jaundice, many cases showing no signs of it when the first trace of yellow showed in the sclerotics.

Chilwell, Notts.

W. BOWER, M.A., M.B., B.O.

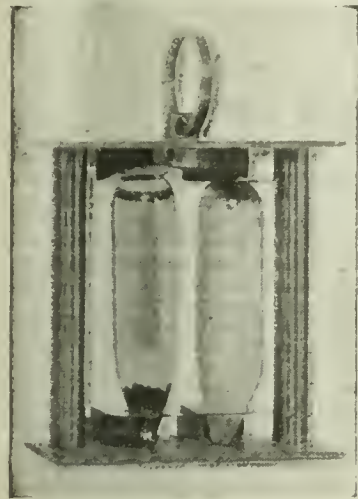
A WAX THERMOMETER PRIMARILY DESIGNED FOR USE IN HOT-AIR STERILIZING CHAMBERS.

THE thermometer here shown is intended to be introduced with each batch of clothing. It consists of a metal frame provided with two sets of spring clips, into which fit two glass bulbs—large vaccine ampoules do admirably—the one containing wax melting at the minimum temperature adopted for sterilization, the other wax melting at a temperature beyond which it would be dangerous to expose clothing. In each bulb are a few small black glass beads.

The bulbs are placed in position beads uppermost, and after use, when the wax has rehardened, are slipped out and put back again with the beads at the top end.

Since at the required temperature the wax in the bulb takes ten minutes to melt, the deposition of the beads at the bottom of the bulb indicates, for instance, in the case of the minimum bulb, that this temperature has been reached and maintained for, at any rate, this length of time.

In order to ascertain what reliance might be placed upon the sterilizing effect on lice and their eggs of a temperature of 60° C. maintained for ten minutes, experiments were very kindly carried out by Mr. A. Bacot, of the Lister Institute, both upon lice and their eggs exposed in this manner in a hot-air sterilizing chamber in France, and subsequently dispatched to London for the determination of their viability, and upon lice and eggs similarly



From a photograph of the thermometer.

exposed by Mr. Bacot himself. In each instance the experiment proved that an exposure at 60° C. for ten minutes is lethal to lice and their eggs.

With this knowledge, therefore, a wax melting at not less than 60° C. may be adopted for the minimum bulb, and a wax melting at a temperature not higher than 75° C. or 80° C. for the maximum bulb.

This thermometer is, in essence, an adaptation of Bacot's idea of placing dishes containing wax in hot-air sterilizing chambers, and I take this opportunity of expressing my best thanks for the keen interest he has taken in this appliance during the testing of its practicability.

I wish also to express my thanks to the O.C. — Army Wireless Company, R.E., in whose workshop the original model was made; to Captain W. H. Smith, R.F.C., for the excellent photograph; and to Captain Jacobs, R.A.M.C., for opportunities for testing the appliance in the hot-air sterilizing chambers he has designed.

Note.—Care must be taken to ascertain by actual trial in the bulbs if the wax supplied by the makers complies with the indicated melting point. If necessary, suitable adjustments should be made by mixing waxes of different melting points.

E. EMRYS-ROBERTS, M.D.,
Captain R.A.M.C.

FRACTURE OF INTERNAL CONDYLE OF HUMERUS BY MUSCULAR ACTION.

PTE. R., aged 29, jumped from the ss. —, while she was sinking, on to the deck of a rescuing ship. To break his fall he caught a tightly stretched rope with his left hand, and as he gripped it, felt a sudden pain in his "crazy bone." He did not fall, but landed on his feet with his arms above him holding on to the rope, and is quite certain that nothing hit his elbow. The radiograph showed a separation of the internal condyle, undoubtedly due to muscular action of the flexors of the wrist. At the present time, three months after the fracture, the separated

condyle is displaced downwards, firmly adherent to the humerus, and the joint movements are perfect. All the man complains of is a continuous dragging pain at the site of the fracture. The reattached condyle is very tender to touch, evidently due to injury or implication in callus of the ulnar nerve, although there is no anaesthesia below the elbow.

GERALD LAWRENCE,
Captain R.A.M.C.

Reviews.

AMERICAN ADDRESSES.

IN the autumn of 1917 Sir BERKELEY MOYNIHAN gave some addresses to American audiences, and he now publishes them under the not very perspicuous title of *American Addresses*.¹ The dedication is to G. W. Crile, and the preface indicates that they are intended for the use of American colleagues entering upon war conditions from which we have learnt, and unlearned, many things. That three-fourths of the book is a summary, eclectic certainly, of professional war literature, the author candidly acknowledges when he says on the first page, "I have gathered a posie of other men's flowers." The paper called "The Causes of the War" might, indeed, well have been elaborated, for even if he cull others' blooms, Sir Berkeley is skilled in arranging the bouquet; he carries one in fancy to the native soil of the flowers. There is no question here of diplomacy or armaments or murders. It is the elemental question of Auramazda or Ahiriman, freedom or tyranny, voluntary dedication or authoritative subjection.

"That one man," said Glanvill (*The Vanity of Dogmatizing*), "should be able to bind the thoughts of another, and determine them to their particular objects; will be reckoned in the first rank of *Impossibles*: Yet by the power of *advanc'd Imagination* it may very probably be effected." Sir Berkeley is all for imagination; says of it that "it is the scaffold upon which one stands to build the structure of truth," and thinks it is just because the Prussian state has found another means of binding men's thoughts and determining them to its sinister purposes, that we are at war. The German has deliberately perfected a system of education to mould the mind, from the cradle to the grave, into the conviction that expediency backed by power is "right." To none will the moral appeal more forcibly than to American citizens; where a fundamental ideal is at stake, compromise is out of the question; it must be a fight to a finish. American surgeons and, we believe, the whole people of the United States are in the war to see it to that finish.

The second paper, on "Gunshot Wounds and their Treatment," describes the beyilderment amid which aseptic surgery found itself suddenly out of its depth, with the art of swimming nigh forgotten; describes the recovery of old and the development of novel strokes wherewith to ride the flood. The story is well told in a manner adapted to the author's purpose. It seems doubtful if he has made clear enough the essential difference between the use of bipp and similar agents in wounds excised within six or eight hours of receipt, when the function is to inhibit the development of organisms; and their use in wounds not only "contaminated" but already "infected": in which the bacterial strains are already established.

The third study is on the treatment of injuries of peripheral nerves, which was published in full in our columns on November 3rd, 1917. The experience of some surgeons may dispose them to disagree with the author's dictum that "nerve anastomosis is to be sharply condemned." In cases in which a large defect precludes suture, the careful insertion of peripheral and proximal ends within the sheath of a neighbouring trunk has, we understand, been productive of a result that is, to say the least of it, better than none.

Two other papers, on gunshot wounds of the knee-joint, and of the lungs and pleura, give a good general account of the principles upon which more recent methods are based.

¹ *American Addresses*. By Sir Berkeley Moynihan, G.B., M.S., F.R.C.S. Philadelphia and London: W. B. Saunders Co. 1917. (Demy 8vo, pp. 143. 7s. 6d. net.)

MARITAL PHYSIOLOGY.

In a small work entitled *Married Love*,² Dr. MARIE STOPES has endeavoured to meet the need of healthy young people of the educated class for information as to the sexual responsibilities of marriage. Though not a medical woman, the author has special qualifications for this task: with high scientific attainments she combines literary skill, sympathetic insight, idealism, and more than common courage. As Dr. Jessie Murray points out in a short preface, this aspect of sex relationship has usually been looked on as too sacred or too dangerous for entirely frank treatment; but the modern view is that reticence has been carried so far as to defeat its purpose; everything depends on how the matter is presented. To the married and to those about to marry, provided they are normal in mind and body and not afraid of facing facts, this should prove a most helpful book. It is more than a physiological treatise on the Tree of Knowledge, written from the woman's point of view in popular language; sexual aberrations beloved of German writers and their English and American imitators are left alone. Notwithstanding the vast output of books on sex in recent times, Dr. Stopes has, we think, proved that something remained to be said on this subject if the right person could be found to say it in the right way.

As part of her main argument she sets out a view of the periodicity of sexual desire in women with a degree of precision not hitherto attempted. It is not exactly new, for the idea of periodicity was much canvassed during the discussion of the relation, if any, of menstruation to oestrus some years ago, and in general literature is the undertone of Tolstoi's terrible little book *The Kreutzer Sonata*. Dr. Stopes expresses her intention to publish in scientific form and at greater length the results of her observations. This seems desirable, as the text fails to carry the assurance that the generalization rests on more than a relatively small number of cases, confined to a particular social class. In the meanwhile we may say that the outline as presented to a lay audience tends to explain much that has puzzled students of feminine psychology, and offers a way of married happiness that may prove very helpful to many couples.

Concerning the book as a whole we feel with Professor Starling, whose letter is included in its preface, that such guidance is necessary, since "instinct in man is all insufficient to determine social behaviour, and there is need of instruction in the highest of physiological functions, that of reproduction, as there is in the lower functions of eating and drinking." We therefore commend it to medical men and women, and through them to those of the general public who in their judgement are likely to profit by its teaching.

THE HISTORY OF THE ARMY MEDICAL SERVICE.

THE *Roll of the Army Medical Service*³ makes a fine appearance, and is a worthy memorial of the ability, patience, and accuracy of the late Colonel WILLIAM JOHNSTON; it is, indeed, only what would have been expected by those who knew the man and his work. Owing to the industry and care of Colonel Johnston we now have an accurate biographical record of the Army Medical Service from the beginning of the reign of George II to the year 1898, and those of us who have experienced the difficulty of a search in the Public Record Office and the British Museum will appreciate the load taken off the shoulders of future inquirers by the publication of this book. As a work of reference this book will rank with Munk's *Roll of the Royal College of Physicians* and Crawford's *History of the Indian Medical Service*, and we could wish that someone would undertake a similar work with reference to the Naval Medical Service. No book of this kind can claim infallibility, but after applying several severe tests we have not found any considerable errors. It was fortunate that Colonel Howell could find time to edit the book, and we do not doubt his

well-known expert knowledge of military medical history has contributed to its value.

The development of the Army Medical Service can only be understood by a careful study of its history, and we had hoped that the introduction would have dealt fully with that subject. But in our judgement the history given there of the development of the service is inadequate in length, and, further, is not very clearly written. Forty pages only are devoted to a consideration of this large and important subject, which is worthy of a more extended survey. This is to be regretted, for the famous Fifth Report of the Commissioners for Military Enquiry, published in 1808, contains almost all the information necessary for a complete account of the development of the Army Medical Service down to that date. No doubt space was a consideration, but we should have welcomed a longer account of this part of the subject, especially from the expert pen of Colonel Howell. The report of the Commissioners has indeed been used, but not as fully as it might have been. But however that may be, this valuable and accurate book will find a place in every reference library.

NOTES ON BOOKS.

THE second edition of Dr. PENHALLOW's book on *Military Surgery*⁴ is a great improvement on the first. That was avowedly written from a base hospital in England. Nowadays much of the surgery that really matters to the patient is done at the casualty clearing station. Of course much remains to be done at the base, but the tendency is to do more and more nearer and nearer the front, because if good surgery be done there, there is less and less to be done afterwards. To deserve its title such a book must deal with the first treatment of fresh wounds and injuries, and to a great extent the author has now done this, partly no doubt as a result of what he has seen himself, but largely by analysis of published papers, and of these he gives a very useful bibliography. For the next edition Dr. Penhallow will have still more ample records of the latest developments in primary treatment, and will be able to make room for his account of them by omitting the present case notes, which are out of place in a work of this size.

The volume *A Complete System of Nursing*,⁵ by A. MILLICENT ASHDOWN, fairly deserves its name. It is founded upon a book by the late Miss Honour Merten, but has been thoroughly revised and greatly improved. Chapters on general nursing duties and on general observation of symptoms are followed by others on special departments of medicine and surgery. The section on the preparation of the room for an operation contains a useful enumeration of the various things a nurse must do and prepare. In the various chapters instructions are given for preparing a patient for examination as well as for operation, and this is a valuable feature. There is a chapter on ophthalmic nursing, and others on gynaecological and obstetrical nursing. The book certainly seems to tell everything a nurse can learn from print. Its fault is that in some places, especially in the remarks on treatment, it attempts too much. The description of splints in such a book cannot be complete, and it is just possible that an inexperienced nurse may consider that a case treated by any other splint than those illustrated—and some of them are a little antiquated—has not been properly treated. A warning to this effect might properly have been given in the preface.

The Happy Warrior, and Other Poems,⁶ by Mr. AUGUSTUS COOK, is one of the many small volumes of verse called out by the war. Its author feels keenly the many emotions called up by battle, by the contrasts of war, by the work of women in the present times of stress, and by the part played by medical science in the relief of war's havoc. His verse shows this feeling expressed with sentiment and a clear sense of form; it should give satisfaction to many who, with similar feelings, are less happily able to give them expression.

² *Married Love: A New Contribution to the Solution of Sex Difficulties*. By Marie C. Stopes, D.Sc.Lond., Ph.D., Fellow of University College, London, F.L.S., Fellow of the Royal Society of Literature. London: A. C. Fifield, 1918. (Cr. 8vo, pp. 126. 5s. net.)

³ *The Roll of the Army Medical Service*. By Colonel William Johnston, C.B., LL.D., M.D. Aberdeen: At the University Press, 1917. (Imp. 8vo, pp. 638 + 72. 15s. net.)

⁴ *Military Surgery*. By Dunlap Pearce Penhallow, Amer. Med. Res. Corps. Second edition. London: H. Frowde, and Hodder and Stoughton, 1918. (Demy 8vo, pp. 555; 226 figures. 21s. net.)

⁵ *A Complete System of Nursing*. By A. Millicent Ashdown. London and Toronto: J. M. Dent, Ltd.; New York: E. P. Dutton and Co. 1917. (Demy 8vo, pp. xv + 764; 252 figures. 10s. 6d. net.)

⁶ *The Happy Warrior, and Other Poems*. By Augustus H. Cook, M.B.Lond. London: G. Bell and Sons, Ltd. 1917. (Fcap. 8vo, pp. 85. 2s. 6d. net.)

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BOTULISM.

THE occurrence of a certain number of cases, the circumstances and symptoms of which recall the description of a form of food poisoning described by van Ermengem in 1895 under the name "botulism," makes it convenient to give a short account of that disease. Though he gave the name *B. botulinus* to it (*botulus*, a sausage), van Ermengem first cultivated the bacillus from a pickled ham which was not decomposed in the ordinary sense. The symptoms in these cases are stated by Muir and Ritchie¹ to correspond closely with those occurring in the so-called sausage poisoning met with in Germany and other countries where sausages and ham are eaten in an imperfectly cooked condition. The cases form a well-defined group, the symptoms of which are chiefly referable to the action of a toxin on the medulla. They include more or less marked disorder of the secretions of the mouth and nose, and internal and also external ophthalmoplegia, especially dilated pupils and ptosis—the last being apparently a very striking symptom—dysphagia, sometimes complete loss of power of swallowing, and loss of voice. Constipation is the rule, and retention of urine common. In fatal cases death is due to interference with the cardiac and respiratory centres. It is stated that there is no fever and no disturbance of the intellectual faculties, but apparently drowsiness may be a marked feature. The symptoms do not come on earlier than twelve to twenty-four hours after ingestion of the infected food.

The bacillus can be cultivated on ordinary media—best, it is said, with added grape sugar—but only under strictly anaërobic conditions. Kempner has obtained it from the intestine of the pig. The bacillus produces a very potent toxin, and the symptoms in the human subject are believed to be due to the absorption of this toxin from the alimentary canal, for it is only after or immediately before death that a few bacilli may enter the tissues. It is stated that some cases have occurred after the consumption of fish and vegetables. Marinesco and other observers who have examined the nerve cells in experimental poisoning with the botulinus toxin agree as to the occurrence of marked degenerative changes, especially in the motor cells of the spinal cord and medulla. Necropsies in man have generally shown hyperaemia of most of the organs, especially of the meninges, lungs, liver, and kidneys, due to the cardiac weakness and dyspnoea occurring at the end of the disease. Microscopically the ganglion cells in the pons, medulla and corpora quadrigemina have shown chromatolytic changes, disappearance of Nissl's granules, displacement, and cloudiness of the nucleus, and finally complete destruction of the cell. In a recent lecture on the subject Dorendorf,² one of the medical consultants to the German army, states that while epidemics of botulism are rare, even in Germany, isolated examples or small groups of cases are not infrequent in that country. Often many of the

persons who have consumed the infected food escape, owing to the fact that only certain parts of the food have been permeated by the bacillus or its toxins. In the course of three months Dorendorf saw 7 cases in a military hospital in the east of Germany; 5 were sporadic, and 2 had contracted their illness from the same source.

Diagnosis is rendered difficult by the fact that in this form of food poisoning the gastro-intestinal phenomena are of secondary importance. The first symptoms, namely, nausea and a feeling of weight or actual pain in the gastric region, may occur, according to Dorendorf, either directly or a few hours after consumption of the tainted food. In almost all cases there is vomiting, which is usually repeated. As a rule the patient complains at an early stage of giddiness, which prevents him from walking or even standing. After twenty-four hours at the earliest, more frequently after two or three days, paralysis develops and dominates the scene. In Dorendorf's cases the sixth nerve and the branch of the third nerve to the levator palpebrae were most affected, and paresis of the pharynx and oesophagus were frequent in severe cases. Palatal palsy was also common; facial and hypoglossal palsies were less frequent. Paralysis of the larynx was present in half of Dorendorf's cases, and as paralysis of the abductors occurs rapidly, regular laryngoscopic examination is indicated in order to perform tracheotomy in cases of bilateral abductor paralysis, the danger of which is increased by the presence of ulcers on the laryngeal mucosa. Paresis of the stomach and intestine is manifested by the feeling of weight after food and obstinate constipation. Even mild cases may complain of difficulty in micturition owing to involvement of the detrusor vesicae. Paralysis of the sphincter is frequent. Disturbances of taste and smell were not observed in Dorendorf's cases, but two of them complained of tinnitus. The extremities were not affected in his cases, but Burger has noted paresis of the lower limbs and loss of the knee-jerks. Paralysis of the diaphragm is not uncommon. Considerable tachycardia, indicating vagus paralysis, has frequently been noted before death. Sensory disturbances do not occur, and Dorendorf did not observe any disturbance of consciousness. Somnolence was observed only in the severest cases; it passed into coma. The temperature was not raised unless complications developed, such as deglutition or hypostatic pneumonia, parotitis, or inflammation of the upper respiratory and digestive tracts. The dryness of the upper respiratory and digestive tracts was constant, and in severe cases was the cause of ulcers in the mouth, fauces, and pharynx, epistaxis, and frequently of parotitis. It also contributed to the difficulty in swallowing invariably present. The diagnosis in Dorendorf's cases was made on clinical grounds, and in one case on the strength of the *post-mortem* findings. Attempts to cultivate the *B. botulinus* from the organs failed. It is suggested that in doubtful cases the diagnosis might be established by injection of the patient's serum into guinea-pigs, as subcutaneous injection of the watery extract of infected ham or cultures produces characteristic paralyses of the extremities, intestine, and bladder in these animals. Dorendorf puts the mortality as high as 60 per cent., death being due to paralysis of the respiratory centres, cardiac paralysis, or pneumonia. Even in favourable cases convalescence is slow, and visual disturbance, muscular weakness, and digestive disorders may persist for weeks. Treatment should consist in washing out the stomach thoroughly, for,

¹ *Manual of Bacteriology*, second edition, 1913.

² *Deut. med. Woch.*, xliii, 1531-1534; 1554-1556.

owing to the early onset of gastric paresis, the poisonous article of diet may remain in the stomach for several days after it has been swallowed. Tube feeding will be required for the palatal and pharyngeal paralysis. Thirst should be relieved by rectal or subcutaneous injections of saline.

The toxin corresponds closely, as regards relative instability, conditions of precipitation, and its readiness to combine with the cells of the brain and spinal cord, with the toxins of diphtheria and tetanus; and Kempner has prepared an antitoxin which has a neutralizing property *in vitro* and considerable therapeutic value when given some hours after the toxin in experimental animals. The antitoxin, it is said, is given preferably by intramuscular injection, but it appears to be difficult to make. From some experiments on animals made by Kobs it would appear that the botulinus toxin is rendered innocuous by the addition of diphtheria antitoxin, so that the use of the latter may be justifiable should the specific antitoxin not be obtainable.

With regard to prevention, it may safely be assumed that the thorough cooking of food—not only sausages, but brawn, chitterlings, trotters, ham, and similar articles—would obviate all risk.

THE PROFESSIONS AND THE EXCESS PROFITS DUTY.

In the course of the Budget debate reference was made to the fact that the earnings of professional men were exempt from the excess profits duty, though in the case of the business man the whole of his profits were brought within the scope of the tax without any regard to the fact that in most cases some portion of that total profit was the result of his personal ability and exertion. More than one speaker suggested that this constituted a legitimate grievance which should be redressed by treating professional earnings as liable to duty in precisely the same way as business profits. The suggestion may be plausible, but does not seem likely to be supported by the Chancellor's official advisers if we may judge by the earlier debates dealing with this comparatively new though highly lucrative duty. At the same time it is desirable that any misapprehensions on the subject should be dispersed; we cannot imagine any intelligent observer considering the idea that the medical profession should be still further burdened as other than absurd, but even unintelligent criticism must sometimes be refuted. We are aware that the speakers in question probably had in mind professional accountants, who are said to have received heavy fees in connexion with their work in settlement of liabilities of their clients to the new Government levies, but one member at least referred to doctors as being fit subjects for assessment to the excess profits duty.

It should be remembered that when the duty was first publicly discussed it was popularly called the "war profits" tax—a name which was really more appropriate to the already existing munitions levy on establishments controlled by the Ministry of Munitions—and that misnomer perpetuated the misconception which it epitomized. Broadly regarded, the excess profits duty was intended to be, and is, a special levy on the enhanced profits of capital employed under war conditions. The two special factors operating to give rise to that enhancement are, first, the general and rapid rise in prices which has inflated the profits of practically every manufacturer or trader, not only by giving him a special, if temporary, profit on stocks in hand or bought in advance of need, but

also by providing him with favourable and frequent opportunities for unnecessarily increasing his prices; and second, the extending activities of the Ministry of Munitions, which has widened the circle of profitable war work far beyond the area covered by the munitions levy. From the operation of these causes the medical profession has been entirely free. To take an illustration at random: a drapery establishment in the neighbourhood of a munition factory will probably make substantially increased profits, but the local medical practitioners will remain practically unaffected. And the reason is not far to seek. Such an establishment is an organized machine capable of coping with additional turnover without radical change, but merely with the addition of new staff, or possibly accommodation; but the "turnover" of a medical man is an index of his personal effort, and is not capable of similar extension.

Nor is this all. In dealing with a comparison of pre-war and present commercial profits, regard can be had to the increased rate of exhaustion of the plant and other business assets, which can be approximately measured and allowed for when the tax is computed; but who can express in terms of money the exhaustion of vigour, health, and brain power suffered, where the additional income represents a corresponding—and almost intolerable—drain on physical and mental assets? The exemption of the medical profession from this tax does not rest on any sentimental regard for the sacrifice which its members are making to the common cause both at home and abroad, but on the reasonable application of economic principles. It may be that these same principles would justify an allowance for the personal factor in business profits which the revenue authorities might find it impossible to carry into practice, but that fact should not prevent them from operating wherever their application is practicable.

Lastly, as our readers are no doubt aware, even if these principles were ignored and all medical incomes were closely scrutinized the annual exempt margins allowed over the pre-war standard of profit would prevent the Exchequer from receiving any duty which could be regarded as an equivalent return for the expenditure of time and labour involved in the investigation.

Members of the medical profession are, of course, liable to the super-tax, which now begins at incomes of £2,500 a year instead of £3,000, and is chargeable at higher rates than last year. The lowering of the limit of income subject to the extra tax will probably affect a not inconsiderable number of medical men.

THE MEDICAL SERVICE IN THE ZEEBRUGGE RAID.

THE graphic official narrative of the naval raid on Zeebrugge in the small hours of St. George's Day made no reference to the work of the medical service during the operations. The following short note may give some idea of the work of the surgeons and their staff in the raid. Staff Surgeon McCutcheon, who was in charge of the medical arrangements, had with him three medical officers in the *Vindictive*, the medical staff numbering twenty-nine in all, distributed in four parties. A considerable proportion of the subordinate staff belonged to non-combatant ratings specially trained for the raid, and included two non-combatant officers—a chaplain and an assistant paymaster—who both rendered valuable services. In the *Iris*, which carried the special landing unit of marines, there was one medical officer with a bearer party of sixteen marines, and six men of the sick berth rating. In the *Vindictive* there was also a party of nine stokers and seamen under

the charge of a medical officer, told off for such special duties as might arise. These got on to the Mole and did good work in collecting casualties and transferring them to the ship. Special arrangements had been made in the *Vindictive* for the reception of a large number of wounded, the medical officers and their staff being grouped in three stations—forward, aft, and amidships. Directly the boarding party was landed the port side of the mess deck was converted into a reception place for the wounded, and all available cabins and compartments were cleared for the purpose. More than 170 cases were treated in the *Vindictive*; most of the wounds were multiple and extensive, and there was much severe haemorrhage needing application of the tourniquet. The wounded were eight or nine hours on board, but first aid was all that was possible in most cases; this included the administration of morphine and saline injections, and the application of temporary dressings. Darkness and the artificial fog added much to the difficulties of collecting and transferring wounded on board ship. The Medical Department R.N. received notice that the attack had been made, and when the first batch of casualties was landed at the base in the morning naval ambulance trains were awaiting them at the ship's side. They were rapidly dispatched to various naval hospitals, and the last contingent of patients was comfortably settled in hospital by 6 p.m. The bulk of the wounded were sent to the Royal Naval Hospital at Chatham, where they were visited on April 30th by the King and Queen, who expressed high appreciation of the medical arrangements. Although there were a number of casualties among the stretcher-bearers of the Marine and special units, no medical officer received any injury.

CARE OF THE BLIND SOLDIER IN GERMANY.

THE German War Office has accepted a reduction of vision to $\frac{1}{5}$ as a definition of blindness. A rough estimate of the number of soldiers in Germany coming within this definition by the spring of 1917 was 2,000. The estimated number of the blind before the war was 40,000, so that the magnitude of the problem has not been very greatly increased, but some of the conditions have been altered. For example, before the war only 0.2 per cent. of the blind—that is, only 75 to 80—had had a university education, but among the soldiers blinded in the present war from 10 to 15 per cent. according to one estimate, and as many as 20 per cent. according to another, have received higher education. In order to discuss the problems thus raised, Professor Bielschowsky, in December, 1916, called a conference in Leipzig. The facilities in existence for the education of this minority were very inadequate. The central library for the blind in Hamburg, founded in 1900, had, indeed, by 1915 lent out 20,000 books, but it possessed practically no works in Greek, Latin, or Hebrew, nor any scientific works. The conference appointed a commission of six members to inquire into these and kindred matters; it also undertook to make a selection of standard works on various subjects, including the sciences, suitable for blind script. German and Austrian authorities in the various faculties appear to have settled this matter satisfactorily. Marburg has been selected as the centre for the blind of the educated classes on account of its central position in Germany, its university, the absence of crowded street traffic, and its facilities for cheap living. In the first academic term of 1917, this institution, which is only a few minutes' walk from the university, received seventeen pupils, whose education was undertaken by three blind university teachers. It has been calculated that the thirty-three schools and forty-three workshops already in existence will be capable of absorbing the blind soldiers of the uneducated classes. Private enterprise is to be discouraged, as homes for the blind soldier conducted at the expense of independent persons have been found to pamper instead of teach, and to be unnecessarily costly. The blind are kept in military hospitals till medical treatment is no

longer necessary. They are then transferred for three months, still under army control, to schools for convalescents. The pension for the blind private is from 1,300 to 1,400 marks, and if he chooses to prolong his residence in the school he may do so at a charge of one mark a day. Massage as a means of livelihood for the blind has proved disappointing, as the German is said to distrust the blind masseur. As a rule one year is required to teach blind script and a simple handicraft such as basket-making. Many blind soldiers have returned to their former work—to baking, cigar-making, shoe-making, and even watch-making. About 20 per cent. of the blind soldiers were agricultural labourers; their return to work on the land has been successfully effected in many cases. Schemes have been formulated for diluting blind labour, but the aid of companions with good sight is a doubtful gain; the blind who are well equipped in body and mind are better served by the independence which a thorough education in a school for the blind offers. The training of dogs as leaders of the blind has also been taken up.¹

AORTIC REFLUX DUE TO SHELL EXPLOSION.

THREE cases of traumatic aortic regurgitation in soldiers previously healthy, and especially free from evidence of syphilis or rheumatism, and noticed after having been blown up by shell or grenade explosions, have recently been reported. Usually in traumatic rupture of a cardiac valve there is sudden onset of severe distress, but in Cramer's² case, and in one of the two reported by Brossard and Heitz,³ the symptoms did not supervene until eight and three days after the explosion. In these two cases the soldiers were blown up and fell on their backs, and the traumatic rupture is ascribable to this injury; whereas in the third case, reported by Brossard and Heitz, in which there was in addition immediate and severe nervous shell shock, the explanation adopted is that the sudden alteration in the atmospheric pressure produced by the explosion damaged the nervous system and at the same time ruptured the aortic valves. The sudden alteration of pressure caused by explosions has been known to rupture the lungs without external injury (Sencert), to cause haemorrhage into the central nervous system, and haematuria, and it seems reasonable to believe that similarly the aortic valves, which according to Barié are the most delicate of the cardiac valves, might thus be ruptured.

TREATMENT OF GONORRHOEA IN ANTIQUITY.

ALEX RENAUD in a recent Paris thesis gives some details of the ideas which prevailed as to the nature of gonorrhoea in the early days of medicine. Hippocrates, in the fifth century before Christ, believed that purulent discharge from the urethra depended on carnosities in the canal; Galen, in the second century of the Christian era, held that it was an involuntary emission of semen—hence the name "gonorrhoea" by which he called it. This was also the teaching of Coelius Aurelianus in the sixth century, and of Bernard Gordon in the thirteenth. In the ninth century the Arab physician Rhazes recommended an antiphlogistic therapy together with injections of honey water with decoction of quince seeds. To cicatrize the canal he injected white lead or antimony. Gordon advised bleeding, emesis, and red cerate. For retention he prescribed water baths, combined with the application of living or crushed bugs to the penis. In this he may have imitated the practice of Avicenna, who, to excite the flow of urine, introduced a louse into the patient's urethra. In the eleventh century Constantine the African recommended injections of woman's milk. In the fifteenth century Marcellus Cumanus used cow's, goat's, or woman's milk in the same way, with purging, diet and oil inunctions as adjuvants. As a preventive measure the school of

¹ *Klin. Monatsbl. f. Augenheilk.*, April–August, 1917.

² A. Cramer: *Arch. des mal. des cour.*, Paris, 1918, xi, 66–70.

³ J. Brossard et J. Heitz: *Ibid.*, 71–74.

Salerno recommended micturition immediately after coitus. In the thirteenth century William, of Salicet advised washing out with water after suspicious intercourse, and his pupil Lanfranc used ablutions with equal parts of water and vinegar to which the patient's urine was sometimes added. John of Gaddesden is credited with the invention of the suspensory bandage; at the end of the fourteenth century the same device was used by Guy de Chauliac. For the treatment of the discharge he used injections of oil of scorpions or pigeon's droppings diluted in lye and strained. Like Avicenna and Gordon, he believed in the efficacy of lice and bugs applied to the meatus.

THE PREVENTION OF SUICIDE.

THE Registrar-General for England and Wales in his report for 1915 recorded a remarkable diminution in the number of male suicides. The rate per million living, which was 157 in the decennium ending 1910, and 151 in 1914, fell to 104 in 1915. In 1916 there was a slight rise, the rate being 111. Taking the group of males between 15 and 45, the mortality, which had fallen from 145 per million in 1914 to 102 in 1915, rose again in 1916 to 117. The rate for women also shows a fall, but the numbers are much smaller; the rate was 47 in the decennium ending 1910, 45 in 1914 and 1915, and 38 in 1916. The only age at which male suicides do not greatly outnumber female is 15 to 20, when the two sexes were in normal times about equal, but in the war years the number of female suicides was higher than that of males; this is to be accounted for by the diminution of the civilian male population. Among women the suicide rate at ages 20 to 55 showed a marked reduction on the 1901-1910 standard. Dr. Stevenson points out that it is noteworthy that this change should have accompanied such a period of stress as the women of the country passed through in 1916, and adds that it does not suggest that their moral has been in any way injured by their widespread employment upon work hitherto thought suitable only for men. For women beyond the working age the suicide rate has not fallen, whereas in the male sex the greatest reduction has occurred at the ages 45 to 65. The experience in both sexes seems to point to employment as an effective preventive of suicide, for except that there may have been possibly some increase of household duties, owing to the absence of younger members of the family, women over 55 have probably had little additional work thrown upon them, whereas there has been increased employment of men even at the higher ages. The fact that the reduction set in first and has been carried furthest in the male sex harmonizes with this hypothesis, for increase of employment began earlier for men than for women, and the demand for male labour has remained in excess of that for female. It is suggested that increased employment would operate in at least two ways: in the first place, it would provide an interest in life calculated to divert the mind from personal worries, and in the second place the opportunity of useful work at a living wage would suggest an alternative to suicide in cases in which loss of capital or of employment would otherwise lead to despair. The decrease in alcoholism may also have contributed to the general reduction in suicides, but it would not explain the change in age and sex distribution. It should be added that cases of attempted suicide coming to the knowledge of the police declined to an even greater extent than deaths from suicide. The frequency of suicide among men in military employment increased regularly with age, as amongst civilians; as the men were all subject to military conditions, which are similar for all, the progressive increase in mortality must be attributed to increasing innate tendency to suicide as age advances rather than to increasing difficulty of circumstances, to which it might in the light of purely civilian experience be attributed.

TWO BOARDS BETTER THAN ONE?

WE stated last week that the Ministry of National Service is now concerned in the discharge of men from the army, but that a cumbrous dual system is at present maintained. The procedure now in force appears to be that laid down in a recent circular letter issued by the War Office to general officers commanding at home. All soldiers sent to a discharge centre, whether for discharge or transfer to the Reserve, are in the first instance to be brought before a civilian medical board attached to the centre. Detailed instructions are given to the officer commanding the discharge centre, who in every case is the approving authority for discharge or transfer to the Reserve, and is responsible for producing to the board all the documents properly completed for each case. "The object of bringing the soldier before the civilian medical board is to ascertain whether he has been impaired or not in health since his entry into the service." The civilian board is accordingly instructed to answer this question, and also to recategorize the soldier. The procedure thereafter varies according to the finding of the civilian medical board. Special instructions are given for the disposal of a soldier the board is not able to recategorize. In this event the man and his documents are to be brought before a military board at the discharge centre, which will either recommend the soldier's discharge or, if it considers him unfit for any medical category required in the army, will recategorize him—which may be easier than it sounds. The documents then come again before the officer commanding the discharge centre, who will approve the soldier's discharge in accordance with the King's Regulations. Where a soldier has been sent to the centre not with a view to discharge from the army, but for the purpose of transfer to the Reserve, the procedure varies slightly in detail. Pending the issue of a new Army Council Instruction, all discharges from discharge centres and transfers to the Reserve are to be effected under the provisions of this War Office letter. A sidelight on the amount of clerical work thrown upon all concerned appears to be given by the statement that in the event of one civilian board being insufficient to give effect to the instructions contained in this letter, a wire is to be sent to the War Office stating how many more boards are needed.

INTERALLIED SCIENTIFIC FOOD COMMITTEE.

THE second meeting of the Interallied Scientific Food Committee was opened in Rome on April 30th by Signor Crespi, Italian Commissary-General of Food Supply. A Reuter's telegram states that, after welcoming the delegates, Signor Crespi explained Italy's requirements during and after the war, and described the legislation recently adopted there to restrict supply and consumption. Signor Crespi's welcome was acknowledged by Professor E. Gley (France), Professor R. H. Chittenden (U.S.A.), and Professor E. H. Starling (Great Britain). The first meeting of the committee, it may be remembered, was held in Paris from March 25th to March 29th. Many important questions relating to the minimum food requirements of man and to the production and distribution of food supplies were then discussed. It is hoped that the labours of the conference now sitting in Rome may result in early action. Italy is following the example of France in instituting meatless days. In France the new order, which comes into force on May 15th, forbids the sale of meat on three days a week—Wednesday, Thursday, and Friday—or the supply of meat dishes in any public place, whether hotel, restaurant, dining car, or club, on those days. The only exception is that the sale of horse-flesh is permitted, but only in shops exclusively devoted to it. The abattoirs will be closed from Monday evening till Friday morning. The number of animals that may be killed is restricted to two-thirds of the average number in the weeks of March, 1918. In Italy the same days are selected to be meatless, but there

mutton, lamb, and goat's flesh may be sold on Wednesdays, and bacon and salt pork and offal of all kinds, but not sausages or trotters, on any day. The sale of fowls is limited to three days a week, and in hotels and restaurants no meat of any sort may be served on the three meatless days with the exception of offal and rabbit. In Rome the proportion of maize and rice in bread is to be increased during the next fortnight at least. The price of meat in Italy, as also of ham and bacou, is very high.

THE Allied Conference on the after-care of disabled sailors and soldiers will meet again in London at the end of this month. In connexion with it an exhibition will be arranged of appliances in use in the British and allied nations for the benefit of the maimed and disabled; it will include a considerable collection of such appliances used in military orthopaedic hospitals in this country.

SEVERAL cases of the disease presenting cerebral symptoms, generally believed to be botulism, are now under treatment in Guy's Hospital. Two of the physicians to the hospital will be pleased to demonstrate them to any medical practitioners who may care to visit the wards at 3.30 and 4 p.m. on Monday next, May 6th.

Medical Notes in Parliament.

The Budget.

THE salient features of the Budget were summarized in our last issue; it may be convenient to record here a few notes of the subsequent debate. As the Chancellor remarked towards the end of the discussion, the Budget was well received on the whole, though every increase in taxation was criticized with some force by one member or another. On many points opinions were almost, if not quite, unanimous, as, for example, that Mr. Bonar Law deserved hearty thanks for his clear statement and a personal tribute to his tenacious memory for facts and figures, that his proposals were on the whole reasonable enough, that the luxury tax was a difficult but desirable departure, that the country was anxious that Treasury activity should be concerned not only with raising money but also with discouraging avoidable extravagance, that there were difficult times ahead needing much financial acumen on the part of the Government and severe sacrifice on the part of all, and last—and perhaps not least—that the Chancellor would find his smaller taxes—the additional penny per cheque and the increased postal rates—the most difficult to get through.

One or two members—including Mr. McKenna, the ex-Chancellor—would have been willing to see the income tax still further increased to 6s. 8d., or even 7s. 6d.—at any rate, during the continuance of the war; and from the Labour benches came a plea for the increase of the rate of excess profits duty from 80 per cent. to 90 per cent. or 100 per cent.; the force of this plea was weakened, if not destroyed, by the arguments brought forward by Mr. Baldwin, Joint Secretary to the Treasury. The suggestion made in some quarters—as was the case last year—that this duty should be extended to professional as well as business incomes, is dealt with in a leading article this week. The addition to the income tax to be paid by farmers met with ungrudging support from some and opposition from others. Mr. Wiles made a legitimate debating point by quoting cases in which farmers had alleged large pre-war profits when claiming compensation from the Losses Commission—for example, on being displaced when an aerodrome was established. He suggested that although when it was a question of taxing profits a farmer kept no accounts, figures were usually available for compensation purposes. Generally the feeling was that farmers had no reason to complain, as in any case they could claim to pay on their profits instead of on the artificial basis of twice the amount of their rent if they felt aggrieved.

The raising of the income limit for relief in respect of children from £700 to £800 was appreciated, though that

change has apparently been due rather to the exaggerated effect of the £700 limit last year, which barred both the £70 abatement as well as the £25 per child, than to any deliberate intention to extend the latter allowance. Mr. H. Samuel suggested, and the Government spokesman (Mr. Baldwin) accepted the suggestion, that there was a continuing tendency to put the income tax more upon a family than upon an individual basis, and that that principle will have to be taken into consideration by the Income Tax Committee to be set up at the conclusion of the war.

The Budget for 1918 does not affect medical men as such, though they come within the class of income-tax payers which is substantially affected by the new rates in force for incomes over £500 per annum. Those who are drawing pay as officers in the army or navy will join those members who expressed their pleasure that the Chancellor had left last year's special "service" rates of income tax to hold good for 1918.

Promotion in Royal Army Medical Corps.—Mr. Macpherson stated in answer to Sir William Collins, on April 29th, that seventeen officers in the Army Medical Service had been promoted to the rank of major-general during the last five months. Of these five were men who held world-wide reputations for scientific and professional work, and twelve were promoted for both professional and administrative work.

Medical Examinations for the Army.—Replying, on April 25th, to a question by Mr. Jowett as to the arrangement for newly enlisted men and volunteers at military depôts, Mr. Macpherson said that the recruit was medically examined and graded before being handed over to the army by the Ministry of National Service. The subsequent examination at the reception depôt (prior to posting) was merely for the purpose of detecting whether a man was suffering from an infectious disease.

Mesopotamia Campaign: Surgeon-General MacNeece exonerated.—Mr. Macpherson, in a written answer to a question by Sir Watson Cheyne on May 1st, said that the Army Council had received and considered a statement by Surgeon-General MacNeece on the findings of the Mesopotamia Commission in his case, and they had formed the opinion that no blame could be attached to him in regard to the manner in which he carried out his duties in connexion with the medical services during the campaign.

Temporary Medical Officers in France.—Mr. Watt asked, on May 1st, whether a memorandum had recently been sent to temporary medical officers in France, when yearly contracts were about to expire, stating that they would be required to renew their agreements unless their release were asked for by some public body, or by a medical practitioner, requiring their services at home. Mr. Macpherson replied that he was not aware of any memorandum of the nature suggested. A letter from the Ministry of National Service had been sent to all such officers requesting them to continue their services in the R.A.M.C. on the expiration of their contracts. The letter also stated that the privilege which had hitherto been accorded, that such officers might put before the Central Professional Committees any difficulties which individuals might have in continuing their services, would not be affected.

British Prisoners of War in Turkey.—Mr. Fitzalan Hope, on April 29th, said that the first thousand British invalided prisoners to be repatriated from Turkey will be chosen by the Turkish authorities without the formality of official medical inspection in order to save time. The further selection would be made by medical commissions composed of two Turkish doctors and one British prisoner doctor. The standard of disability for repatriation from Turkey under the agreement was the same as that in force with Germany for the purpose of transfer from that country for internment in Switzerland. The Netherlands Minister (Constantinople) had been requested to carry out the provisions of the Berne agreement as to the inspection of internment camps by his representatives.

MR. FORSTER has stated that the reduction made some time ago in the rations of sedentary troops had not been found successful and the subject was being further considered.

IN the new case installed in the Central Hall of the Natural History Museum, Cromwell Road, London, the subject of plant foods is dealt with. The several sections of the exhibit comprise cereals, bread, roots, and tubers and other "vegetables," nuts, the pulses, fresh fruits, beverages, and sugar and its substitutes. The plants most generally used in the United Kingdom for foodstuffs are shown by specimens, models, drawings, and diagrams. The values of some typical foods in energy and in building power are shown in a series of coloured diagrams, and comparison is easy, as all the diagrams are on the same scale and each colour has the same significance throughout.

THE WAR.

TREATMENT OF WOUNDS IN WAR.

(Continued from p. 490.)

The following are further sections of the conclusions of the Inter-Allied Surgical Conference at Val-de-Grâce from March 11th to 16th.

II. TRENCH FOOT.

1. Trench foot is a pathological condition provoked by moist cold and complicated as a rule by secondary infection.

2. The disorder presents four stages, as follows: (1) Painful anaesthesia; (2) oedema; (3) phlyctenules; (4) sloughing. Three clinical forms may be described—(a) slight (85 to 90 per cent. of the cases), characterized by painful anaesthesia, oedema, and redness; (b) moderate (13 to 14 per cent.), characterized by phlyctenules and limited sloughs; (c) severe (1 per cent. on an average), characterized by extension of sloughing and the appearance of septicaemic complication. This form may produce serious mutilation or death.

3. Trench foot, especially the more serious forms, is not infrequently complicated by tetanus or gas gangrene, and relapses and recurrences may take place. Trench foot occurs almost exclusively in soldiers who live in the trenches, more particularly in certain trenches. Soldiers coming from hot countries, dark-skinned races particularly, are more frequently attacked than Europeans. (In Italy soldiers from the south have suffered more often than soldiers from the north.) Youth, hyperidrosis, and a previous attack are predisposing causes.

4. Blood stasis due to prolonged standing, to long immobility, and to a bad attitude (stooping), compression of the leg and interference with the venous circulation, particularly by puttees, and more especially remaining long in cold and damp (muddy and flooded ditches and shell holes), are the principal causes of trench foot.

5. Trench foot may be confused with true frost-bite and with chilblains. True frost-bite is characterized by sudden massive mortification of a part of a limb (the front of the foot, the whole foot, etc.); trench foot, on the contrary, is characterized by limited destruction (gangrenous patches on the dorsum of the foot, the sole, or the toes) and by progressive invasion of the tissues of the foot. Frost-bite is met with in severe dry cold, especially in mountainous regions. Trench foot occurs only in damp weather and at low altitudes (valleys, plains); it disappears in frost. Chilblains are characterized—at any rate, in their early stages—by very severe itching, whereas those forms of trench foot—that is to say, the slight forms—which are liable to be confused with chilblains produce painful anaesthesia without any itching. It has to be admitted, however, that sometimes the diagnosis between ulcerated chilblains and the ulcerated phlyctenules of trench foot may be doubtful.

6. The treatment of trench foot is preventive and curative. Preventive treatment energetically applied and supervised may be followed by the disappearance of cases of trench foot, or may at least render them very rare. The treatment includes (a) collective measures—hygiene and draining of the trenches, gratings, trench boots, dry warmed shelters, with, if necessary, frequent reliefs; and (b) individual preventive precautions taken daily (drying, cleansing and massage of the feet, change of socks in the shelters, supervision of puttees and of everything which can cause compression of the lower limbs). Belgian medical officers attribute the extreme rarity of cases of trench foot in their army to the disuse of puttees. The curative treatment of trench foot includes the following measures: (a) Slight cases; a warm foot bath should be taken every two or three days and the feet washed with borie camphor soap. A large moist borie camphor dressing should be applied to the foot every day. (b) Severe cases; when phlyctenules only are present they should be opened and touched with camphorated ether, and a moist borie camphor dressing applied. If there are sloughs the same treatment should be persistently applied. Sloughs should not be removed with the knife; they should only be scarified, without causing bleeding, so that the drugs used may act on the subjacent tissues. Spontaneous separation must be awaited, and complications carefully

watched and thoroughly treated surgically and fully at their onset. The principle by which operation ought to be guided is that it should be late and confined to the rectification of stumps which are defective from a functional point of view. Amputation should be performed only in cases in which the surgeon's hand is forced by serious general complications. In every case preventive antitetanic treatment should be used (injection of antitetanic serum repeated every week until the wound is cicatrized).

III. THE TREATMENT OF WOUNDS OF THE PELVIS, AND OF THE BLADDER AND RECTUM IN PARTICULAR.

Of the Pelvis Alone.—The general principles are the same as for war wounds of soft and bony parts. Comminuted fractures of the ilium call in particular for large trephining. The removal of projectiles or bony fragments which are often driven into the psoas and iliacus muscles is particularly difficult, and must be carried out systematically.

Of the Bladder.—(a) Intraperitoneal wounds are amenable to laparotomy and suture; (b) extraperitoneal wounds, if suprapubic, should be treated by primary suture of the bladder. Wounds of the walls or base of the bladder inaccessible to operation do not entail immediate cystotomy as a matter of routine. Surgical treatment of the wound of entry and of its track will assure sufficient drainage. Later on tying in of a sound will favour the closing of the urinary fistula. Primary cystotomy should be reserved for wounds of the bladder with retention or progressive perivesical infiltration. Serious haematuria or the presence of a foreign body in the bladder justify early cystotomy. Secondary infection of the bladder calls for cystotomy with drainage.

Of the Rectum.—(a) Intraperitoneal wounds, like all other wounds of the intestine, are amenable to laparotomy with suture; (b) the majority of cases of extraperitoneal wounds should be treated by the laying open of the traumatic centre, followed by plugging of the rectal wound. An indispensable adjuvant to this treatment is to keep the bowels constipated. In rupture with extensive detachment the method of choice is free opening up, with, if necessary, posterior rectotomy. Primary colostomy is only exceptionally required.

Combined Wounds of Bladder and Rectum.—The greater number of cases will recover under surgical treatment of the extravascular tract of the projectile. Colostomy should be reserved for cases in which the communications between the bladder and rectum are very extensive. Primary cystotomy is often useless; the tying in of a sound, ventral decubitus, and micturition in the genu-pectoral position favour spontaneous closure of the vesico-rectal fistula.

(To be continued.)

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Missing.

Surgeon H. C. Broadhurst, R.N.

Surgeon W. A. McKerrow, R.N.

ARMY.

Killed in Action.

MAJOR J. S. WALLACE, M.C., R.A.M.C. (T.F.).

Major Joseph Stephen Wallace, whose death in action was recorded in our issue of April 20th, held a commission in the Territorial Force, and not a temporary commission as stated. He was gazetted to the 2/2nd Welsh Field Ambulance on December 25th, 1915, and received his captaincy on July 25th, 1916. He joined the 2/3rd London Field Ambulance on August 9th, 1916. His commanding officer writes that Major Wallace was an exceptionally brilliant bearer officer, always ready for any work, and absolutely regardless of himself. He was awarded the M.C. on July 26th, 1917, for brilliant services during the battle of Arras, and a bar to the M.C. on January 8th, 1918, for exceptional work during the battle of Cambrai. He was held in the highest esteem by every member of the mess, and his stretcher-bearers worshipped him. He met his death while gallantly going to try and find another officer who was reported missing.

CAPTAIN B. S. BROWNE, M.C., R.A.M.C.

Captain Bernard Score Browne, M.C., R.A.M.C., was killed in action on April 15th. He was the son of Colonel A. Walker Browne of Londonderry, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1908. He then went out to China, where he served as a medical missionary of the C.M.S., and also as surgeon to the Chinese Customs Service at Ningpo, and received the Chinese Order of the Dragon. He took a temporary commission as lieutenant in the R.A.M.C. on April 2nd, 1915, and was promoted to captain after a year's service. He got the Military Cross on November 4th, 1915.

Wounded.

Lieut.-Colonel A. C. Rankin, Canadian A.M.C.
Major W. T. Brown, M.C., R.A.M.C. (temporary).
Major T. W. Clarke, M.C., R.A.M.C. (S.R.).
Major C. B. Davies, M.C., R.A.M.C. (temporary).
Major W. S. Garnett, Australian A.M.C.
Captain M. Avent, R.A.M.C. (S.R.).
Captain T. Bennett, R.A.M.C. (temporary).
Captain A. G. Cook, R.A.M.C. (temporary).
Captain R. Donald, R.A.M.C. (temporary).
Captain F. G. Foster, R.A.M.C. (S.R.).
Captain F. P. Freeman, M.C., R.A.M.C. (S.R.).
Captain M. R. Graham, Canadian A.M.C.
Captain C. H. Harbinson, R.A.M.C. (temporary).
Captain S. P. Hodgkinson, R.A.M.C. (temporary).
Captain D. L. Kennedy, Canadian A.M.C.
Captain G. D. Latimer, R.A.M.C. (temporary).
Captain T. McEwen, M.C., R.A.M.C. (S.R.).
Captain H. G. Oliver, R.A.M.C. (temporary).
Captain A. R. Oram, R.A.M.C. (temporary).
Captain R. H. C. Pryn, R.A.M.C. (temporary).
Captain I. A. N. Scott, R.A.M.C. (temporary).
Captain J. Smith, R.A.M.C. (temporary).
Captain G. Steel, R.A.M.C. (temporary).
Captain R. I. Sullivan, M.C., R.A.M.C. (S.R.).
Captain W. A. Troup, M.C., R.A.M.C. (temporary).
Captain F. W. White, R.A.M.C. (temporary).
Captain G. Wilson, Canadian A.M.C.

Missing.

Captain W. J. Isbister, M.C., R.A.M.C. (temporary).
Captain G. L. Jones, R.A.M.C. (S.R.).
Captain L. C. Maclean, D.S.O., R.A.M.C. (temporary).
Captain F. P. Smith, R.A.M.C. (temporary).
Lieutenant J. F. Hornsey, R.A.M.C. (temporary).
Lieutenant E. S. Phillips, R.A.M.C. (temporary).

Formerly reported Missing, now not Missing.

Captain E. J. Storer, R.A.M.C. (temporary).

Prisoners of War.

Captain A. G. Bisset, M.C., R.A.M.C. (temporary).
Captain P. B. Corbett, R.A.M.C. (S.R.).
Captain D. R. E. Roberts, R.A.M.C. (temporary).
Captain H. A. Sandiford, R.A.M.C. (T.F.).
Captain W. Warburton, R.A.M.C. (temporary).
Lieutenant O. Le F. Milburn, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Awdry, W. W., Lieutenant Wiltshire Regiment, eldest son of Dr. W. R. Awdry of Berkeley, Gloucestershire, died of wounds on April 14th, aged 22. He was educated at Sherborne, entered Sandhurst in 1915, got his commission in 1916, went to France soon after, was wounded at Thiepval, and returned to the front only fourteen days before his death.

Chamberlain, Arthur Beaumont Goddard Twyford, Lieutenant Royal Navy, only son of Dr. E. Twyford Chamberlain of Billingham, killed April 23rd, aged 28. He had seniority as lieutenant from June 26th, 1911.

Hamilton, Ronald Eric, Second Lieutenant Devonshire Regiment, younger son of Dr. E. A. Hamilton of Manea, Cambridgeshire, reported wounded and missing, now presumed killed, April 23rd, 1917, aged 20.

Kent, Percival Naylor, Lieutenant-Colonel Dragoon Guards, son of the late Dr. J. G. Kent of Kingston, died of appendicitis in a base hospital abroad, April 18th. He was born in 1870, got his first commission in 1894, and retired as captain in 1912, when he joined the reserve of officers. He became major in the Notts Yeomanry, Sherwood Rangers, on May 13th, 1914, and was promoted to lieutenant-colonel in 1917.

Lawson, James Burnett, Lieutenant (Cameronians) Scottish Rifles, youngest son of Dr. J. B. Lawson of Rothesay, killed in action March 27th, aged 21. He had completed his first year as a medical student and passed his first professional examination at Glasgow University. He was a member of the University O.T.C., and obtained his commission in August, 1915. He took

part in the battles of the Somme in 1916, and was promoted lieutenant in October, 1916. He was acting captain at the Ypres battle on July 31st, 1917. He was expected to return to resume studies on April 24th.

Loudon, James Brugh, Lieutenant Scottish Rifles (Cameronians), son of Surgeon-Major Livingstone Loudon, killed April 15th, aged 21. His commission was dated March 17th, 1915.

Maclean, Harold Daniel, Royal Field Artillery, younger son of Dr. Maclean of Stonehouse, Lanark, killed April 12th, aged 20.

Murray, George Anthony, M.C., Captain Royal Field Artillery, son of Lieut.-Colonel C. F. K. Murray, M.D., President of the Medical Council of South Africa, and grandson of Sir John Molteno, died of wounds on April 5th, aged 24. He was educated at Bedales and at Trinity College, Cambridge, where he graduated B.A. in June, 1915. He received his commission on July 8th, 1915, went to France on September 18th, 1915, and had been at the front ever since, taking part in the battles of Ypres, the Somme, Arras, and Passchendaele. He received the M.C. on September 15th, 1916, was promoted to lieutenant early in 1917, and to acting captain in November, 1917.

Nolan, M. K., Second Lieutenant Australian Infantry, killed in the heavy fighting on the Somme at the end of March, was the elder son of the late Dr. H. Russell Nolan, formerly anral surgeon to the Royal Prince Alfred Hospital and lecturer on diseases of the nose and throat in the University of Sydney. Lieutenant Nolan was educated at Newington College, Sydney, and at the time of enlistment was studying law at the Sydney University.

Parkinson, George Robert, Flight Lieutenant Royal Navy, only son of the late Dr. Parkinson of Henley-on-Thames, killed flying on patrol, April 13th, aged 19.

Reid, Erio Archdall, Second Lieutenant Hampshire Regiment, only son of Dr. Archdall Reid of Southsea, killed March 28th, aged 19.

MEDICAL STUDENT.

Grant, Thomas F., Second Lieutenant Seaforth Highlanders only son of the late Thomas Grant of Banahrew, killed recently before the war he was a medical student at Edinburgh University. He gained the Military Cross in 1917.

Dr. H. Edmondson (Burnley) informs us that the injury through a shell explosion received by his son, Second Lieutenant I. E. Edmondson, A.S.C., reported killed in our last issue, did not prove fatal, and that he is now making satisfactory progress towards recovery.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE following is a continuation from p. 492 of our last issue of the particulars of acts of conspicuous gallantry and devotion to duty for which the decorations announced in the BRITISH MEDICAL JOURNAL, December 22nd, 1917, p. 839, were conferred:

Military Cross.

Temporary Captain Everard Cecil Abraham, R.A.M.C.

When in charge of a bearer division during seven days' operations the rapid and efficient clearing of wounded from the field was largely due to his efforts. During a heavy gas shell bombardment he led his bearers through the barrage to rescue men affected by the gas.

Temporary Captain William Robert Addis, R.A.M.C.

He superintended the clearing of wounded from regimental aid posts while the whole area was being heavily shelled, and during the latter part of the period he was gassed, but remained at work until the relief was finished.

Captain Matthew Thomas Ascongh, R.A.M.C.

He dressed wounded in the open for forty-eight hours, without sleep or rest, under heavy shell fire, after his shelter had been rendered untenable by four direct hits.

Lieutenant Robert Hector Baxter, N.Z.M.C.

He worked for three days at his regimental aid posts under continual exposure to shell and machine-gun fire.

Temporary Captain Arthur Cecil Barker Biggs, R.A.M.C.

He supervised the removal of the wounded under very heavy fire during two days' operations. It was due to his extraordinary energy that the battlefield was always kept clear of the wounded, in spite of very adverse conditions.

Temporary Captain George Alexander Birnie, R.A.M.C.

In going forward with two stretcher-bearers to form an advanced aid post he was wounded in the shoulder by a piece of shell, one of the stretcher-bearers being killed at the same time. He continued dressing the wounded in our most advanced line, and even penetrated the enemy line of posts in search of casualties, keeping at his work until relieved some eight hours later.

Temporary Lieutenant Charles Herbert Booth, R.A.M.C.

He tended the wounded in the open under continuous heavy shell fire. His skilful organizing of stretcher-bearers was undoubtedly the means of saving many lives.

Temporary Captain Robert Briffault, R.A.M.C.

He organized an aid post through which all casualties of the brigade and those of many other units of the division passed. He personally went up to the post and attended to men lying out in shell holes under very heavy fire. Although relieved, he actually went up beyond our forward posts to search for a wounded officer. Throughout the whole action he showed the utmost disregard for his personal safety.

Temporary Captain George Edwin Chissell, R.A.M.C.

He tended the wounded both of his own battalion and others and organized their evacuation. He worked continuously in the open for twenty-four hours under heavy shell and machine-gun fire. When the battalion was relieved he remained until the last man of his brigade had been taken away.

Temporary Captain Edward James Clark, R.A.M.C.

As medical officer to a battalion, though continuously under heavy shell fire, he moved about in the open attending to the wounded, and undoubtedly saved many lives.

Temporary Lieutenant Arthur Philip Draper, R.A.M.C.

He set a splendid example of courage and self-sacrifice in attending to the wounded during an action. He went forward and attended to the wounded in the open when heavy casualties had been caused among the stretcher-bearers, and by his gallant conduct undoubtedly saved several lives.

Temporary Captain Frederick Pearson Fisher, R.A.M.C.

On learning that the enemy had projected gas into one of our deep mine galleries, he descended to the bottom of the main shaft and established an aid post there. He then advanced with his party into the gassed area and rescued several miners. He remained at his post without relief for fourteen hours and saved many lives.

Temporary Captain Alistair Gordon Forbes, S.A.M.C.

After continuous dressing of thirty wounded he personally took a place in one of the squads of bearers under heavy fire of gas and other shells, and so stimulated his exhausted bearers to special efforts. Though suffering from mustard-gas poisoning, he remained at work until ordered back as a casualty two days later.

Captain Hartas Foxton, R.A.M.C.

When in charge of the collection of wounded he personally directed and visited all the regimental posts many times a day, often under heavy fire. By his energy he kept his bearers working, though exhausted, until the completion of the evacuation.

Captain Reginald Douglas Gawn, R.A.M.C.

He worked untiringly, attending to the wounded under heavy fire during an attack. He made several journeys over most difficult ground to reach wounded men who were lying out in the open, and showed splendid courage and gallantry throughout.

Captain Norman Bell Graham, R.A.M.C.(S.R.).

He worked unceasingly under very heavy shell fire, attending to the wounded of several units. He organized stretcher parties, and also went out himself to attend to the wounded. He set a splendid example of contempt of danger, and undoubtedly saved many lives.

Lieutenant Arthur Robert Hill, R.A.M.C.(S.R.).

He attended to the wounded during an attack in a very exposed position under heavy shell fire. He often moved about over the open, searching for the wounded and assisting to remove them. He showed great coolness and resource under the most difficult and dangerous conditions.

Captain William Baly Jepson, R.A.M.C.(S.R.).

When a shell had smashed in battalion head quarters, although severely shaken himself, he dug out his commanding officer and the adjutant, and attended to them. He continuously took stretcher-bearers to the front line in daylight through intense shell fire. He established a new forward dressing-station after the battalion had been relieved, and did not return till he had searched the whole front for wounded.

Captain Frederick William Lumsden, N.Z.M.C.

He dressed wounded in the open when the regimental aid post which was within 700 yards of the enemy "pill-boxes" and in full view of them, was still full of wounded left by the previous battalion. Casualties were inflicted even on the stretcher cases. Though exposed to this fire, he worked unrelentingly for three days, with practically no sleep and very little food, until quite exhausted.

Captain Duncan Macfadyen, R.A.M.C.(S.R.).

He repeatedly went out to shell holes under heavy fire to dress the wounded and help bring them in. He attended to the wounded of another battalion in addition to those of his own. He showed splendid courage and self-sacrifice.

Captain John McGhie, N.Z.M.C.

When in charge of bearers time after time he took stretcher parties forward through heavy mud and enemy barages to the regimental aid post, and did not stop till he was certain that all men lying out had been collected.

Captain James McKay, M.B., R.A.M.C.(S.R.).

He arranged the evacuation of stretcher cases from the front line, and continually dressed wounded, regardless of heavy shelling, in the open, owing to limited accommodation.

Captain Hugh Agnew Macmillan, R.A.M.C.

He passed some 600 cases through his regimental aid post, though it was heavily bombarded. His staff being much depleted, he had to treat the majority of cases himself.

Temporary Surgeon Richard Glyn Morgan, R.N.

When wounded he carried on his duties under very heavy shell and rifle fire. Even when wounded a second time he worked with the stretcher-bearers in the open for thirty-six hours, until all the ground had been cleared of wounded. It was largely owing to his wonderful example and great exertions that the ground was cleared so quickly.

Captain John Pinder, R.A.M.C.

He attended to wounded under continuous shell fire. During two days and nights he worked in a shell hole and sent back a large number of wounded men who would otherwise have died from exposure. He also went forward several times to the front line to attend to wounded men.

Temporary Captain Charles Leslie Grove Powell, R.A.M.C.

He carried on his work in the open under fire, though his advanced aid post was a special target for the enemy's artillery. He also visited the front line when it was being heavily shelled to attend to cases that could not be moved.

Lieutenant (temporary Captain) William Leonard Eliot Reynolds, R.A.M.C.

He worked continuously for twenty-four hours amongst the wounded. In addition to his work at the regimental aid post he

went to the front line frequently, by day and night attending the wounded under heavy fire.

Captain Sydney Devenish Rhind, N.Z.M.C.

For three days and nights at his regimental aid post he repeatedly attended to men outside under heavy fire. He also organized parties of stretcher-bearers for their removal.

Captain William Jack Scade, R.A.M.C.

When there was a large number of wounded in the aid post and no stretcher-bearers were available, he went back a distance of over a mile through a very heavy barrage, brought back stretcher-bearers and removed all the wounded. On the following day he went up to the front line under snipers' fire and brought back several wounded men. His courage and initiative were the means of saving many lives.

Captain Samuel Llewellyn Serpell, N.Z.M.C.

He attended to the wounded at the regimental aid post under heavy fire. Although twice wounded, he went on with his work until ordered to hospital by his commanding officer.

Captain Charles Nixon Smith, R.A.M.C.

When in charge of the collection of casualties from the whole of the divisional front during active operations he worked unceasingly for seven days without adequate sleep or food, and it was largely owing to his personal influence that the exhausted bearers were able and anxious to remain at work for so long a time.

Captain Walter Leonard Smith, A.A.M.C.

While in charge of stretcher-bearers and posts he did magnificent work in attending to the wounded and organizing their removal, and by his fearlessness and determination set a splendid example to his stretcher-bearers.

Temporary Captain William Steadman, R.A.M.C.

He superintended the loading of wounded men on to the tramway, and assisted the stretcher-bearers, under heavy fire. He also repeatedly went in search of wounded, and was the means of bringing a large number to safety. Later, though gassed, he continued at duty.

Temporary Captain Frederick Naylor Stewart, R.A.M.C.

He attended to the wounded during an action with utter disregard of danger, working in the open most of the day under persistent shell fire. He was untiring in his efforts on behalf of the wounded, and showed splendid courage and determination.

Temporary Lieutenant (temporary Captain) Robert Ievers Sullivan, R.A.M.C.

He attended the wounded under heavy fire. He organized the stretcher-bearers, and for thirty-six hours searched in front of our outposts for wounded men, thereby saving many lives.

Temporary Captain Norman Charles Talbot, R.A.M.C.

On hearing that the batteries of the brigade were being heavily shelled he dashed forward and dressed and collected over twenty wounded men.

Captain Robert Fowler Walker, R.A.M.C.(S.R.).

He tended the wounded in the open after the aid post had become a target for the enemy's howitzers. He was severely wounded, but would not allow the bearers to remove him until he had given instructions to his N.C.O. and made all possible arrangements for the care and comfort of the wounded.

Temporary Captain Henry Currie Watson, R.A.M.C.

He worked continuously for three days at an advanced dressing station which was being constantly shelled. Although gassed he persisted in remaining at duty.

Temporary Lieutenant Robert Everard Whitting, R.A.M.C.

He attended to the wounded during an engagement continuously for forty hours, working most of the time in the open under heavy shell fire. His courage and devotion to duty undoubtedly saved a very large number of lives.

Temporary Captain Frederick Edward Saxby Willis, R.A.M.C.

He attended the wounded of his own and other units in advance of our front line and in forward positions which were fully exposed under heavy fire. It was largely due to his careful training and skilful arrangements that his bearers evacuated such a large proportion of the wounded of three units from the front area during the two days.

The honour of C.I.E. has been conferred upon Major (Brevet Lieut.-Colonel) Cecil M. Goodbody, D.S.O., I.M.S., Major (temporary Lieut.-Colonel) James G. Swan, I.M.S., and Major William D. H. Stevenson, I.M.S., in recognition of meritorious services in Mesopotamia under the command of the late Lieut.-General Sir Stanley Maude.

NOTES.**SHELL SPLINTERS IN THE AXILLARY ARTERY.**

PATEL, who in civil life is surgeon to the hospitals of Lyons, has recorded in *Paris médical* a case in which a fragment of shell was removed from the interior of the axillary artery. The man was struck on the right side of the thorax, a little below the nipple, and the projectile lodged in the corresponding axilla. There was slight tingling in the right arm; the right hand was weaker than the left and the pulse was smaller. An incision as for ligature of the axillary artery was made, the median nerve exposed and held back; the fragment of shell was not found in the periarterial cellular tissue but appeared to be embedded in the arterial wall. On cutting directly on to the foreign body it was found to be lying within the lumen of the vessel. It was removed. There was some haemorrhage and the artery was sutured with five stitches. Healing took place by first intention and the pulse became normal. Patel thinks the foreign body lodged first in the outer coat of the artery and was

gradually pushed into the interior by the force of the pulse beat or by pressure against the outer wall of the axilla. The process was made easy by the fact that there was a miniature aneurysm in course of development at the point of penetration and the vessel was thus weakened.

VENEREAL DISEASES IN THE FRENCH ARMY.

The problem of prostitution in armies has always been a difficultly, and has been dealt with in different ways by commanding officers. The Duke of Alva had the female camp followers in the Netherlands regularly organized. The higher grade for the officers rode on horseback in fashionable attire, while the common women for the rank and file went on foot. On the other hand, Strozzi cast 800 prostitutes into a river at one fell swoop. In a Huguenot army in the sixteenth century soldiers were compelled to marry the women. In other campaigns soldiers and prostitutes were impartially flogged, pilloried, and put in the stocks. Women were made to "run the gauntlet" between two files of men who beat them as they passed, but none of these measures was of any use. In the eighteenth century Voltaire, in *L'Homme aux quarante écus*, attributed the dissemination of syphilis among the civil population to the troops, and suggested the institution of an international crusade for the suppression of the scourge. In a volume on the sexual pathology of the soldier which has lately appeared, Dr. Fiaux estimates that late in the eighteenth century two out of every three men in the French army were syphilitic. During the French Revolution three admissions to a hospital were considered to make a man "unworthy to serve his country." The necessity of prompt cure was recognized, and barracks and camps were flooded with so-called "specialists," who vaunted their nostrums. One Boyveau-La-Hauteur had a specific which he called "206." In Berlin, when under French rule, and in Paris at the same time, an attempt was made to regulate prostitution, and any breach of the ordinances was severely punished. In 1814 it was shown that in houses under police supervision only one woman in seven was infected, whereas among clandestine prostitutes the rate was one in four. The close of the Napoleonic wars brought some change, but the percentage of infection remained very high. In the middle of the nineteenth century the average incidence was 10 per cent., but in some places it was much higher. After the Franco-Prussian war the figures were better: in 1889 the ratio of infections fell to about 5 per cent., and in 1895 to 3.75. Syphilis showed the largest reduction; in 1911 the ratio was below 2.5 per cent. Gonorrhoea was reduced by one-half between 1880 and 1911. Before the war the troops were professional soldiers, while to day there is a citizen army which sooner or later must be disbanded; it is feared in France that, unless drastic precautions are taken, the disease will be widely disseminated among the population.

Scotland.

THE CHAIR OF MATERIA MEDICA, EDINBURGH.

SIR THOMAS R. FRASER, who succeeded Sir Robert Christison as professor of materia medica in the University of Edinburgh in 1877, has tendered his resignation, to take effect at the end of the present financial year. He has been professor of clinical medicine also since 1878. Sir Thomas Fraser is physician to the King in Scotland. He graduated M.D. Edin. in 1862, and was President of the Royal College of Physicians of Edinburgh in 1900-1902.

OVERCROWDED MEDICAL CLASSES.

At a meeting of the Glasgow University Court a letter was read from Professor Noel Paton, stating that an abnormal increase in the number of students was causing great pressure on the accommodation and teaching staff of the physiological department. The class had been conducted in three sections, and the strain upon the staff was very severe. He suggested that junior students should be excluded from the class in histology, but the question of providing more accommodation and an adequate staff would have to be faced in the near future. Principal Sir Donald MacAlister, who presided, stated that in the botany class there were 337 students, and in the anatomy class 480. It was further stated that the same condition of affairs did not exist in Edinburgh, the increase in Glasgow being much larger. The Principal acknowledged the manifold way in which the reduced staff were working double and treble time. It was agreed to suggest to the senate that the practical course in histology should be suspended during the present summer session.

GEORGE GUTHRIE'S FUND.

A sum in investments amounting to £21,044 has been given by Mrs. Lucy Wortham James, of St. James,

Missouri, U.S.A., to form a "George Guthrie's Fund" in memory of Lieutenant George Watson Guthrie, R.A.M.C., who was killed in action at Beaucourt, France, on November 13th, 1916. The fund has been placed in the hands of trustees, and the income is to be used for educating and training for professional life or business the sons of Scottish officers, warrant officers, non-commissioned officers and men of the British navy and army who have served in the war, and who have either been killed in action, drowned, or died of wounds, accidents, or illness contracted in the course of active service, or who have been so disabled during such service as to be unable to give their sons such a position, education, and training as would otherwise have been possible. The trustees are to hold the fund until twenty-five years from the final cessation of hostilities. It is then to be handed over to the University Court of Edinburgh to found and endow post-graduate fellowships, to be known as "George Guthrie's Fellowships," to encourage research work in the laboratories of the University of Edinburgh in regard to the maintenance of health and the prevention of disease in children, priority being given to preventable conditions such as poliomyelitis or other diseases which may be of immediate importance.

A MINISTRY OF HEALTH.

The Council of the Royal Faculty of Physicians and Surgeons of Glasgow and a special committee of Fellows have recently considered the proposal to institute a Ministry of Health, and their report was submitted to a meeting of the Faculty on April 8th. After discussion, the following resolutions were approved:

1. That a Department of Government should be created to deal exclusively with matters pertaining to the national health.
2. That the administration of existing enactments, in so far as they deal with health, should be transferred to the proposed Department.
3. That this Department should be empowered to initiate any further legislation necessary in order to give full effect to Resolution No. 1.
4. That such Department should be presided over and be represented in Parliament by a Minister of Cabinet rank.
5. That the autonomy of the several parts of the United Kingdom should be conserved by the formation of a Board of Health for each.
6. That such Board should contain *inter alios* persons representative of both the preventive and curative aspects of medicine in all departments, and be competent to advise the Minister as to the adequacy of the public medical, nursing, and hospital services of the country.
7. That the said Board should be aided by an Advisory Committee composed in part of members of the medical profession in groups and numbers to be subsequently considered.

The Faculty unanimously held that in any proposed legislation respecting a Ministry of Health the universities and medical corporations in Scotland should be given ample time to consider such measure before it becomes a statute of the realm.

England and Wales.

INSTITUTIONAL TREATMENT OF DISCHARGED SOLDIERS.

At the meeting of the London Insurance Committee on April 25th it was stated that considerable difficulties were being experienced on account of the competing claims for sanatorium treatment of discharged soldiers and civilian males. The number of discharged soldiers now occupying beds under the Committee's arrangements for the treatment of tuberculosis if 150, and of civilian males 206, and the numbers on the waiting list are respectively 205 and 157. The sum available to the Committee this year for institutional accommodation, including a special grant estimated to amount to £10,000 for the discharged men, is approximately £50,000, which is sufficient to provide an average of 500 beds a week, of which beds 335 are for male patients. If discharged soldiers are consistently to be given preference over civilians (as the Insurance Commissioners have agreed with the Pensions Ministry), and also are to be given treatment for the period regarded as necessary by the Committee's medical adviser, the whole of the available accommodation for males will be occupied

by them, to the exclusion of civilian male patients. The special grant of £10 in respect of each discharged man is the only contribution from outside sources receivable in respect of the treatment afforded to this class, and does not more than pay for five or six weeks' treatment, whereas the average length of stay should be at least twelve weeks. The feeling was expressed that the cost of giving adequate treatment to discharged soldiers should not in the main fall upon funds contributed by or in respect of the civilian male population, to the almost total exclusion of these contributors. A letter was read from the Commissioners stating that the treatment of discharged soldiers must not be excluded from the Committee's scheme; the Committee was responsible for the arrangements in these cases as for other classes of the population who were eligible for benefit, but the Commissioners added that they hoped to be in a position to supplement existing funds by an Exchequer grant. The Committee proposes to send a deputation to the Commissioners in relation to sanatorium benefit arrangements generally.

Correspondence.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

SIR,—In your issue of April 20th Dr. E. Rowland Fothergill takes exception to the formation of a political association in connexion with the combined English universities, though at the same time he somewhat inconsistently suggests that those who think like him should support a candidate who holds views similar to his, forgetting that any association supporting parliamentary candidates is of necessity a political association. His letter is inaccurate in certain particulars, as he must be aware from our reply to a postcard from him some weeks ago. Our committee is not self-constituted, but was elected at a meeting to which were invited all the graduates resident in London whose names and addresses could be found. In addition to those who accepted the invitation, a very much larger number wrote expressing approval of the proposed association.

Dr. Fothergill suggests that we are endeavouring to secure the election of a candidate who holds our views. This, of course, is obvious, and it would also be the purpose of the association which he suggests should be formed. As there are, however, to be two members, and not one, and as these are to be elected under proportional representation, there is no question of our trying to monopolize the representation of the seven universities. He indulges in the gratuitous assumption that our candidate will not be keen on social questions. In this we think he will prove to be wrong, though we would point out to him that many of the so-called "social reforms" merely aggravate the disease which they profess to cure.

In any event, we think it a *sine qua non* that the members who represent the seven universities should be graduates of one or more of them.

While our association has certain definite political objects, it also intends to interest itself in all appropriate educational matters.

Perhaps the best justification for our action lies in the fact that already more than twice as many graduates have expressed approval as there are members of the senates of the seven universities. We mention this because these are presumably the official bodies whom he suggests should wake up. We must protest against the proposal that these official bodies should take any part in the matter, particularly as most of the members thereof will not be electors in the division, being graduates of other universities.—We are, etc.,

W. M. ABBOT ANDERSON,
Chairman.

HERBERT G. WILLIAMS,
Honorary Secretary.

Combined Universities Conservative
and Unionist Association.

130, Ashley Gardens, S.W.1,
April 27th.

THE MILITARY SERVICE ACT, 1918.

SIR,—There is no class in the community who have given their services more freely and ungrudgingly to the nation during these years of stress than the medical pro-

fession. Their reward is to be singled out for compulsory service to an age five years beyond anyone else—an invidious distinction in which Sir Watson Cheyne finds "an honour,"¹ but many of his professional brethren see rather a slight. I have yet to find the medical man here who approves it.

We have heard enough since the war began to convince us that the average general practitioner at home has been working harder than the average man with a commission, either at home or abroad. There are many men from 56 to 65, say, who are still vigorous and active; if the men below this age are largely absorbed into the army, as is suggested by the drift of the Act, these older men will be called upon to bear a very heavy additional strain.

At this stage, surely, the object of the authorities should be to take for the easier work and more regular hours of hospitals, etc., at home and base hospitals abroad, the oldest men fit for them rather than the youngest, and to leave for the severer test of endurance in depleted general practice those who are more active and have a greater reserve of energy.

If the War Office offered commissions for a limited period to those up to 60 or 65, I have no doubt they would have many applications from fit and capable practitioners; and fewer of these older men would break down than under the system which the Act foreshadows.—I am, etc.,

Edinburgh, April 23rd.

R. A. LUNDIE.

P.S.—I am pleased to see a suggestion in the same direction in yesterday's JOURNAL, from an anonymous F.R.C.S.

April 28th.

SIR,—It may be practically futile at this date to say a word more on this question, but it may not, as things have not infrequently been changed or modified during the past three years. I have just learnt that in fixing the age limit the National Service Ministry consulted the English and Welsh war emergency committee, but not the Scottish. Considering the more than generous way in which Scotland has responded to the demands for medical and man service, it surely deserved better treatment than to be ignored. I strongly protest against this action of the National Service Ministry. It would have been wiser to have refrained altogether from fixing an age limit as applied to doctors, for obvious reasons. It has for long been my conviction that the best use has not been, and is not being, made of the medical man service at home and abroad. Great things were hoped for when the Commission appointed to investigate the medical service in France issued its report. Has that report been published?

I believe that a great many more men could be spared for home and foreign service, provided it is gone about in the right way. The only and proper way is by organization.

1. In cities and large towns bureaux should be established, whereby the attendance on the public could be equally distributed among those who are left without doing harm to any one in particular.

2. In one or two men districts the position should be left undisturbed. Substitution would be bad for doctors and public.

3. In populous districts greater use should be made of registered midwives for labour cases, thereby relieving many doctors of the hardship of loss of sleep.

4. Many men over 55 who are retired or semi-retired are perfectly able to undertake part-time service at home, thus relieving younger men for foreign service who at the present time are engaged in clerical work.

5. The public should be educated to expect war-time attendance, not peace attendance.

—I am, etc.,

Edinburgh, April 30th.

MICHAEL DEWAR.

THE EXTRA MILEAGE GRANT.

SIR,—It seems to be little realized that the method of distributing this grant, agreed upon in consultation between the Insurance Commissioners and the Insurance Acts Committee, will result in a very large number of rural practitioners being ruled out of participation in the grant. For instance, in Shropshire, where every practitioner on the panel is a rural practitioner, probably 50 per cent. will receive nothing from the new grant, although every one of the doctors on the panel has incurred increased cost in travelling owing to war conditions. The following case is

¹ BRITISH MEDICAL JOURNAL, April 20th, p. 462.

one I can vouch for: A panel practice of 2,000, 1,200 of whom live more than one mile from a chemist, and up to seven and a half miles from the practitioner, who travels between 9,000 and 10,000 miles a year. This practitioner will not receive anything from the new or extra mileage grant because of the method of distribution which the Insurance Acts Committee agreed to as being equitable. As the mover of the only resolution dealing with this subject at the Conference of Panel Committees, I regret that my remarks were not more fully reported in the account published in the SUPPLEMENT of April 20th.—I am, etc.,

Newport, Salop, April 21st.

THEO. MARTIN CUTHBERT.

Obituary.

J. MICHELL CLARKE, M.D. CANTAB., F.R.C.P. LOND.,

Physician to the Bristol General Hospital and Professor of Medicine in the University.

WE announced last week the death of Dr. J. Michell Clarke of Bristol; he had been ill for some time, and died at Looe, Cornwall, where he had gone for the benefit of his health. He was the son of the late Mr. W. Michell Clarke, surgeon to the Bristol General Hospital, and was 58 years of age. He was educated at Clifton, Caius College, Cambridge, Bristol, and St. Thomas's. He was for a time junior demonstrator of anatomy at Cambridge and afterwards house-physician to St. Thomas's Hospital. He graduated M.B. Camb. in 1885 and M.D. in 1892, became M.R.C.P. in 1887 and Fellow in 1896, and was elected a member of the Council of the College in 1917. His association with the Bristol General Hospital began early, and continued to the time of his death, when he was senior physician. He took a leading part in the establishment of the University of Bristol and its medical faculty, as related below by Dr. Parker. He had been lecturer on practical physiology, and became professor of pathology in the university, and afterwards of medicine, and the esteem in which he was held by his colleagues is shown by the fact that he was holding the office of pro-Vice-Chancellor at the time of his death.

Dr. Michell Clarke had given special attention to diseases of the nervous system. His Long Fox lecture at Bristol in 1910 was on cerebro-spinal syphilis, and his Bradshaw lecture before the Royal College of Physicians in 1915 was on nervous affections of the sixth and seventh decades of life. He was the author of a work on hysteria and neurasthenia published in 1905, and contributed a number of papers to *Brain* and to our columns, including a case of removal of an intrathecal tumour of the lumbar region of the spinal cord, followed by a remarkable degree of recovery. Dr. Michell Clarke, as Dr. Parker notes, was an active member of the British Medical Association. He was for many years honorary secretary of the Bath and Bristol Branch, and was afterwards its president. He was secretary of the Section of Medicine at the annual meeting in Bristol in 1894, vice-president of the Section of Pathology in 1903, and vice-president of the Section of Medicine in 1912. He was also president in 1909 of the Bristol Medico-Chirurgical Society.

We are indebted to Dr. GEORGE PARKER, his colleague at the General Hospital, for the following tribute to his character and attainments:

The death of Dr. J. Michell Clarke in the full vigour of his powers is an irreparable loss to his numerous friends, to his colleagues, and to the medical profession. In his life I look back on one of the finest characters I have ever met. From the day when, as old Cambridge students, we met trembling on the steps of the College of Surgeons (there was no Joint Board then) to the end of his days he was always the same able, kind-hearted man, with a boundless capacity for work, and a wonderful power of self-restraint and sound judgement.

From his earliest years he had made up his mind to excel in whatever he took up, whether it was science or golf, and to this he added an unwearied industry which made his life a fountain, ever pouring out a full stream of valuable work without a moment's loss. His fellow workers hardly realized the greatness of the output, for it came so regularly and quietly and with so little display of effort through his ceaseless devotion to his duties. As a scientific man he threw himself from the beginning

of his career into the development of neurology, especially on the pathological side. His brilliant and careful work in this department has a permanent value in the great structure which has been raised during the last thirty years. To the last he took the keenest interest in the subject and found time for a steady output of papers and laboratory work of the highest order. But he had endless other duties. He had to take a large share in the changes which led to the Bristol Medical School becoming a faculty of the new university, and here, as in everything else, his clear judgement, his quiet determined energy, and his capacity for grasping a complicated problem were of enormous value.

For the British Medical Association, too, he did yeoman's work. How few consultants there are who have toiled year after year in carrying out the routine work of honorary secretary for a large Branch and the delicate and troublesome duties under an ethical committee in composing local disagreements; and again, in representing on the local Insurance Committee the needs of panel practitioners at a time when party feeling ran high; and finally, as a member of the Central and Local War Committees, in taking on the terribly responsible duty of deciding who could be spared to offer their lives and services. It is to the strain of all these duties in addition to his military functions as Lieutenant-Colonel R.A.M.C.(T.) when in charge of some 1,300 beds in the 2nd Southern General Hospital that we must ascribe the fatal breakdown.

His work at the Bristol General Hospital in Guinea Street, where his father had served before him, was marked by the same thoroughness, punctuality, and breadth of view. Both the lay committee and his colleagues constantly looked to him to grapple with difficulties and to compose differences. For thirty years he showed what excellent work could be done at a voluntary hospital, and his methodical and exact teaching was eagerly sought for by students, who cherish the deepest affection for his memory. He had a large and widely spread practice throughout the West of England, as his high character and scientific attainments were recognized on all hands.

I do not recollect his ever being drawn into an angry discussion. His uniform good temper and quiet determination always enabled him to state his side of a question with clearness and dignity, and an Aristotelian discretion and tact gave weight to his judgements. In his scanty leisure he ever found delight in the best literature, in the pages of Saint Beuve, or in some historical or philosophical writer. In his last illness he pressed upon me a review of McKenna's new work on Plotinus which had charmed him, and nothing gave him more delight than a discussion on such subjects. He bore up bravely under the loss of his second son, who was killed in action, but the strain of the war told upon his keen patriotic feelings. It is difficult to speak of the generous kindness and toil he gave to those in need around him, but it must suffice to say that few men of his time will be more regretted than our good colleague and friend.

HENRY MACNAUGHTON-JONES, M.D., M.Ch., M.A.O.,

F.R.C.S.I. AND EDIN.

DR. HENRY MACNAUGHTON-JONES died on April 26th, at High Barnet, at the age of 73. He was the son of the late William Thomas Jones, M.D., of Cork. He received his education at Queen's College, Cork, where for ten years he was demonstrator and lecturer on anatomy, and subsequently professor of midwifery. He obtained the degrees of M.D. and M.Ch. of Queen's University of Ireland in 1864, the diplomas L.R.C.P.I. and L.A.H. Dubl. in 1865, and F.R.C.S.I. in 1870; in 1886 he was awarded the M.A.O. degree of the Royal University of Ireland (*honoris causa*). After a varied experience of Poor Law dispensary work in the city of Cork, he served for eleven years as physician to the Cork Fever Hospital. During this period of his career he founded the Cork Eye, Ear, and Throat Hospital, and some years later was largely concerned with the foundation of the Women and Children's Hospital, now the Victoria Hospital. Coming to London in 1883, Dr. Macnaughton-Jones devoted himself to obstetrical and gynaecological work, in which he took for many years a prominent position. Among the offices which he held were the presidency of the British Gynaecological

Society and the presidency and vice-presidency of the Obstetrical and Gynaecological Section of the Royal Society of Medicine. He was also an honorary member of the Obstetrical Societies of Leipzig, Munich, Belgium, and Rome, and he was honorary president of the International Obstetrical and Gynaecological Congresses held at Amsterdam, Rome, Paris, and Berlin, and president of the British Section at the Congress at Petrograd. Dr. Macnaughton-Jones was a ready writer and a fluent public speaker. His work on *Diseases of Women*, in two volumes, reached its ninth edition in 1904, and the *Handbook on Diseases of the Ear and Naso-pharynx* passed through six editions. He was one of the founders and an early president of the first Branch of the British Medical Association formed in Ireland. At the annual meeting at Bath, in 1878, he was vice-president of the Section of Obstetric Medicine, and he held the same office two years later at the Cambridge meeting. He was for long one of the leading spirits of the Irish Medical Schools' and Graduates' Association, of which he was thrice president.

By the death of Dr. SEYMOUR H. MUNRO of Nantwich, at the age of 85, a fine example of the old school of country practitioners has passed away. He studied medicine at Edinburgh University, graduating M.D. in 1857, and took the L.R.C.S.E. diploma in the same year. Settling down in practice at Nantwich fifty-three years ago, his great energy and ability soon established his reputation and secured a large practice in the town and neighbourhood, whilst his kindness endeared him to his patients. Outside his profession he threw himself into every phase of public life; every movement likely to promote the welfare of the community or the good of the individual had his whole-hearted support. A lover of country life, an expert judge of horses, he was a familiar figure in the show ground and the sale yard, and his horsemanship is now a tradition amongst the people. He was for many years a justice of peace of the county, and took an active part in all magisterial duties. He leaves a widow, a daughter, and six sons, of whom two are in the profession—Dr. J. D. Munro, who succeeds him, and Dr. Ronald Munro of Northenden. The funeral service bore striking testimony to the esteem and affection in which he was held and the grief felt at his death.

THE LATE MR. GUY ELLISTON.—Mr. George C. Franklin, M.B.E., who was president of the Association when the annual meeting was held in Leicester in 1905, desires to add to the appreciations of Mr. Elliston, published last week, an expression of his recognition of the excellence of the arrangements made by Mr. Elliston for the week's work in Leicester and of his management generally. His loss, Mr. Franklin adds, will be most keenly felt by every member of the British Medical Association who knew him.

The Services.

ROYAL NAVY.

Deputy Inspector-General R. Gavin Brown, R.N., has been awarded a Greenwich Hospital pension of £150 a year in the vacancy caused by the death of Deputy Inspector-General Stephen Sweetman.

INDIAN MEDICAL SERVICE.

Temporary Rules for Accelerated Promotion.

Pending the resumption of normal conditions, the following Rules shall govern the claims of officers of the Indian Medical Service to accelerated promotion:

(i) (a) Officers under twelve years' service at outbreak of war: Those who qualified in part, and those on study leave or combined study leave, who were recalled to duty, shall receive accelerated promotion with pay and position.

(b) Officers who have completed twelve years' service and over at outbreak of war: Those who qualified in part, or who were recalled from study leave or combined study leave, shall receive accelerated promotion with advantages of position but without back pay; provided that in the opinion of the Director-General, Indian Medical Service, such officers produce satisfactory evidence of their intention to have qualified fully before the expiry of sixteen years' service.

(ii) In the case of all other officers, the period within which they are required to qualify for accelerated promotion (that is, while in the rank of captain or within four years of their promotion to the rank of major) shall be extended by a period equivalent to the duration of the

war. Officers qualifying within the latter period shall receive exactly the same concessions as if they had qualified within the prescribed time.

Badges.

The introduction of a collar badge of the following description has been approved of for wear by officers of the Indian Medical Service with the service dress jacket in place of the departmental gorget patches which have been abolished:

Description.—An eight-pointed star encircled by a laurel wreath and surmounted by a Tudor crown. On the star, the garter and motto; within the garter, the rod of Aesculapius with a serpent entwined. Below the star, a scroll inscribed "Indian Medical Service."

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

At a congregation, held on April 26th, the following medical degrees were conferred:

M.D.—H. F. Marriss.*
M.B., B.C.—R. French.
B.C.—H. W. Hales.*

* Admitted by proxy.

UNIVERSITY OF GLASGOW.

THE degree of M.D. (with commendation) was conferred, on April 23rd, upon Margaret E. Robertson.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

At an ordinary comitia on April 25th, when the President, Dr. Norman Moore, was in the chair, the following candidates were admitted as Members of the College:

Wm. John Hart, L.R.C.P.; Helen Ingleby, M.B.Lond., L.R.C.P.; George Carmichael Low, M.D.Edin.; Arthur Lisle Panch, M.B.Lond., L.R.C.P.; Walter Rupert Reynell, M.D.Oxf., L.R.C.P.; George Riddoch, M.D.Aberd.; Adam Niven Robertson, M.D.Edin.; Douglas Robert Chaplin Shephard, M.B.Lond., L.R.C.P.; Erio Wordley, M.B.Camb., L.R.C.P.

The Censors Board recommended that the licence to practise be restored to Mr. Alfred Banks. Licences to practise physio were granted to 101 candidates who had passed the required examinations, having conformed to the by-laws and regulations. The following elections to the Fellowship of the College were made on the nomination of the Council:

Walter Broadbent, M.D.Camb.; Hugh James Moore Playfair, M.D.Lond.; Sydney Walter Curl, M.D.Camb.; Frederick Lucien Golla, M.D.Oxf.; Archibald Montague Henry Gray, M.D.Lond.; Harold Benjamin Day, M.D.Lond.; Alfred Ellington Stansfeld, M.D.Camb.; William Whiteman Carlton Topley, M.B.Camb.; Charles Hubert Bond, M.D.Edin.; Percy William Bassett-Smith, C.B.

Nominated by the Council under By-law LXXI, Regulation 3, and proposed to the College for election to the Fellowship:

Sir Walter Morley Fletcher, M.D.Camb., F.R.S.; Sir George Newman, K.C.B., M.D.Edin.

The President resigned the office of member of the Committee of Management, and appointed Dr. W. Hale White to succeed him. He informed the College of the names of the Fellows nominated to serve on the committee to consider the proposed Ministry of Health.

On the motion of Dr. H. Russell Andrews, it was resolved that a committee be appointed to consider questions arising out of the "twilight sleep" method.

On recommendations of the Committee of Management the Technical Institute, Newport, already recognized for instruction in chemistry and physics, was recognized for instruction in biology; Brighton College was added to the list of schools recognized in chemistry and physics; and the following universities were added to the list of universities whose graduates in medicine are admissible to the final examination of the Examining Board in England, under the conditions of paragraph IV, section 3, of the Regulations, namely: (a) Creighton University, Omaha; (b) Georgetown University, Washington; (c) the University of Maryland and College of Physicians and Surgeons, Baltimore.

In 1915 Gorter and Ten Bokkel Huinink described a method for determining in advance if a given typhoid vaccine would prove protective for man. This consisted in finding that the vaccine would protect guinea-pigs against an intraperitoneal injection of typhoid bacilli that would be fatal to control animals, and was considered to be most satisfactory. But it assumes that what holds true for guinea-pigs can be applied to man, and Aldershoff (*Folia microbiologica*, Delft, 1917, v) has repeated the work on guinea-pigs and investigated its practical application by estimating the agglutinating and bactericidal powers of men inoculated with the vaccine. The object of his research was to find out if in man a vaccine that fulfils the guinea-pig test gives better results than one that fails completely or partially when thus tested; he concludes that the criterion set up by Gorter and Ten Bokkel Huinink cannot be relied on in practice.

Medical News.

THE next session of the General Medical Council will commence at 2 p.m. on Tuesday, May 28th.

MR. CHARLES J. HEATH, F.R.C.S., has been elected President of the Wildfowlers Association of Great Britain and Ireland.

THE annual general meeting of the London and Counties Medical Protection Society will be held at 32, Craven Street, Strand, W.C., on May 15th, at 4 p.m.

MR. CHARLES W. DEAN, F.R.C.S. Edin., surgeon to the Lancaster Royal Infirmary, has been appointed deputy coroner for Lancashire (Lancaster Division).

DR. W. HANDFIELD HASLETT, J.P., C.C., chairman of the South Middlesex Division of the British Medical Association, has been unanimously elected, for the fifth year in succession, chairman of the Sunbury-on-Thames Urban District Council.

SIR A. GRIFFITH-BOSCAWEN has stated that the Insurance Commissioners accept responsibility for cases of tuberculosis in an early stage, but not for those that are far advanced. The Pensions Ministry is making arrangements for the use of annexes to sanatoriums belonging to the Metropolitan Asylums Board in London.

THE Lord Roberts Memorial Fund (122, Brompton Road, S.W.) is giving permanent employment to nearly 1,200 disabled men at its workshops in London and the provinces. A special appeal is to be made in London in the week beginning May 20th for contributions to an extension fund.

THE "Earlsmead" Home of Recovery, Hornsey, providing 35 beds for the use of the Great Northern Central Hospital, was opened on April 30th by Lady Crossfield in the presence of the Mayor of Hornsey, Mr. H. J. Tennant, M.P., deputy chairman of the hospital, and others interested in its welfare, including the donor, Mr. Harrop.

THE Osiris prize of the value of £4,000 was founded for the recognition of the most important discovery or work in science, letters, arts, industries, or generally anything for the public benefit. The prize has been held in abeyance since the beginning of the war, but the Institute of France has decided to make an award this year.

THE report presented to the annual meeting of the Invalid Children's Aid Association stated that during last year 9,185 invalid children had been assisted, of whom 423 had been sent away to convalescence; 584 surgical appliances had been supplied and 211 children apprenticed and trained. Of the £30,707 raised, £7,526 had been collected from parents. Owing to the difficulty of obtaining accommodation at hospitals four new convalescent homes had been opened.

THE committee appointed last October, with Sir George Makins as chairman, to report on the organization and equipment of hospitals for British troops in India, has concluded its labours, but its report has not yet been published. We note, however, that in the Indian Budget for 1918-19 a vote of £200,000 is taken for the introduction of the station hospital system for India and improvements of hospitals.

IN consequence of the passing of the Military Service No. 2 Act, 1918, the Local Government Board and the Secretary for Scotland have issued new regulations which came into operation on May 2nd, 1918. Provisions have been inserted excepting disabled men who have been discharged, and who by reason of the Review of Exceptions Act (now repealed) or of pledges given by the Minister of National Service were not to be called up for service. The members of local tribunals in England and Wales are in future to be appointed by the Local Government Board, and the new regulations provide that the existing tribunals and their members shall be deemed to have been appointed by the Local Government Board. Considerable changes of details are made by the new regulations, the principal object being to accelerate the decisions of cases. The grounds on which exemption may be claimed remain as at present, but the need for men being greater than ever the standard must be stricter. Exemptions must not in future be granted for more than six months, except where the National Service representative otherwise agrees, or in the cases of certificates on the ground of ill health or infirmity or of conscientious objection. Special regulations will be issued relating to applications concerning qualified medical practitioners, and the regulations now issued do not apply to any such applications. It is not necessary for any qualified medical practitioner who wishes to claim exemption to take any action until the special regulations are issued.

Letters, Notes, and Answers.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Attilology, Westrand, London*; telephone, 2631, Gerrard.
 2. FINANCIAL, SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

C. T. S. wishes to hear of a substitute for glycerin for enemata.

HAY FEVER.

A CORRESPONDENT asks for advice as to some suitable substance with which to spray the nose in severe hay fever. Reference to Sir St. Clair Thomson's recent book on *Diseases of the Nose and Throat* shows that quinine in a spray (gr. j to 3j) or ointment (gr. xxx to 3j of vaseline) has been well reported on, and its employment is so easy that it is worth trying. Dr. Watson-Williams recommends that at the beginning of the hay fever season the nasal passages should receive one spraying with a solution of mercury biniodide (2 to 5 per cent.), the application being preceded by cocaine and followed by a hypodermic injection of morphine. Sir Andrew Clark recommended painting the nasal mucosa with the following: Glycerin of carbolic acid 3j, quinine hydrochloride 3j, mercury perchloride gr. 4. Its use, which should be preceded by the application of cocaine, is often followed by considerable reaction. If necessary it may be repeated on the second to the fourth day, but not more than three applications are required. If any readers can make better suggestions we should be very glad to receive them.

LETTERS, NOTES, ETC.

THE VALUE OF THE WASSERMANN TEST.

DR. A. S. LEYTON (Oxford) writes: A most remarkable factor in the discussion about the value of the so-called "Wassermann test" (it is a bad habit into which we have fallen to label these biological reactions with the names of the alleged inventors, often regardless of historical accuracy) is the unanimity with which the question has been begged, that because the complement deviation test is positive, therefore the case is one of syphilis. A more flagrant example of begging the question has rarely happened in scientific literature. We know much too little about the factors involved in the reaction to make such an assertion, and the result obtained by a positive reaction is in many cases quite as contradictory, from a clinical aspect, as it is in the case of a negative reaction. Personally, I do not regard the complement deviation test as any more pathognomonic than the agglutination test, and I think we should be as slow in diagnosing syphilis on account of a positive complement deviation test as we should in diagnosing typhoid on the result of a positive agglutination test.

DR. H. MILLER GALT, Pathologist, Stephen Rall Memorial Laboratory, Royal Sussex County Hospital, Brighton, makes the following observations in the course of a letter on this subject: Perhaps the commonest error into which the practitioner falls when presented with the results of Wassermann tests is to assume that the results admit of no other interpretation than the words "positive" and "negative" imply. A negative Wassermann reaction does not necessarily prove syphilis absent any more than a positive result proves in all cases its presence. The positive or negative result is simply a link in the chain of evidence; and while its value is usually great, it may actually be misleading in a small proportion of cases. No pathologist claims 100 per cent. of results which are in accordance with the clinical evidence, but the 95 per cent. or so of such results form a most valuable help to diagnosis. The medical officer in charge of the venereal diseases clinic at this hospital informs me that he has never failed to obtain a positive Wassermann reaction where the case was clinically one of syphilitic sore. After discussing possible fallacies in the cases reported by Dr. J. S. Robertson, April 13th (p. 427), Dr. Galt concludes as follows: Certainly a negative Wassermann reaction in a patient as the result of treatment is of slight value as a sign of cure. How many such negative results should be obtained, and over what period, are points still undecided.

DR. JAMES S. ROBERTSON writes with reference to the case mentioned by him in his note on April 13th (p. 427), of the pregnant woman who complained of a small, painless, persistent, slowly-growing vulval "spot," that the pathologist consulted was attached to a large London general hospital; it

was he who, without visual examination, tried to assure her that the test would give the correct answer. I was only asked by a colleague to give the injection, and when I visited her she was in the secondary stage. The question of my ability need not necessarily have arisen, for all the cases had been previously diagnosed, except one, which others had missed. Had the diagnosis not been definite, I do not think I should have wished for a Wassermann test, for even Professor Beattie is not prepared to say that the test is infallible. He says it aids. It aids also to make an indefinite diagnosis more indefinite by its indefiniteness.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions to the Fund were received during the fortnight ending April 29th:

	£	s.	d.		£	s.	d.
Dr. T. G. Nasmyth	5	0	0	Dr. J. C. Eye	2	2	0
Dr. R. MacLelland	2	2	0	Professor J. M. Cleland	3	3	0
Dr. W. M. Cummins	1	1	0	Dr. J. Rowland Payne	0	10	6
Dr. Dora E. Allman	1	1	0	Dr. H. M. Sylvester	1	1	0
Dr. Wm. F. McKenna	1	1	0	Dr. Marion Stocks	1	1	0
Staff-Surgeon D. D. Turner, R.N.	2	2	0	Dr. E. M. Watkins	1	1	0
Dr. F. S. Rhodes	1	1	0	Dr. A. Courtauld	2	2	0
Dr. Charles J. Evers	2	2	0	Dr. George Peroet	1	1	0
A. L. C. H. W.	5	0	0	Dr. G. Fred Rogers	5	0	0
Dr. J. H. W. Laing	1	1	0	Dr. R. W. A. Bolan	2	2	0
Mr. Arthur Crook	2	2	0	Dr. J. Ferguson Weir	0	10	6
Dr. George Rice	1	1	0	Dr. Howard S. Willson	1	1	0
Dr. H. E. Huntly	1	1	0	Dr. Henry Halliday	2	2	0
Dr. Ina L. McNeill	2	2	0	Dr. A. Pottinger Eldred	1	1	0
Mr. Francis Lett	1	0	0	Dr. J. R. Bell	5	5	0
Dr. Albert E. Nicholls	3	3	0	Dr. H. E. Quick	2	2	0
Dr. Philip Cloake	0	10	6	Dr. Charles D. Muspratt	1	1	0
Dr. Josephine Coupland	0	10	6	Dr. John Playfair	2	2	0
Dr. W. M. D. Gallie	1	1	0	Dr. J. H. Jacob (for 12 months)	6	0	0
Dr. Leonard Grant	1	1	0	Dr. Alex. Hendry	1	0	0
Dr. E. P. Ha-luck	1	1	0	Dr. J. N. McGill	0	10	0
Dr. Wilfrid Glegg	1	1	0	Dr. J. P. Fennell	1	1	0
Dr. J. Garrett	0	10	6	Dr. Bryan Densham	10	10	0
Dr. E. H. Sweet	2	2	0	Dr. Gertrude Macfadyen	1	1	0
Dr. T. B. Haig	1	1	0	Dr. G. M. Macnamara	1	1	0
Dr. G. Vernon Bull	1	10	0	Dr. A. W. Tuxford	1	1	0
Dr. Mary E. Jeremy	0	10	0	Dr. Victor Miller	2	2	0
Dr. J. W. Hayward	0	10	0	Dr. Amy Robinson	2	2	0
Dr. J. W. Killen	1	1	0	Dr. W. B. Secretan	1	1	0
Dr. S. Williams	1	1	0	Dr. M. R. Gooding	2	2	0
Dr. Dudley D'A. Wright	5	0	0	Dr. J. Sephton Cooper	1	1	0
Dr. J. Spencer Hall	1	1	0	Dr. Olive B. Falk	1	1	0
Captain F. W. Joynes, R.A.M.C.	1	1	0	Dr. Wm. Henry White	5	5	0
Dr. Arnold Scott	10	0	0	Dr. A. O. Wilson	1	0	0
Dr. Fosbery	1	0	0	Dr. H. G. Lys	1	1	0
Mr. Miles A. Wood	0	10	6	Dr. and Mrs. Maitland Ramsay	5	5	0
Anonymous	6	0	0	Dr. H. Richardson	1	1	0
Dr. J. Alfred Codd	2	2	0	Dr. Fred J. Burman	1	1	0
Dr. Eric Evans	2	0	0	Dr. James H. Stowers	2	2	0
Dr. E. L. Compston	1	0	0	Dr. Margaret G. Thackrah	0	10	0
Dr. Richard T. Smith	1	1	0	Dr. J. O. Worthington	2	2	0
Dr. William Blair	1	0	0	Dr. Henry Malet	1	1	0
Dr. Helen Boyle	1	1	0	Dr. Maria Sharp	2	0	0
Dr. Arthur de W. Snowden	5	0	0	Dr. W. M. Palmer	1	1	0
Dr. Donald Macphail	1	1	0	Dr. Horace Swarder	2	2	0
Mrs. M. Scatchard	1	1	0	Sir Arthur Newsholme	5	5	0
Dr. G. H. Johnson	2	2	0	Dr. Marianne Selkirk	2	2	0
Dr. James H. Harrison	1	1	0	Dr. Llewelyn Powell	10	10	0
Mr. Bennett May	1	1	0	Dr. John Watson	1	1	0
Dr. Weldon C. Carter	0	10	6	Dr. R. Murdoch Mathe-son	2	2	0
Major J. Orton, R.A.M.C.	1	1	0	Captain W. L. Pethy-bridge	2	2	0
Dr. Robert Todd	1	1	0	Dr. J. M. Randle	1	1	0
Dr. Robert Jamieson	2	2	0	Dr. Margaret L. A. Boileau	5	0	0
Dr. Colin Lindsey	2	2	0	Sir Rudolph and Lady Hampden-Smith	2	2	0
Mr. S. T. Irwin	2	2	0	Dr. B. R. Johnston	1	0	0
Miss Phyllis Marriott	1	1	0	Dr. W. Fraser Annand	2	2	0
Dr. Charles H. Greenwood	1	1	0	Dr. J. R. Ross	0	10	0
Dr. A. W. German	2	2	0	Dr. J. G. Macaskie	1	1	0
Dr. Ernest Lewis Ward	1	1	0	Surgeon E. Lloyd, R.N.	2	2	0
Dr. G. J. Dudley	1	1	0	Dr. James B. Kelso	0	10	0
Dr. G. H. Cattle	1	0	0	Mr. John D. Malcolm	1	1	0
Dr. E. B. Sherlock	2	2	0	Dr. T. L. Kennish	2	2	0
Dr. R. W. Gentles	1	1	0	Colonel W. T. Mould	2	2	0
Dr. B. B. Wild	5	5	0	Dr. Winifred S. Patch	3	0	0
Dr. Rosa Dale	1	1	0	Dr. G. A. Menzies	2	2	0
Dr. Mackenzie	1	1	0	Sir J. Kingston Fowler	2	2	0
Dr. W. S. Hart (monthly)	3	0	0	Dr. and Mrs. Wm. Howie	1	0	0
Dr. R. Percy Jones	3	3	0	Dr. J. F. Wolfe	3	3	0
Dr. A. H. Nicoll	1	1	0				
Miss Euphan M. Maxwell, F.R.C.S.I.	1	1	0				
Dr. W. K. Law	2	0	0				
Dr. A. F. G. Spiuks	0	10	6				
Dr. W. H. Lamb	2	2	0				

Monthly Subscriptions (except where otherwise stated).

	£	s.	d.		£	s.	d.
Dr. T. L. Drapes	0	10	0	Lient. J. B. C. Brockwell, R.A.M.C. (per m. for 6m.)	0	10	0
Dr. J. O. Musson	0	10	0	Dr. J. H. Jacob (for 12m.)	6	0	0
Dr. W. Stewart	0	10	0	Dr. A. W. Forrest	1	0	0
Dr. G. Grey Turner	1	1	0	Dr. Luffman	0	10	0
Dr. W. S. Hart	1	0	0	Dr. Andrew Graham	1	1	0
Dr. Vincent Tighe	0	10	0				
Dr. Arthur Hawkyard	0	10	0				

* For duration of war or until called up.

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vaux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

MEDICAL STUDENTS AND MILITARY SERVICE.

PERPLEXED writes: I am afraid, when the fact becomes generally known, as it undoubtedly will be, that the passing of the first medical examination releases a man from army service, that the entrance to our profession may become a shelter for slackers. The following case, however, I think deserves passing notice: Graded A.1, and called up at the age of 19, having just passed his first medical examination. Joining an O.T.C., he in due course obtained a commission. After receiving £50 kit allowance from a generous Government, and having completed twelve months' pleasant training in England, now, when the call for men is urgent and the age limit is being raised, he is released at the age of 20 in order to resume—should I say commence?—his medical studies, still holding his commission as second lieutenant and wearing khaki.

** The matter appears to be governed by National Service Instruction No. 35 of 1918, dated March 5th, 1918, and entitled "Protection from Military Service of Medical Students." It provides *inter alia* that a medical student who at the date of the instruction was a full-time student of a recognized medical school and had passed his first professional examination in chemistry, physics, and biology (or botany and zoology) for his degree or licence, is not, subject to provisions in later paragraphs, to be called up, whatever his medical category or grade, so long as he remains a full-time medical student. One of these provisions is that he must pass his professional examination in anatomy and physiology within thirty-six months of the date of commencing his professional studies; another, that if he is delaying his qualification unnecessarily or otherwise not satisfactorily pursuing his medical studies, the case is to be referred to the Director of National Service for the region. A third proviso is that the student must, if requested, offer his services as a surgeon probationer in the navy. It is probable that in a case such as that quoted by our correspondent this call will come within eighteen months.

CO-OPERATION I

PUBLIC VACCINATOR writes: There is, I understand, a shortage of army doctors, and the co-operation of civilian doctors is requested. In January of this year, being public vaccinator, I vaccinated a prospective cadet with Government lymph in four places, all of which took, and presumably the marks remain. I then inoculated him with 1,000 and 2,000 million typhoid vaccine, keeping him in bed on one day on each occasion. He has joined up and is told "that the vaccination and inoculation of civilian doctors cannot be recognized, and he must be done again"!

LESIONS OF PERIPHERAL NERVES: ERRATUM.

In the report of a paper read by Captain C. B. Alexander before the recent Neurological Congress at Alder Hey Hospital, which appeared in the JOURNAL of March 30th, two decimal points were omitted. In the table showing the relative frequency with which various peripheral nerves were involved (p. 381): Radial 25 per cent., and posterior interosseous 25 per cent. should both be 2.5 per cent.

LECTURES AND DISCUSSIONS.

The course of public lectures on biological problems of to-day will be resumed at University College on Monday next at 5 p.m., when Major Martin Flack, R.A.M.C., will speak on the physiological aspects of flying. On the following Monday Dr. H. H. Vernon, of Oxford, will speak on industrial efficiency and fatigue. The fifth course of lectures on public health problems under war and after war conditions was resumed last Wednesday at the Royal Institute of Public Health (37, Russell Street, W.C.) by Sir James Cantlie, who spoke on ambulance work. Professor Bayliss will deal with accessory components of food on Wednesday, May 15th, at 4 p.m. At a meeting of the Royal Sanitary Institute, at Hereford, on May 10th, at 5 p.m., Dr. D. Gold, M.O.H. Herefordshire, will open a discussion on tuberculosis.

The following appointment of certifying factory surgeon is vacant: Tunstall (Stafford).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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THE PROPHYLACTIC USE OF QUININE IN MALARIA:

WITH SPECIAL REFERENCE TO EXPERIENCES
IN MACEDONIA.

BY

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BETWEEN the beginning of February and the end of April, 1917, I examined the various units of a certain division in Macedonia with a view to determining the proportion of men on duty who were infected with malaria. Smears from 540 men were stained and searched for parasites, and the results are summarized in Table I. Plasmodia were found in over 30 per cent. of the men who had been in Macedonia during the previous summer, while the altered differential leucocyte count suggested that over 60 per cent. of such men were in reality infected. Had it been possible to reckon the absentees in the Malta and Salonica hospitals, the total percentage of infected men would of course have been much greater. Parasites were found in nearly 8 per cent. of men with no history of fever; if we regard the increased hyaline count as evidence of infection, their number increases to over 37 per cent.

As no evidence of infection was found in recent drafts, it may be assumed that the great majority, if not all the men in whom parasites were present, had been infected during 1916 or earlier.

Technicalities.—The average time spent over each slide was about ten minutes, and no man's blood was examined more than once. Gametes were found in over 90 per cent. of the positive slides, and schizonts were also present in a large proportion. *P. vivax* was the common parasite found; *P. falciparum* was noticed on seven occasions, *P. vivax* being also present in four out of the seven; *P. malariae* was only diagnosed once. To simplify matters, *P. falciparum* and *P. malariae* have been reckoned in the table as *P. vivax*.

TABLE I.

Groups I to III are comprised of men who were in Macedonia during the summer of 1916; Group IV of drafts reaching Macedonia between September 1st and December 31st, 1916; and Group V of drafts reaching Macedonia in 1917. Members of the last two groups had never before been out of Britain.

Group.	Total Examined.	<i>P. vivax</i> Present.	Hyaline Leucocytes.*	
				Increasing presumably infected to
I. Fever within 3 months of examination	300	120=40%	89	69.6%
II. Fever during summer, but none within 3 months of examination	93	16=17.2%	33	52.6%
III. No history of fever ...	63	5=7.9%	20	39.6%
IV. No history of fever ...	40	3=7.5%	11	35.0%
V. No history of fever ...	44	—		

*15 per cent. or over in men in whom no parasites were found.

The Results of Quinine Prophylaxis.

By quinine prophylaxis is meant the regular administration of quinine with a view to preventing the development or recrudescence of clinical malaria.

Method of Administration.—The salt employed was the sulphate, shown by analysis to be pure; the daily dose (gr. v-xxx) was given either in acid solution or in tablets.

The men in Groups I, II, and III of Table I had been taking quinine during the greater part of 1916, and I was assured by the regimental medical officers that many were taking it at the time I made the blood films. The kind of evidence available is illustrated by a group of twelve men belonging to the same brigade, the majority to a regiment whose medical officer had had considerable experience of malaria in the East, and who was positive that the prescribed dose was being taken; all the men had been taking daily doses of quinine varying from 30 to 10 grains. The length of time since the last relapse varied from eight days to three months. There was tinnitus and deafness in

three cases (one taking 30 and two taking 10 grains daily), and deafness in three cases (one taking 30 and two 10 grains daily). In all the 12 cases *vivax* schizonts and gametes were present in the peripheral circulation.

Owing to the varying amounts of quinine ordered by the medical officers attached to the different regiments it was possible to place 125 out of the 150 men examined during February into one or other of the following groups (Table II). Whether the quinine was given in small or large doses or not at all, seemed to make little difference either to the number of relapses or to the proportion of cases in which parasites were found; many of these men were constantly relapsing.

TABLE II.

Groups.	No. of Cases Examined.	No. of Men in Whom Parasites were Found.
I. No quinine between attacks ...	26	16 = 61.5 %
II. 30 gr. daily ...	21	11 = 50.2 %
III. 20 gr. daily ...	9	6 = 66.6 %
IV. 15 gr. daily ...	6	4 = 66.6 %
V. 10 gr. daily ...	48	22 = 45.8 %
VI. 15 to 30 gr. biweekly ...	11	3 = 27.2 %
VII. 6 gr. daily and 12 gr. biweekly ...	4	3 = 75.0 %

The evidence so far considered indicates (1) that, despite infection, a fair proportion of men examined had, temporarily at any rate, resisted illness or got the upper hand of the disease. (2) That a great deal of sickness due to malaria nevertheless existed in the division, much of it being little influenced by the administration of quinine.

The figures available from French sources show an even higher degree of infection. For example, Garin¹ claims that plasmodia (usually gametes) can be found in the blood of from 60 to 80 per cent. of troops returning from Macedonia without a history of malaria, while Abrami² states that from 85 to 95 per cent. of the French Macedonian army was attacked by malaria in spite of early and general preventive quinization! An early and correct solution of the following problems is therefore urgently needed:

I. Is any appreciable proportion of the Macedonian force saved illness through the administration of prophylactic quinine? If so, what proportion?

II. Is the general course of the disease ever affected by the previous administration of prophylactic quinine? If so, is the sum of such influences favourable or the reverse?

To answer these questions demands an exact knowledge of the conditions upon which the usefulness of the drug, both as a prophylactic and as a curative agent, depends. Unfortunately these conditions have never been thoroughly investigated on scientific lines, and large gaps in our knowledge exist. In spite of these drawbacks I have been tempted to analyse and draw conclusions from the data available in the literature of the subject.

I.—WHAT PROPORTION OF THE MACEDONIAN FORCE IS SAVED ILLNESS THROUGH THE PROPHYLACTIC ADMINISTRATION OF QUININE?

A. General Considerations and Analysis of Statistical Evidence.

Altogether I had access to some two hundred original articles, reports of medical societies, etc., in which the question of quinine prophylaxis was either dealt with or discussed. Nearly all of them were written in English, French, or German, and all—with one exception—were published between the discovery of the malaria parasite in 1880 and the present time. Of the authors 52.2 per cent. gave no details of their personal experience, while only 16.9 per cent. made use of controls. Table III gives an idea of the opinions expressed by these different writers, no less than 80 per cent. of whom were in favour of quinine prophylaxis.

TABLE III.—Views of Writers on Quinine Prophylaxis.

	In Favour of Quinine.	In Favour of Quinine with Reservations.	Against.	Total.
No statistics	65	21	20	106
cs but no controls	43	6	12	61
cs with controls...	26	0	8	34
Total	134	27	40	201

The majority of these papers were, however, devoid of interest. No doubt a large number of writers were unfavourably influenced by the difficulties in the way of controlling their results, and realized the impossibility of appreciably increasing our knowledge in the absence of such controls; be this as it may, the difficulties in the way of experimental research have unfortunately brought extremists to the fore, and such statements as the following are scattered throughout the literature:

The whole trend of recent inquiry and the results of clinical experiment have been to show that at the present day, more than ever before, the scientific administration of quinine is established as a measure of very great value and that it is indispensable in the general prevention of the disease.*

Quinine has its position in relief and cure, but in sanitary administration it has none.⁴

Knowing as we do that resistance to malarial disease is considerably greater in the inhabitants of malarial countries than it is in immigrants from non-malarial ones, it would seem natural to suppose that, other things being equal, the benefit derived from the use of prophylactic quinine varies directly as the resistance of the individual taking it—in other words, the greater the resistance the better the statistics. The truth of this supposition can only be tested in the present state of our knowledge by analysing the statistical evidence from different countries, taking care to distinguish between the natives of such countries and immigrants.* This has been accordingly done in Tables IV to VII.

TABLE IV.—Countries bordering on Mediterranean Basin.

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	16 ...	18
In favour of quinine with reservations	0 ...	0
Against	1 ...	0
Total	17 ...	18

All thirty-four papers in favour of quinine prophylaxis deal with the question in so far as it affects the permanent inhabitants of the respective countries; the single paper against deals with temporary inhabitants—namely, the French army in Macedonia.

TABLE V.—Africa excluding the Mediterranean Area.

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	13 ...	2
In favour of quinine with reservations	1 ...	0
Against	3 ...	2
Total	17 ...	4

One of the four papers in which controls were used deals with natives and is in favour of quinine prophylaxis; the remaining three deal with immigrant whites, one paper being in favour and two against.

TABLE VI.—Southern Asia.

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	14 ...	5
In favour of quinine with reservations	1 ...	0
Against	6 ...	4
Total	21 ...	9

Three out of the nine papers in which controls were used deal with natives, and are in favour of quinine prophylaxis. The remaining six deal either with immigrants or with partly immigrant populations, such as coolies on rubber plantations; two were in favour of quinine prophylaxis, four against.

* The full bibliography of the authors whose views are summarized in Tables IV to VII will be published in the *Journal of the Royal Army Medical Corps* for June.

TABLE VII.—North and South America, including West Indies.

	Statistics but no Controls.	Statistics with Controls.
In favour of quinine	3 ...	1
In favour of quinine with reservations	3 ...	0
Against	1 ...	2
Total	7 ...	3

One out of the three papers in which controls were used deals with natives, and is in favour of quinine prophylaxis; the other two deal with immigrants, and are against.

A study of these tables reveals the existence of a state of affairs very different from what might have been anticipated from merely glancing over the opinions of the various writers summarized in Table III, especially when we remember that controlled results are the only results of any scientific value. When controls were used and natives of the respective countries investigated, no less than twenty-three, or 100 per cent. of workers, were in favour of prophylactic quinine. When controls were used and immigrants dealt with, only three out of eleven, or 27.2 per cent., were in its favour. The evidence available would therefore seem to justify the enunciation of the following conclusion: "Other things being equal, the natives of malarial districts derive more benefit from quinine prophylaxis than immigrants from non-malarial ones."

Value of Prophylactic Quinine to the Natives of Malarial Countries in the Mediterranean Area.

We have seen that all the available statistical evidence is in favour of administering prophylactic quinine to the inhabitants of Mediterranean districts in which malaria is endemic. What does this really amount to? Celli, one of the best known of the Italian workers, thus expresses himself:

The daily use of quinine is as necessary as daily bread during certain months.⁵

He who takes quinine every day, and therefore has always a supply of quinine in the blood stream, can undergo with impunity inoculations of blood full of malarial parasites, and can expose himself with little or no danger to the bites of infected mosquitoes.⁶

Yet at a later date the following analysis of very extensive clinical material was published by the same author.⁷

TABLE VIII.—Quinine and Mosquito Prophylaxis (Celli).

Mosquito prophylaxis plus quinine prophylaxis	Symptoms in 1.75 % = 1 in 57.
Mosquito prophylaxis only...	Symptoms in 2.5 % = 1 in 40.
Quinine prophylaxis only ...	Symptoms in 20 % = 1 in 5.
No protection	Symptoms in 33 % = 1 in 3.

Clearly the quinine given produced some effect, but compared with the results obtained by mosquito prophylaxis, its action was almost negligible.

The brothers Sergent, who have investigated the subject for many years in Algeria, seem less enthusiastic than they used to be. The last paper I have seen gives details of the quinine given to native children in 1910.⁸ One of their tables is reproduced, and the authors content themselves with the observation that all methods give appreciable results.

TABLE IX.—Quinine Prophylaxis with Controls (Ed. and E. Sergent).

Dose of Quinine.	Improvement.	No Change.	Worse.
0.2 gram daily	19 = 5.5 %	315 = 83.5 %	7 = 2.02 %
0.6 gram every 3 days ...	19 = 4.2 %	425 = 94.6 %	4 = 0.9 %
0.6 gram every 6 days ...	35 = 9.7 %	300 = 80.4 %	16 = 4.8 %
Controls (no quinine) ...	6 = 0.8 %	220 = 90.5 %	21 = 8.7 %

These Italian and North African results are not very impressive, especially when it be remembered that we are dealing with the only type of case in which a consideration of the general statistical evidence led us to suppose that really striking benefit would be uniformly attained—namely, natives who have presumably inherited and acquired a certain amount of immunity against the parasites of their own country.

B. Methods of Giving Prophylactic Quinine.

The two methods usually employed are: (1) A small daily dose (5 grains, for example); (2) a larger quantity (usually 15 grains, taken on two consecutive days at intervals of from a week to ten days).

The advocates of the first method claim that quinine taken in this way is always circulating in the blood, and object to the other because it leaves the individual defenceless for several days owing to the rapid excretion of the quinine absorbed. The partisans of the second method maintain that by giving quinine in this manner the curative effect of the drug is not interfered with, but that the use of the first method may lead to the production of quinine-proof strains of parasites. I have searched the literature, but can find no evidence of one method having any appreciable advantage over the other.

In Italy, Greece, and North Africa, 3 to 6 grains daily is the ordinary dose, and larger quantities are not usually supposed to give any better results. It is seen from Table II that, on the whole, the smallest percentage of cases was diagnosed in those who were taking least quinine. The possible significance of these facts will be considered later.

C. "Suggestion" in Quinine Prophylaxis.

In quinine prophylaxis, as in all forms of medical treatment, the personality of the physician is not without influence, while the extent of his confidence in the treatment proposed can usually be gauged by the patient with considerable accuracy.

Laveran,⁹ in his book on malaria, published in 1898, comments on the fact that the English, who previously wrote so much in favour of prophylactic quinine, seem to have got tired of it. The psychological aspect of malaria prophylaxis has received considerable attention from American writers, several of whom regard the co-operation of the public as essential, and agree that no means of stimulating its curiosity and of keeping its sympathy should be neglected.^{10, 11} In Macedonia the French authorities advertise the merits of quinine by means of humorous coloured posters and picture post cards, which must go far towards reconciling the *poilu* to his daily dose. In Algeria the brothers Sergent have initiated the use of pink tablets containing three parts of sugar and two of quinine bilydrochloride, and state that these are everywhere accepted by the natives with the greatest alacrity, in marked contrast to their attitude towards the classical method. The striking possibilities of suggestion are vividly brought home by the following incident, related in all seriousness by Henrot.¹²

Dr. Nonat, head of the military hospital, Calcutta, was consulted by the Governor of Bengal as to the best way of protecting messengers against malaria. So many died from pernicious malaria as a result of the unhealthy country they had to cross that messengers had become unobtainable. Dr. Nonat, acting on a theory prevalent at the time—that infection took place via the respiratory tract—constructed respirators containing finely divided animal charcoal, and made the messengers wear them; the effect was excellent, for the messengers, although taking exactly the same route as their predecessors, ceased being ill.

D. Conclusions as to the Effect of Quinine in Preventing Clinical Malaria in Macedonia.

1. *Primary Malaria.*—From Table I it is seen that some of the men exposed to the risk of infection escaped, evidently because: (a) They had never been bitten by infected mosquitoes; or (b) if infected, their powers of resistance were equal to the occasion, and no clinical symptoms ensued. If it be asked to what extent the natural resistance of these latter had been reinforced by taking quinine, the answer is that although the drug must have been the decisive factor in a few cases, the evidence points to their number having been very limited. No matter what disease we take, a proportion of any population is always more or less refractory. Moreover, malaria may be a very chronic condition, and the presence of parasites in the blood of people who have never developed symptoms and who have never taken quinine is well known. As Bass¹³ says: "No doubt many people get infected without ever knowing anything about it; others infected under similar conditions may be ill, and in some cases die." Further, the absence of symptoms in such apyrexial carriers is no guarantee of permanent immunity; in many cases all that is needed to produce an attack is such slight lowering

of vitality as is produced, for example, by a chill, a surgical operation, or a broken bone.

2. *Recurrent Malaria.*—I have come across no evidence which leads me to suppose that quinine is any more efficient in preventing relapse than it is in aborting the initial attack (see Table II).

II.—IS THE GENERAL COURSE OF THE DISEASE EVER AFFECTED BY PREVIOUS QUININE PROPHYLAXIS?

A. The Clinical Evidence and Its Significance.

The following examples are taken from the literature of the subject:

1. Celli states that both doctors and patients are unanimous that daily prophylactic quinine very frequently aborts primary infections, notably diminishes relapses, and prevents cachexia.¹⁴

2. So far back as the American civil war the responsible medical authorities¹⁵ state that men were saved from attack and preserved in perfect health for the time being by the use of prophylactic quinine, but that the method was abandoned owing to the shortage of quinine and to the eventual sickness of such men.

3. Neiva (Brazil), who was in charge of 3,000 men in a highly malarial district, found that to obtain the same therapeutic effect the dose of quinine had to be increased in proportion to the length of exposure to infection.¹⁶

4. Bell (Panama) states that men who were receiving the drug, in comparison with those who were not, under otherwise identical conditions, furnished fewer cases in the proportion of three to four; that such men were, however, more refractory to treatment, had a more prolonged convalescence, and relapsed more frequently.¹⁷

5. Stitt¹⁸ is of the opinion that quinine in reasonable doses has little or no effect, while those who take it are less amenable to its curative action, and relapse more frequently than those who only take the drug at the time of an attack; he also maintains that quinine prophylaxis does not prevent either anaemia or splenic enlargement, while Jacobson¹⁹ goes so far as to say that although symptoms may be masked for a time, the actual damage is as great as though no quinine had been given.

6. We have seen that in Macedonia quinine alone is quite unable to prevent malaria, while very large doses have to be given in many cases to obtain clinical amelioration. Only a few weeks ago, at a meeting of the Society of Tropical Medicine and Hygiene, a paper was read by Sir Ronald Ross in which details were given of various intensive forms of quinine treatment in chronic cases of malaria invalided from Macedonia. No matter how high the dose or what route was chosen for its administration, frequent relapses still occurred.

After studying this and similar evidence, we are bound to admit that the general course of the disease may be adversely influenced by the previous taking of quinine.

Why does Quinine give Variable Clinical Results?

In ordinary circumstances the key to the problem undoubtedly lies in the constitution of the patient and in his state of health both at the time of infection and subsequently. Under good social conditions intermittent malaria tends to cure itself both temporarily and permanently, and whether quinine be given or not the temperature returns to normal in a few days. If only a little outside help is required to change the balance in favour of the patient, good hygienic conditions, an enthusiastic physician, and a little quinine will suffice either definitely to cure the individual or, at any rate, to prevent his relapsing for a considerable time in the absence of reinfection. If, on the other hand, the resistance of the patient falls short of this, no marked benefit will result.

Clinical evidence favours the view that the course of malaria may be unfavourably affected by the previous taking of quinine, but we have seen that under relatively favourable conditions a small daily dose of quinine tends to prevent clinical malaria, or at all events to lengthen the incubation period. This, however, cuts both ways, and should an individual run the risk of being frequently infected, the tendency will be for him to receive more massive doses of sporozoites as the result of taking prophylactic quinine. Can we wonder if his malaria is of a severer type when it does develop? It is universally assumed that the sporozoites resulting from conjugation in the insect host possess a greater potential capacity for mischief in the vertebrate host than merozoites derived from many generations of asexual multiplication. A European in the tropics who stays out at night and is generally careless with regard to mosquito prophylaxis is much more likely to suffer from, and to be eventually invalidated home with, chronic malaria than the individual who is careful in these respects. Experiments on protozoa

infections in sparrows are said to show that the severity of the disease largely depends on the dose, that is to say, on the number of sporozoites inoculated.²⁰

We are now in a position to appreciate the inadvisability of giving prophylactic quinine over long periods, and to realize that the severity of malaria in Macedonia has been increased in some cases by previous quinine prophylaxis.

B. The Probable Mode of Action of Quinine in Malaria.

1. As a Prophylactic.—Cushny says:

Quinine differs from most other important alkaloids in acting, not on some specialized form of living matter, but on the general nutrition of almost all forms of protoplasm. Experimental evidence indicates that a number of ferments act more vigorously in very dilute solutions of quinine, while their action is retarded by larger quantities.²¹

It is possible, therefore, that the lytic action of human plasma on malarial parasites is increased when quinine is present in suitable concentration. It is equally possible that too great a concentration of quinine retards this activity; also that the long-continued administration of the drug sets up a tolerance to its presence which necessitates an increase of concentration to get the original effect.

We have previously noted that certain doctors in Mediterranean countries regard 0.2 gram (about 3 grains) daily as sufficient; the few cases I had the opportunity of examining in Macedonia appeared to justify the view that a maximum daily dose for prophylactic quinine exists, and that it is not a very big one. It is also possible that the mechanism about to be considered is not without influence.

2. *The Action of Quinine as a Curative Agent.*—Barlow, as the result of experimental work, thinks that quinine in therapeutic doses does not directly destroy the plasmodium, but tends to poison infected red blood corpuscles in such a way that they are more easily acted upon by the excretory products of the parasite. This results in its liberation before segmentation has taken place and facilitates its destruction. Gametes escape because their less active metabolism does not liberate sufficient toxin to destroy even the quinine-poisoned cell.²²

This explanation is in harmony with the facts. We know, for example, that quinine, given at the beginning of an attack of intermittent malaria, does not appreciably influence the train of clinical events, but tends to prevent subsequent attacks. It would seem to do this by poisoning infected red corpuscles and accelerating their disintegration, thus making the conditions less favourable for the multiplication of the parasite, which is unlikely to be present in sufficient numbers to produce symptoms when the next attack is due. This would give the resisting powers of the individual time to rally. Should his vitality be insufficient to dispose of all the plasmodia the metabolism of the survivors may be assumed to slow down, and even very large doses of quinine may be unable to poison the red cells sufficiently for the parasitic toxins to destroy them with sufficient speed, the plasmodium reacting by slowing its metabolism still further. In many cases it successfully avoids extermination, and, in the event of the host's vitality being sufficiently lowered, a relapse occurs.

In severe and chronic cases resulting either from massive infection or from the feeble resisting power of the individual, or from a combination of the two, large doses of quinine are usually given over long periods; according to the above theory, the poor results obtained would be largely due to an increased tolerance of the red cells for quinine.

Both clinical and theoretical considerations compel us to admit that the general course of the disease may be noticeably affected by the previous taking of quinine, and that the sum of such influences is frequently unfavourable. So far as the allied armies in Macedonia are concerned, there is every reason to suppose that quinine taken daily over periods of many months has increased the severity and chronicity of the disease in a certain proportion of cases. Taking one thing with another, the available evidence indicates that in Macedonia, at any rate, the disadvantages of quinine prophylaxis outweigh the advantages.

GENERAL SUMMARY OF CONCLUSIONS.

1. Small doses of prophylactic quinine—not too long continued—are of proved utility to the natives of malarial

countries, both in the absence of antimosquito measures, and when such measures are incomplete.

2. Quinine may be given with advantage to immigrants under the following conditions:

(a) During short journeys when conditions with regard to mosquito prophylaxis are less favourable than usual.

(b) An occasional dose after an unusually tiring day.

(c) Nervous people may be advised to take an occasional course as an additional precaution in spite of efficient mosquito prophylaxis.

Speaking generally, it may be stated that quinine prophylaxis is usually a bad investment for immigrants in the absence of protection against mosquito bites; taking one thing with another, the practice would in their case seem to be little more than a pious fraud, which has been perpetuated from one generation to the next simply because public opinion throughout the world has never been sufficiently enlightened to encourage the working out of the problem on scientific lines. A few well-planned experiments, carefully and simultaneously conducted in several countries, and these conclusions might have been reached many years ago. We know the experimental method to be at the bottom of all scientific and industrial progress, yet we refuse to admit its very obvious utility in preventive medicine. The following observation applies only too literally to the subject under discussion: "En dehors des sujets dont le contrôle expérimentale est facile, bien peu d'opinions s'appuient sur la logique rationnelle. Sur l'interprétation de faits au fond assez clairs, mais que n'étaient pas des expériences suffisamment tangibles, le désaccord est complet."²³ Surely this lamentable state of affairs cannot continue much longer. The experimental evidence exists, but unfortunately its neglected fragments lie embedded in a very extensive literature, much of which is of little value owing to lack of detail and to the impressions of the writers being uncontrolled by clinical experiment.

APPENDIX.

Although the difficulties in the way of efficient mosquito prophylaxis in non-immune armies operating in highly malarial countries are very great, the failure of quinine prophylaxis shows that more serious efforts must be made to overcome them. A few methods of procedure are therefore mentioned, and their value briefly discussed.

A. The Destruction of Mosquito Larvae.

1. *Subsoil Drainage.*—This is the ideal method, but finance and labour difficulties militate against its general adoption. In Panama, where both money and labour were available, this method was little used, because the engineering works constantly interfered with the drains.²⁴

2. *The Oiling of Surface Water.*—In Panama the system of oiling seems to have been perfect, the whole area for about half a mile round all dwelling places being oiled once a week so thoroughly that all mosquito larvae were killed.²⁴ The method is obviously good when sufficient oil can be obtained.

3. *The Piping of Streams.*—In ravine country, when mosquitoes breed in the pools associated with fast running but temporary streams, such streams may be piped with advantage within half a mile of camps.

B. Mechanical Prophylaxis against Mosquito Bites.

In countries where the reduction of mosquito larvae is difficult the importance of mechanical prophylaxis can hardly be exaggerated. The question will be briefly considered under the following headings:

1. *The Screening of Dwellings.*—In the canal zone all houses occupied by Americans had double doors, the windows being protected with copper-bronze screens—18 mesh to the inch. Orenstein²⁵ concludes that properly screened dwellings alone can be depended upon to reduce by at least one-third the malaria incidence in a locality where malaria is endemic.

2. *Net Prophylaxis.*—Stott²⁶ and others have emphasized the great value of supervised net prophylaxis for soldiers.

3. *Veils and Gloves with Gauntlets.*—These have been employed on sentry duty, etc. If properly used, such methods should be fairly effective, but adequate supervision is obviously difficult or impossible.

4. *Essential Oils.*—Oil of citronella, etc., either pure or in the form of ointment, has been tried for men on night duty, but without much success. According to Celli and others, such methods have a very restricted action.

5. *Night Work.*—The employment of African or Greek troops for sentry duty and all forms of night work during the summer and autumn months would seem to be worthy of serious consideration. After going carefully into the matter, the advantages might be found to outweigh the disadvantages.

6. *Education*.—The last, but certainly not least important, method is the education of officers and men as to the habits of the mosquito and the means of avoiding infection. Pamphlets, posters, lectures, lantern slides, cinema films, all have their place according to circumstance and opportunity.

In conclusion, I should like to thank my brother, Captain H. A. Treadgold, R.A.M.C., for valuable assistance.

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INTERLOBAR EMPYEMA AND OTHER SURGICAL COMPLICATIONS OF THE THORAX.*

BY

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EMPYEMA is the commonest complication in the thorax needing surgical treatment. In most cases it is quite easy to diagnose, as it occurs after pneumonia; an increasing rise of evening temperature, with morning remissions and dullness and silence at the base of the lung, with displacement of the heart, pointing definitely to it; but, in quite a number of cases, matters are not so simple.

In rare instances there is no history of pneumonia. This is more common in poor children with bad mothers. I can recollect instances of children being brought to the outpatient department with a chest half full of pus who have not been a day in bed. They have had a cough for some time, are short of breath, and have lost flesh. I have never seen it in better class children.

In an adult it is very rare. About five years ago I was asked to see a shopkeeper's wife who for some weeks had had night sweats, with a temperature of about 100° F. each night and 97° in the mornings. There had been no acute illness, and there was very little cough and no sputum. The suggested diagnosis was phthisis, but no physical signs had been found. The upper lungs were normal, but there was dullness and silence below the angle of the right scapula, and the heart was slightly displaced to the left. My diagnosis was pleural effusion, probably tuberculous, but on inserting a needle pus was found.

Difficulties may occur from the situation of an empyema; it is not altogether uncommon between the lobes of the lungs, where it is often undiagnosed. If untreated such an empyema may burst into a bronchus, and after weeks of coughing, sometimes of fetid sputum, may clear up, or chronic bronchiectasis may result.

CASE I.

A man, aged 47, was admitted under me this spring. He had had left-sided pneumonia six or seven months before, but had recovered and been working at Newhaven until shortly before admission. He had a severe cough and a good deal of expectoration; the temperature was 100° at night. There was dullness in the second and third right spaces in front and diminished resonance below; bronchial breathing at the apex, distant tubular breathing in the second and third spaces, weak breathing below, with coarse crepitations. Over the right back breathing was bronchial and rather weak in the upper half, but there was no dullness. The left chest was normal except for some rhonchi.

The previous pneumonia had been on the left side and was too long ago to count, but I thought the case was one of interlobar empyema. A needle was introduced in the second space, over the dull area, that afternoon without getting pus.

Owing to an attack of influenza I did not go up to the hospital again for a fortnight; by that time Captain Prowse had examined the man with x rays, and reported a large abscess cavity in the upper part of the right side of the thorax rather more than half filled with fluid, on which waves could be seen when the man was shaken. In the meantime the patient was coughing up large quantities of sputum, and, when I saw him again, all dullness had disappeared and breath sounds were almost normal over the right upper chest. He had coughed up the whole empyema.

These interlobar empyemata may burst into the general pleural cavity. Of this I have seen three cases.

CASE II.

A youth, aged about 18, had a very severe pneumonia, implicating both lobes of the left lung and part of the lower lobe of the right. His temperature came down gradually for ten days, and then began to rise in a hectic manner. The left chest remained dull, but tubular breathing and crepitations could be heard all over. I could not detect any special dullness over the interlobar area. One day his temperature and pulse-rate both fell and he said he felt better, but I was surprised to find a large area of absolute dullness and silence at the left base, where the day before had been breath sounds. On putting in a needle pus was found, and at the operation there was a good pint of it. I believe that his empyema was originally interlobar, and, when it burst into the general pleural cavity, the relief of tension caused the fall of pulse-rate and temperature.

CASE III.

A soldier, admitted under me last autumn with dullness from the spine of the left scapula down to the base. A needle drew off pus. Major Buck operated in the usual situation and found very little pus. A few days later the temperature was still high and the man was worse. I then found that the lower part of the back was slightly resonant, but just below the level of the spine of the scapula there was an area of absolute dullness about three inches in depth. An aspirator inserted here withdrew much pus, which, however, reaccumulated, and Major Buck removed a portion of the fourth rib between the scapula and the spine, and opened a large empyema between the upper and middle lobes of the lung. The operation was one of some difficulty owing to the depth of muscle. In this case the original empyema was evidently interlobar and some of the pus had leaked down over the lower lobe, where it was found at the first operation.

CASE IV.

In this case an operation for empyema of the right side of the chest in a child set free only a very small quantity of pus, but a few hours later a sudden gush of quite half a pint of pus soaked the dressings. This must have come from between the lobes.

My father, Sir William Broadbent, described three cases of interlobar empyema in the *Practitioner* in 1905.

In the first pus made its way to the surface above and just outside the left mamma, and the patient made a good recovery.

In the second several unsuccessful aspirations had been made in the lower part of the right chest before he saw the case. It had been noted that breath sounds could sometimes be heard lower on the right front one day than the day before. This led him to suspect interlobar empyema. He found a band of dullness above the spine of the scapula and in the apex of the axilla. Pus was found on passing in a needle high up in the axilla. A piece of rib was removed in this situation, and half a pint of pus was evacuated, with rapid recovery.

The third was a boy, aged 10, who had a left-sided influenzal pneumonia spreading from base to apex. After a crisis on the ninth day, the temperature assumed a suppurative type. The doctor, finding dullness on the whole left base up to the spine of the scapula, absence of vocal fremitus and marked oegophony, put in a needle in three different places, but without success. He noted that the upper part of the lung was becoming duller and more silent. When seen by my father there was absolute dullness with no vocal fremitus or resonance or breath sounds from the apex down to the fourth space, whereas the lower part of the chest in front was comparatively resonant. At his suggestion a needle was put in at the lower edge of the pectoralis with the arm at right angles to the chest. A whole pint of pus was withdrawn. After operation at the site of puncture, a large collection of sloughs came away, and the boy ultimately made a good recovery.

When much pus collects in an interlobar fissure the lower lobe of the lung is so compressed that it becomes dull and airless, leading to the belief that there is an ordinary empyema, until exploration in the usual areas finds no pus. In the last case mentioned both upper and lower lobes were so compressed.

The characteristic of interlobar empyema appears to be a very dull band, either in the second and third spaces in front or just below the spine of the scapula behind. As a rule, there is much diminished resonance over the lower part of the chest, but not the flat dullness of the band of fluid, and breath sounds are very weak and usually absent at the base. The best place to insert a needle is the

* Read before the Medical Society of London.

second or third space in the anterior axillary region, with the arm extended above the head.

Even clear fluid may be confined between the lobes. Quite recently I saw a child with a high evening temperature in whom the physical signs were very similar to those of the last case mentioned, and two needles had already been inserted in the lower part of the chest without result. I put in a needle high up in the axilla and was surprised to find clear fluid, of which ten ounces were withdrawn. Microscopically, lymphocytes were present in abundance; the effusion was probably tuberculous.

A very rare position for an empyema is between the mediastinum and the lung. I have only seen one case:

CASE V.

An elderly gentleman had a very severe influenzal pneumonia of the left lung, during which he was desperately ill. He had a good deal of pleurisy over the left lower lobe. After a fall by lysis the temperature rose again, and the lower lobe of the lung, which had appeared to be clearing, became dull and silent, but no pus was found by exploration. After some days he suddenly coughed up a quantity of pus, and continued to do so, the temperature meanwhile remaining hectic, and the lung dull and silent. The patient was then seen by Sir William Osler, who found a strip of resonance about three inches broad just to the left of the vertebral column over the angles of the sixth, seventh, and eighth ribs. He pointed out that, as the patient was spitting up pus, there was probably a pyo-pneumothorax, and he had a needle put into the resonant area just external to the angle of the eighth rib. Pus was at once obtained. Later a piece of rib, just beyond the angle, was resected, and a large empyema opened, which extended forward to a depth of eight inches, but was bounded externally by the lung, which was completely adherent to the parietal pleura.

In this case the pressure of the pus had collapsed the adherent lung and rendered it absolutely dull and silent. To take a different complication:

CASE VI.

A man was admitted to hospital under me, having had a bad cough for ten days and having been in bed for four days. He looked very ill, and his temperature was 102° to 103° F. He had signs of bronchopneumonia of the right middle and lower lobes, tubular breathing being most marked between the middle of the scapula and its angle. The numerous crepitations were coarser than those of lobar pneumonia. He was very thin, and myxodema was obtainable in unusually striking degree.

Three days later he spat about an ounce of blood, and the day after his sputum became most offensive. A small patch of cavernous breathing could then be heard in the centre of the tubular area. There was no history of any possible foreign body having been inhaled. A radiograph taken by Captain Morton showed a round abscess cavity surrounded by inflammatory thickening at the level of the sixth rib.

My corresponding surgeon was anxious to attack this, but my small experience of operation for abscess of the lung was so unfavourable that I decided to treat it medically by inhalation of creosote, carbolic, and iodine from a Burney Yeo inhaler for several hours a day. The result was complete cure in about six weeks, cough ceasing, physical signs all clearing up, and the man putting on over a stone in weight.

Another interesting case was one admitted to St. Mary's Hospital when I was house-physician in 1894.

CASE VII.

A soldier who had been spitting blood for a fortnight and complained of pain in the right side was found to have impaired resonance below the angle of the right scapula. Breath sounds were good down to the angle, but diminished below with fine crepitations; vocal resonance was increased. The right front was normal. The haemoptysis increased and his sputum consisted of nummulated sticky masses of bright red blood. No tubercle bacilli could be found nor cancer cells. In six weeks he lost $1\frac{1}{2}$ st. in weight. Signs in the chest had greatly increased. On the right front dullness began at the fifth space in the nipple line, and ran to above this level in the axilla. Breath sounds were diminished below the second space and entirely absent over the dull area. The right back was dull from the middle of the scapula downwards, there was some friction in the upper part, silence below. The heart was not displaced to the left, the apex being within the nipple line. Exploration of the back several times yielded no fluid or pus. The temperature was irregularly raised from 99° to 102° , but not of a hectic character. As the heart was not displaced the case was considered one of malignant disease of the lung. In another month the right side of the chest was dull up to the third rib and the spine of the scapula.

Post mortem a large ragged abscess was found in the front part of the middle and lower lobes of the lung into which large bronchi opened. The abscess was in contact with the chest wall as far as the mid-axillary line. Behind that, over the whole back, inflamed lung was adherent to the chest wall, the lung being two or three inches in thickness, which accounted for the exploring needles failing to reach the pus. Further, an abscess of the right lobe of the liver was found which projected

through the diaphragm, and on examining the large intestine typical recently healed ulcers of dysentery were seen.

The course of events in this case had evidently been dysentery, tropical abscess of the liver, which burst through the diaphragm and led to abscess of the lung. The lesson to be learnt is that exploration should be tried in front of the chest when no fluid is found at the back. This was illustrated by a case under my care quite recently.

CASE VIII.

The patient was a soldier who had had a long illness with continued pyrexia and occasional attacks of diarrhoea. The stools had been found negative to typhoid, paratyphoid, and dysentery. There was dullness and silence over the lower half of the right chest, back and front. The liver was felt an inch below the costal margin, and appeared rather more enlarged towards the middle line, where it was also tender. I failed to get fluid by a needle inserted into the back of the chest, but in the anterior axillary line I drew off a pint of chocolate-coloured pus, typical of hepatic abscess. Colonel Jowers subsequently opened a large abscess in the upper part of the liver, and the man is doing well.

The next case was supposed to be an empyema of the right side of the chest, but needles had been put in in four different places without obtaining any pus before I saw him.

CASE IX.

The man looked very ill, and had been running a hectic temperature for a couple of weeks. The back of the right chest was dull up to three inches above the angle of the scapula.

Breath sounds were absent and vocal resonance was much diminished. In front of the right chest there was dullness from the fourth rib downwards external to the nipple line, but, between the nipple line and the sternum, instead of the usual liver dullness, there was an area of tympanitic resonance. On percussing over this with two coins a loud bell note could be heard with the stethoscope, and the same bell note could be heard as far as the left anterior axillary line, and down to the umbilical level. On rolling the man over on to his right side most of this tympanitic area to the right of the sternum was replaced by the absolute dullness of fluid. Obviously here was a gas-containing cavity, and the diagnosis was subphrenic abscess due to perforated duodenal ulcer. A needle passed deeply into the right sixth space in the tympanitic area immediately drew off foul-smelling pus. After operation the patient made a slow recovery.

By a singular coincidence, since the meeting was adjourned, a case has been sent into hospital under me as pneumonia, because there was tubular breathing and some fine crepitations over the lower half of the right back with a temperature of 102° .

CASE X.

On listening to the front of the right chest breath sounds were fairly normal down to the level of the nipple, below which they ceased abruptly. On percussion resonance was good down to the fourth rib, but hyper-resonant below over the liver area. On tapping one coin on another a bell note could be heard from the fourth rib down to the umbilical level in the mammary line.

The edge of the bell note area curved upwards to an inch above the umbilicus, and passed three inches to the left of the middle line, crossing the left costal cartilages, and then back across the sternum, about an inch below the level of the mamma. External to the right mamma the bell note area extended beyond the posterior axillary line round to the lower part of the back of the chest. The heart was pushed upwards and outwards, the apex beat being in the fourth space, two inches outside the nipple. It was impossible to feel anything in the abdomen itself as it was kept so rigid. The diagnosis was, of course, a right subphrenic abscess. A needle inserted in the eighth space in the anterior axillary line brought away foul gas and thin fetid pus. The same evening a portion of the tenth rib in the mid-axillary line was removed and a large amount of pus and gas let out. When this had been done an irregular hard mass could be felt in the right side of the abdomen, about the umbilical level, which might have led to further operation if the condition of the patient had not been so bad. Unfortunately the man died two days later.

At the *post-mortem* examination a perforation of the duodenum was found, $\frac{1}{2}$ in. in diameter, which had thick edges, as if of some weeks' standing. The abscess was limited below by

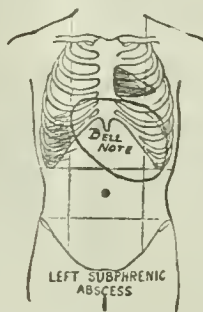


FIG. 1.

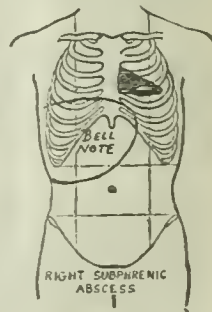


FIG. 2.

adhesions of the colon and edge of the liver to the abdominal wall with thick inflammatory tissue; this was the hard irregular mass felt at the operation. The falciform ligament formed the left limit.

A subphrenic gas-containing abscess under the left wing of the diaphragm is caused by perforation of a gastric or duodenal ulcer with a slow leak of the stomach contents, so slow that there is often no history pointing to ulcer. The abscess is limited below by adhesions of the great omentum and the front of the stomach to the abdominal wall, to the left by the spleen and gastro-splenic omentum. On the right it is bounded by the falciform ligament of the liver, which, as the abscess enlarges, is pushed very much to the right of its normal position, even to the right nipple line, as in the first case described. Abscess under the right wing of the diaphragm is much rarer, and is more usually due to inflammation of a retrocolic appendix causing an abscess communicating with the colon than to a perforated duodenal ulcer. Its boundaries are by adhesions of the edge of the liver, the transverse colon, and the omentum to the abdominal wall, the mesocolon, and the falciform ligament, which in this case is pushed well over to the left of the middle line. The gas evolved in these foul abscesses makes the area over them tympanitic, and the bell note is heard on the use of two coins.

The pressure upwards of the diaphragm and the inflammation invariably cause changes at the base of the lungs. With gastric ulcer it is the left lung which is affected; with duodenal ulcer sometimes the left and sometimes the right. At first a pleural friction is very often heard over the lower part of the lung, usually at the back, but sometimes in front as high as the fifth rib. In a case of perforated duodenal ulcer where there was no vomiting, this friction over the right lower front led to a few hours' hesitation as to whether it was only a case of diaphragmatic pleurisy, but commencing loss of liver dullness soon settled the diagnosis. The friction is usually followed by adhesion of the pleural surfaces and progressive collapse of the lung, or by a low form of pneumonia. In a few cases there is a clear pleural effusion, and instances have occurred where, a needle having been inserted and clear fluid withdrawn, an accidental push of the needle has sent it through the diaphragm, and the clear fluid has been followed by pus. For some reason it is very rare indeed for pus to form above the diaphragm in these cases. The usual condition is for the lower half of the back of the left chest to become quite dull and silent. The temperature is hectic and suggestive of empyema, and the left base is suspected. But, on examining the heart, instead of finding it displaced to the right, its apex beat will be found external to the left nipple and up in the fourth space, owing to the pushing up of the diaphragm, and there will be a large tympanitic area from the fourth rib downwards.

CHOLEDOCHO-ENTEROSTOMY FOR CONSTRICTION OF THE COMMON BILE DUCT FOLLOWING A PERFORATED DUODENAL ULCER.

By W. A. SNEATH, M.B., CH.B., M.R.C.S.,

LATE HOUSE-SURGEON AT THE DREADNOUGHT HOSPITAL, GREENWICH.

This case is of interest as a rare sequel of perforated duodenal ulcer.

A German, aged 54, was admitted to the Seamen's Hospital, Greenwich, under the care of Mr. E. Rock Carling, on December 14th, 1912. The history was that he had been operated upon in Bremen in June. He stated that bile drained from the wound for several weeks; the flow ceased towards the end of October, when he was discharged. When he started work an incisional hernia developed in the epigastrium, and it was for this he came to the hospital.

Condition on Admission.

He was emaciated and slightly jaundiced, his appetite was capricious, and he had a special distaste for protein and fatty foods. There was a healed scar in the right iliac fossa and a transverse scar running from the tip of the ninth costal cartilage across the right rectus muscle to about two inches beyond the linea alba; it was stretched, and near the costal margin was superficially ulcerated. When the patient strained a large ventral hernia, the size of a football, protruded through the cut recti muscles. The opening in the

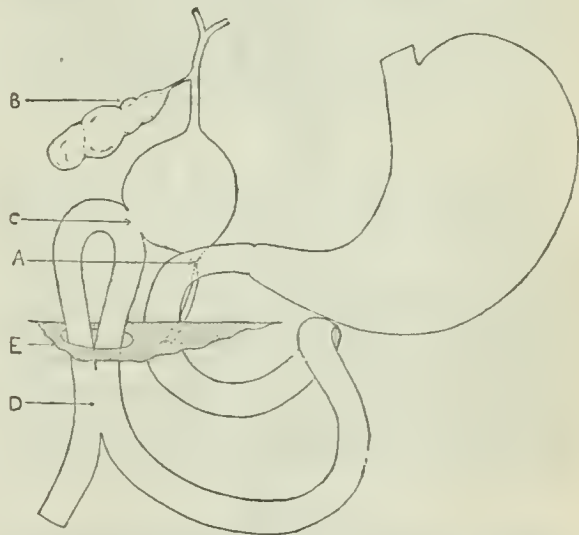
latter measured 3½ in. from above downwards and 6 in. from side to side. At the right margin of the scar was a depression, apparently at the place where the abdominal cavity had been drained. There was some thickening and induration of the wound, and more deeply could be felt a vague resistant tender mass passing backwards into the right loin. The faeces were clay-coloured and contained no bile. The urine contained bile; no sugar was present.

The resistant mass on the right side increased, and the jaundice became more pronounced. The temperature rose to 100° F., and five days after admission a sinus formed at the side of the depression in the upper scar, and large quantities of bile escaped. The jaundice rapidly disappeared, but the faeces still contained no bile. After some days the sinus closed, but it opened again subsequently. Consequently, on January 2nd, 1913, Mr. Carling decided to operate.

First Operation.

An incision was made along the upper transverse scar. The omentum, which was adherent to the sac of the hernia, was dissected off and found to be tucked up over the front of the liver. After this had been separated the transverse colon, which was also adherent to the liver, was drawn down. At this stage some coils of small intestine adherent to the sac of the hernia had to be repaired after damage in detaching them.

The biliary sinus was then dissected out and traced downwards and backwards, where it entered a large cystic swelling situated deeply in the right loin on the outer side of the duodenum. This was opened, and 6 oz. of thick, viscid, green bile escaped. The wall of this swelling was lined by mucous membrane; on further investigation it proved to be a dilatation of the common bile duct; the gall bladder was fibrosed and contracted, and contained a small quantity of glairy mucus only. On dissecting out the cystic duct a small quantity of non-odorous, thick yellow pus was discovered between the first part of the duodenum and the liver. The pylorus was adherent to the neck of the gall bladder. There were other adhesions between the omentum, small intestines, and stomach, but these were too numerous to separate.



Diagrammatic schema showing the dilated common bile duct and the site of constriction of the duct. A, Site of obliteration of common bile duct; B, fibrosed gall bladder and obliterated cystic duct; C, choledocho-enterostomy; D, entero-enterostomy; E, transverse mesocolon.

The opening in the dilated common bile duct was brought forwards and sutured to the peritoneum at the right margin of the wound and a drainage tube inserted into the cyst. A tube was also sutured in the gall bladder, and cigarette drains were put above and below the cyst, on account of the escape of bile that occurred during the manipulations. The sac of the hernia, along with the adherent skin, was cut away, and the margins of the neck of the sac drawn together by strong silk mattress sutures. The skin wound was closed by silkworm-gut sutures. The operation was attended by a good deal of shock.

After-History.

The tube in the gall bladder was removed the next day as no bile was draining through it; the upper cigarette drain was removed on the second day and the lower drain on the fifth day. Bile drained through the tube in the dilated common bile duct freely (3x a day). The wound was kept dry by draining the bile away with a Sprengel's pump. The wound healed very well and the deep sutures held perfectly. After the operation the faeces continued to be clay-coloured, and the sinus showed no attempt to close.

On thinking over the problem which the case presented, it seemed clear from the many peritoneal adhesions present that there had been a general peritonitis, probably of perforative origin. The lower incision in the right

iliac fossa pointed to it being appendicular, but the history that the patient gave of bile draining from the upper wound for several months suggested that it either had something to do with the gall bladder or the second part of the duodenum. From the huge dilatation of the common bile duct it was concluded that there must be some blockage of the common bile duct, and this could only have arisen from an impacted gall stone or from a perforated duodenal ulcer. The most likely explanation of the condition was thought to be that there had been a perforated duodenal ulcer the cicatrix of which had constricted the common bile duct. The local inflammation around the gall bladder had at the same time involved and obliterated the cystic duct, so that the gall bladder had not yielded to the pressure of the secreted bile.

A letter from Dr. Sattler of Bremen subsequently confirmed these surmises. He stated that he operated upon the patient on June 12th, 1912, for a perforated duodenal ulcer with general peritonitis. The surroundings of the ulcer were very necrotic and there were many adhesions to the stomach and gall bladder; the peritoneal cavity was full of pus and bile, so that a counter-opening for drainage was made in the right iliac fossa.

Thus it was evident we were dealing with a case of constriction of the common bile duct following a perforated ulcer of the duodenum. As there was no bile entering the intestine it was decided to endeavour to construct a new channel for it by making an opening between the dilated common bile duct and the small intestine.

Second Operation.

On January 23rd, 1913, a vertical incision was made through the outer margin of the right rectus muscle. The sinus was dissected out and traced to the dilatation of the common bile duct. The latter had contracted down markedly since the previous operation. The sinus was cut away and the opening in the bile duct so made was clamped. The bile duct was freed and the clamp brought as far forward as possible, but owing to the density of the adhesions and the contraction of the bile duct since the previous operation very little relaxation could be obtained.

A loop of jejunum was then brought up through the transverse mesocolon and an anastomosis was made between this loop and the dilated bile duct by two rows of silk sutures. This was rendered difficult by the fixity and the depth of the "duct" and the friability of its walls. The sutures were unevenly placed and there was considerable tension on them. When completed the opening would admit two fingers. Owing to the fixity of the bile duct it was impossible to draw back the loop of jejunum through the aperture in the mesocolon; hence it was found necessary to perform a lateral anastomosis between the afferent-efferent portions of the loop on the under surface of the transverse mesocolon in order to prevent intestinal obstruction.

A cigarette drain was put in the region of the choledoch-enterostomy, and the abdominal wall was closed by through-and-through silkworm gut sutures.

The patient stood the operation extremely well, owing, no doubt, to his greatly improved general condition.

After-History.

Two days after the operation, on the removal of the cigarette drain, bile was noticed coming along the track, but as the faeces contained bile it was obvious that some bile was finding its way into the intestine.

The condition of the patient at this time gave rise to anxiety. He was vomiting freely, the temperature was 101° F., and the pulse 120. A drainage tube was again put in, and shortly afterwards, besides bile, the discharge contained digestive juices. The skin around the sinus rapidly became excoriated, but this was controlled by bismuth and paraffin. The patient became emaciated, the faeces were pale and fatty, and the appetite poor.

After six days the amount of bile and digestive juices escaping gradually diminished and the appetite rapidly improved. The stools became darker and he began to put on weight.

At the end of a fortnight the discharge ceased, the sinus rapidly closed, and the faeces became normal in colour and content.

On March 3rd, when the patient was discharged, he looked extremely well. The abdominal wall was quite strong save at the right margin of the transverse incision where the drainage tubes were at the first operation.

The size of the hernial opening and the difficulty of dealing with it suggest the inadvisability of transverse division of the recti in suppurative conditions which preclude adequate suture.

Although a sinus obviously formed at the site of the choledoch-enterostomy owing to the difficulty of adequately suturing the anastomosis, it healed rapidly and did not interfere with the efficiency of the new passage.

An account of constriction of the bile ducts following

the cicatricial contraction of a duodenal ulcer is given by Moynihan in *Duodenal Ulcer* (1910). He describes two conditions:

1. When the ulcer was situated near Vater's ampulla, and constricted both the common bile duct and the pancreatic ducts.

2. When the common bile duct alone may be involved as it runs behind the first and second parts of the duodenum.

Details of eleven cases of the first class are given, and of five cases of the second class, of which one was his own. No case is recorded in which the constriction followed a perforation of a duodenal ulcer. The cases recorded are all of the very chronic type of ulcer, in which there is marked induration around the base.

The case described here falls in the second group of cases, in which the common bile duct alone was involved. Since the ulcer perforated into the peritoneal cavity, and not into the retroperitoneal tissue, the ulcer must have been situated in the free part of the duodenum—that is, in the first or at the junction of the first and second parts.

The fact that bile was present in large quantities in the peritoneal cavity suggests that the ulcer had perforated through the bile duct in addition to the posterior wall of the duodenum. Whether the bile duct was caught in the sutures which were used to close the ulcer, or whether the constriction followed the cicatrization of the ulcer, is not clear. The fact, however, suggests that in these cases great care should be exercised in suturing the perforation lest the bile duct be involved.

In this case it was impossible to perform an anastomosis between the bile duct and the duodenum owing to the numerous adhesions around the latter. The comparative ease with which the anastomosis can be performed by bringing a loop of jejunum through the transverse mesocolon, and the perfectly satisfactory result ultimately obtained, points to choledoch-jejunostomy being the operation of preference in these cases.

My best thanks are due to Mr. E. Rock Carling for permission to publish this case, and also for the kind assistance he has given me in reporting it.

A CASE OF HAEMATIDROSIS.

BY

CHARLES T. SCOTT, M.B.CANTAB.,

MARKET HARBOROUGH.

THE following case was brought to my notice by Dr. H. Adcock, of Middleton, Northants, in conjunction with whom these notes are written.

Madeline —, aged 11 years, a bright intelligent girl of rather nervous temperament, commenced to have abnormal perspirations about four months ago, following a "chill on the liver"; since then they have been gradually growing more and more frequent and severe.

The sweats occur upon the forehead only, from the eyebrows to the roots of the hair, and as far as the outer margins of the orbits laterally; they consist of either clear watery fluid or white froth or bright pink fluid. At the present time they recur at intervals of from a minute to an hour, but during waking hours there is rarely a lapse of more than five to ten minutes, and often there are as many as eight "sweats" in ten minutes.

The "frothy" are the most common variety, accounting for 60 of a counted consecutive hundred; the red variety formed 34 per cent. and the watery 6 per cent. They are most frequent soon after waking in the morning and towards bedtime. The quantity secreted at each "sweat" is from 10 minims to 1 drachm; the secretion invariably appears rapidly, so that in a second the forehead is bathed in sweat, and occasionally it is so rapid that it can be seen as it issues from the forehead in a fine jet and can be heard upon the bedclothes. There is a distinct aura, which takes the form of a faint "sick feeling" in the epigastrium, more severe when a coloured sweat is heralded, so that the child will say, "A pink one is coming now," or "Now there is a frothy one," and her prognosis is invariably correct.

There are no sweats during sleep, but she is frequently awakened by one coming on; as a rule she sleeps for some hours at night with no sweats, but her rest is always disturbed by waking for sweats.

During the last few weeks the salivary glands have been affected in a similar manner to the sweat glands of the forehead, and the same aura may herald a sweat or a "mouthful," which latter may also be pink or white.

For the last fortnight she has had attacks of tonic spasm of the muscles of the arms, so that the hands may become rigid in the "accoucheur's position," or she may involuntarily grasp some object, or the hands may be raised and tightly pressed against the back of the head, causing pain in the back and sides, suggesting hysteria. She has suffered from almost continuous headache, frontal and occipital, since the sweating began. She has had no vomiting.

From a scraping of the skin of the forehead staphylococci and streptococci were grown in small numbers only. Histological examination of the sweat shows red and white blood corpuscles in all three types of sweat, but far more in the "pink" sweat than in the others. Bacteriological examination shows staphylococci, a few streptococci, and a Gram-negative bacillus, apparently of the Friedländer group.

The patient was a premature child (eight months); her mother was badly frightened shortly before the birth by being stabbed in the head by a burglar. She has always been addicted to walking and talking in her sleep, but has had no serious illness. A few years ago tenotomy was performed upon both eyes for strabismus. She has not shown any signs of menstruation. There is no tendency to haemophilia in the patient or her family.

Just a week before the sweats commenced she had a very severe shock. Being particularly nervous of air raids, her parents tried to keep her out of their way; one day a gas explosion occurred in the next house while the child was in bed; she was frightened by the noise.

Examination reveals no abnormal signs in the nervous system, heart, lungs, or digestive system. The urine is copious, up to 6 pints daily, is acid, sp. gr. 1020, and contains no albumin or sugar. The reflexes are very brisk and the fundi healthy.

The case would appear to be one of an unusual type of functional disturbance consequent upon the shock of the explosion. It has not hitherto proved amenable to treatment.

INTERMITTENT HAEMATEMESIS FOLLOWING ON AN INJURY TO THE CHEST.

BY

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ROYAL ARMY MEDICAL CORPS.

THE interesting point about the following case is that there were no symptoms of any sort until the patient was injured in 1915. The haemorrhages have all taken place after excessive exertion. Apart from the discomfort and fright caused by the haemorrhages he is in no way handicapped by the condition.

History.

Private K., aged 39, consulted me on March 4th, 1918, on account of haematemesis. In October, 1915, when a cavalryman, he was kicked in the precordial region by a horse. He attended hospital for eight weeks as an out-patient. As far as he knows the ribs were not broken, but he was in strapping for the whole eight weeks. He was said to be suffering from a severe contusion of the chest; there was no vomiting or spitting of blood after the injury, and beyond pain there were no symptoms of any sort; previous to the injury he was quite well, and had been training for service overseas since June, 1915.

Before enlistment he was in extensive business as a book-maker. Both his parents are alive and well; there is no history of heart disease, lung disease, or apoplexy in the family. He has three children alive and well; his wife is healthy, and there have been no miscarriages.

The patient's history is as follows: He has always enjoyed excellent health; there is no specific history. For many years he was a heavy spirit drinker, on occasions drinking as much as one and a half bottles of whisky a day, and he averaged three-quarters of a bottle of whisky daily for ten years. Some three years ago he consulted a medical man, who told him he had a diseased condition of the liver, and advised him to give up spirit drinking; since then he has been for all practical purposes a total abstainer.

Since the injury he has suffered from intermittent precordial pain; about every six months he has had attacks of haematemesis. The attacks come on suddenly without warning, usually during violent exertion. About half a teacupful of blood comes away with a gush; there is no pain at the time

but for a short time after the vomiting he has difficulty in breathing. In the intervals between the attacks he is quite well, but since the accident he has suffered from insomnia.

On February 27th, 1918, while walking up a slope against a very strong wind, he found difficulty in breathing, and blood suddenly rushed into his mouth. Again, on March 3rd, while walking sharply uphill, the same thing happened, only in this case the blood was clotted. He was short of breath for some time after the attack, but was able to walk four miles home and carry on his work next day.

Physical Examination.

Respiratory system: Nothing abnormal found; no evidence of old fracture of ribs.

Circulatory system: Nothing abnormal; no thickening of vessels; no varicose veins.

Nervous system: No objective symptoms.

Abdomen: Much tenderness on palpation over liver; this organ (by percussion) decreased in size; spleen also tender, but not as tender as liver; no history of jaundice; nothing abnormal found otherwise.

Genito-urinary system: No abnormal condition discovered; urine normal.

Haematopoietic system: Nothing abnormal.

Facilities for a more elaborate examination were absent at the time.

Differential Diagnosis.

The haematemesis has, of course, to be differentiated from haemoptysis. In this case there is no history of cough, or of pulmonary or heart disease. Apart from the injury in 1915 there is no reference to any chest trouble. The patient states that the blood is in his mouth before he has any warning, and that on March 3rd the blood was clotted.

The patient can give no information as to the presence of food in the vomit. There is no history of melaena. The absence of pain in the intervals helps to differentiate from gastric, duodenal, and oesophageal ulcers (peptic). The absence of wasting helps to differentiate from malignant disease. The absence of anaemia is a strong point in excluding ulceration of any sort.

There is no haemophilia or abnormal blood condition; there is no affection of throat or nose which might account for the haemorrhage. The history of excessive spirit drinking spread over many years (confirmed by condition of liver and spleen found on examination) points to the condition being secondary to the hepatic (or splenic) condition.

Treatment.

The patient has been advised to abstain from spirit drinking and lead a normal, active, healthy life, but to avoid all undue exertions, such as rushing upstairs and walking quickly up hills. He has been advised to take his meals slowly and not bolt his food, and to abstain from drinking very warm fluids. No drug treatment has been given.

I think the probable cause of the recurrent haemorrhages is a varicose condition of the veins at the lower end of the oesophagus. The absence of any arterio-sclerosis excludes a small aneurysm. The veins may have been injured by the trauma to the chest, and so an extra strain has been thrown on veins already weakened by cirrhosis of the liver and spleen.

I beg to acknowledge the kindness of Surgeon-General Julian, D.D.M.S. Western Command, for permission to publish this case.

THE PHAGOCYTIC RESPONSE TO THE INTRODUCTION OF BACTERIA INTO CLEAN WOUNDS.

By W. JAMES WILSON, M.D., D.Sc.,

BREVET MAJOR R.A.M.C.(T.F.).

(From the Laboratory of — General Hospital, B.E.F., France.)

IN the course of an extensive experience of the bacterial flora of war wounds I have been struck by the small numbers of *B. coli* which are present as the wound tends to clean. Even wounds of the buttock which are repeatedly contaminated with faeces contain after a few days comparatively few *B. coli* although they are swarming with enterococci.

At first I imagined that the explanation of the selective effect of the wound on faecal flora might be that the wound fluids offered an unsuitable medium for the growth of *B. coli*. No doubt this is an important factor, but the following few experiments show that the immunity is an active one, and that the phagocyte plays an effective part in its production.

Experiment I.—Fate of Living Culture of *B. coli* Introduced into a Clean Wound.

The patient (R.) had a wound (6 cm. by 5 cm.) of right forearm just below the elbow-joint. On November 23rd, 1917, the wound was granulating, and a swab taken on that date gave a growth

of enterococci but no *B. coli*. On November 22nd a culture of *B. coli* had been made from patient's faeces, and on November 23rd 1 c.cm. of a very thick emulsion of the growth was introduced into a small depression of the wound, and films were made at intervals so as to study the effects.

After five minutes a few leucocytes and many *B. coli* were seen. After sixty minutes numerous leucocytes were present, and many of the bacilli were intracellular. After two hours the fluid in the wound had become thicker, stringy, and contained plenty of leucocytes. It was, in fact, becoming purulent. After six hours the majority of the bacilli were intracellular. After twenty-four hours no bacilli could be seen on direct examination of films, but in culture numerous discrete colonies were obtained. After forty-eight hours the wound, which was now quite clean again, showed leucocytes and connective tissue cells in film, but no micro-organisms were visible. On culture *B. coli* was absent, but enterococci were still present.

Experiment II.—Effects of Brilliant Green on Phagocytosis of *B. coli* in a Clean Wound.

On November 27th, 1917, in the same wound as used in Experiment I, 0.5 c.cm. of a thick suspension of *B. coli* was added, and immediately followed by an equal volume of 1 in 1,000 brilliant green solution.

Films made after five minutes showed leucocytes and numerous *B. coli*; after fifteen minutes more leucocytes and some phagocytosis; after two hours there were still leucocytes and some phagocytes, and after six hours a fair number of pus cells; no bacilli visible. On culture a few *B. coli* colonies developed as well as the persistent enterococci. On November 28th cultures yielded no *B. coli*.

Experiment III.

There was a little saucer-shaped wound (3 cm. in diameter) in the front of the chest, just over the right pectoral muscle. The bottom of the wound involved the muscle fibres. On November 26th, 1917, this wound appeared very clean and no bacteria could be seen on films made from it. The addition of distilled water to the little wound cavity led to the emigration of leucocytes into the cavity, and a loopful planted out yielded four colonies of a long chained streptococcus; 0.5 c.cm. of a thick suspension of *B. coli*, derived from a culture from the patient's intestine, was added to the wound on November 27th and immediately followed by 0.5 c.cm. of 1 in 1,000 brilliant green solution.

Films made after five minutes showed many *B. coli* and no leucocytes; after fifteen minutes many *B. coli* and a few leucocytes; after two hours some phagocytosis of the *B. coli*. At this stage the edges of the wound were stained green and its cavity contained a clear watery fluid. At the end of six hours the wound cavity was full of yellowish pus; no bacilli could be seen on films made at this stage. Cultures made from the pus yielded a considerable number of discrete colonies of *B. coli* on an agar slope. At the end of twenty-four hours a few *B. coli* were seen in films and cultures were still positive. At the end of forty-eight hours the film showed very few leucocytes, and some of these contained bacilli; the cells present were mainly of the mononuclear connective tissue type. On culture a loopful of wound secretion yielded 100 discrete colonies of *B. coli* on an agar slope.

A culture made after seventy-two hours yielded twenty discrete colonies. On November 30th, a swab was taken from the wound (this yielded about twenty colonies of *B. coli*), and then the wound was moistened with an emulsion killed by heating to 70° C. There was a free exudation of leucocytes, and films showed, at the end of one hour, phagocytosis and bacteriolysis of the cocci; at the end of seven hours no cocci could be seen in the cells or outside them; they had been completely destroyed.

A culture made on agar at this stage yielded no growth. In Experiment III the wound was covered over with a watchglass, and the pus in it remained in its saucer-shaped cavity, and was not lost by adhering to dressings. There was no question, therefore, of the mechanical removal of the bacilli and cocci. The wound was left covered with the watchglass until December 2nd, and when examined then (that is, forty-eight hours after the vaccine was put in) yielded only two colonies of *B. coli* when an ose was planted out.

Experiment IV.

A gunshot wound of shoulder which was healing offered a suitable little pocket for holding emulsion of bacteria. A swab taken on December 5th, 1917, yielded twenty colonies of streptococci on an agar slope; 0.33 c.cm. of a very thick emulsion of dead staphylococci was introduced into the wound on December 7th. A film made immediately afterwards showed no pus cells but enormous numbers of well-stained cocci. At the end of one hour the great majority of the staphylococci were inside the leucocytes, many of the latter being crammed with them. The staphylococci stained badly, and were evidently being digested. After six hours the majority of the cocci had disappeared, but an occasional leucocyte could be found filled with them. At the end of twenty-four hours little pus was present and no trace of staphylococci except a few intracellular cocci. A culture on agar at this stage yielded seven colonies of streptococci.

Experiment V.

From a wound of the right wrist a foreign body had been removed on December 7th and a clean gutter-shaped wound was left. On December 10th a film showed very few cells and no bacteria. On December 11th a thick emulsion of *B. welchii*

was introduced; this was really a vaccine, as the culture contained no spores and had been heated to 70° C. After one hour there was a fair degree of emigration of leucocytes and pronounced phagocytosis; after six hours there was no trace of bacilli.

In a patient with I.C.T. of the right leg the introduction of a thick emulsion of dead staphylococci led to a zone of redness round the ulcer.

CONCLUSIONS.

1. Experiments *in vivo* demonstrate the rapidity with which leucocytes migrate out and destroy micro-organisms introduced into a healing wound.

2. Experiment II indicates that brilliant green momentarily arrests this protective action, but later on, when the dye has been absorbed by the skin, etc., the process goes on. Whether the rapid bactericidal effect of chemical substances on free bacteria compensates for their inhibitory action on the leucocytes is open to doubt.

3. Circular wounds a few centimetres in diameter can in a few hours destroy thousands of millions of *B. coli*.

4. Vaccines introduced into a wound lead to a prompt leucocytic reaction, and this fact might be of service in the treatment of sluggish sores and ulcers.

5. These few *in vivo* experiments would convince the most sceptical of the truth of Metchnikoff's theory of phagocytosis, and confirm what has been long ago demonstrated *in vitro* by Leishman and Wright.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PERFORATING WOUND OF THE HEART: DEATH ON THE FIFTH DAY.

PERFORATING wounds of the heart are sufficiently rare in civil life to justify a record of the following case.

A boy 16 years of age was stabbed with a large pocket knife on April 1st by another boy aged 12, after leaving a cinema performance. Helped by a friend, the injured boy walked about six yards, then collapsed and fell down.

He was conveyed to the local hospital, where I saw him a few minutes after admission. He was very pale, collapsed, and pulseless. There was a vertical incised wound in the third intercostal space immediately to the left of the sternum; there was fairly free venous haemorrhage. Cardiac dullness was completely absent, and the heart sounds were muffled. Pulmonary resonance and the breath sounds were normal, as was the temperature. The wound was cleaned and lightly plugged with cyanide gauze. Half a pint of warm water was given by the rectum.

The next day the patient was comfortable with a temperature of 98° F. The pulse was 112 and irregular; the respirations 17. Cardiac dullness, though less than normal, could be made out. No pericardial friction was heard. On April 3rd the temperature was 101.8° F.; he was flushed, and complained of some pain in the region of the wound. There was no pericardial friction; the heart sounds were still muffled. Pulmonary resonance and breath sounds were normal. On April 4th the temperature came down to 99.4° F. There was less pain, and the patient was altogether more comfortable. Cardiac dullness slightly more than normal; no friction.

On April 5th the temperature rose to 101.8° F.; breathing was short and shallow, and a small patch of pleurisy could be made out at the base of the left lung. Pulmonary resonance was normal, the pulse 110, and the respirations 20.

On April 6th the patient died quite suddenly after drinking a little warm milk.

Post-mortem Examination.—A quarter of an inch to the left of the sternum in the third intercostal space was a clean vertical incised wound half an inch long dividing the cartilage of the fourth rib. There was a vertical wound of the pericardium corresponding to the skin wound. The pericardium was distended with blood-stained serum, and contained one large clot. Pericarditis was marked. An incised wound of the anterior wall of the right ventricle penetrated to the cavity, and a small abrasion and some ecchymosis was found on the septum between the two ventricles. Otherwise the heart was quite healthy. There was a small patch of pleurisy at the base of the left lung,

which was slightly congested. The anterior edge of the right lung was slightly collapsed; otherwise the organ was healthy.

Hæmorrhage in this case was slight considering the extent of the injury. The fact that the wound was vertical, in the direction of the fibres of the heart, may account for this; had the wound been transverse, hæmorrhage would have been much more free, and the patient would probably have died at once. It is difficult to account for the disappearance of the cardiac dullness. The absence of the physical signs of the pericarditis is noteworthy.

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LOSS OF HEAD IN AEROPLANE ACCIDENTS.

IN the crashes that occurred during the nine months that I have been attached to the Royal Flying Corps it has seemed to me that loss of head was by far the most common cause. I had thought of loss of head in rather a wider sense than Mr. Graeme Anderson,¹ and meant it to include any condition in which the pilot is incapable of acting synchronously. Of course, when a pilot is shot or faints in the air, he can hardly be said to have lost his head; still the effect is the same, in that he ceases to act synchronously. The following seem to me the most usual predisposing causes of loss of head:

1. *Lack of Confidence.*—This explains itself.
2. *Lack of Mental Training.*—I mean the training that enables one to grasp a situation and act immediately (almost reflexly) for the best. Driving a car through traffic or sailing on a crowded river would give such training.
3. *Congenital Tendency.*—Some people are more prone to lose their heads in an emergency than others. These men, who are noticeable on an unexpected night raid or on a torpedoed ship, would require extra training as pilots.
4. *Mental Fatigue.*—This is a very real fatigue during the first hours of flying. Personally, after attempting to send wireless messages on my third or fourth solo flight, I slept for most of the rest of the day, and I am sure that Mr. Graeme Anderson's view of this condition is the right one.
5. *The Influence of Ill-advised Conversation.*—It has often been remarked that crashes occur in epidemics, especially when a new type of machine is issued to a school or when someone has crashed in sight of a number of pupils; there follows a great deal of argument in the pupils' ante-room as to what should or should not have been done, and opinions are expressed many of which are quite erroneous. This results, I think, in pupils losing their heads from a multiplicity of advice.
6. *Insufficient Instruction.*—This is, happily, rare, and is becoming rarer, though it occasionally occurs, especially when pilots are urgently required for some special reason. It must be remembered that the instructor's job is not easy. He has to teach his pupil to fly, and gauge his nervous capacity, confidence, and judgement; to do this he must allow him complete control at all heights, and at the same time be ready at the fraction of a second's notice to take over control in the case of an error in flying or of threatened collision with an early soloist in another machine. Since most instructors in this country are in the air with pupils for about three hours a day, and are encouraged to turn out the largest possible number of soloists per month, I think it is extraordinary that crashes caused by too little instruction are as rare as they are.
7. *Fear (Pure Funk).*—To become mentally paralysed by fear alone is, I believe, very rare. The sense of self-preservation is strong, and seems to me to be stimulated by fear. Personally, on my second solo flight, I lost control and was so frightened that I nearly vomited, but was able to regain control in time to land without damage.

What is wanted, I think, is some quick method of picking out the very worst of the pupils. I am informed that it costs over £2,000 to train a pilot, and those who fail frequently crash at least one machine, value, say, £1,500. If only 2 or 3 per cent. could be eliminated, thousands a year could be saved, more time could be spent on successful pilots, and lives valuable in other spheres could be spared to the country.

J. EATON LASCELLES,
Captain R.A.M.C. (T.), attached Royal Air Force.

A CASE OF SYPHILITIC REINFECTION.

ON March 29th, 1917, a patient was seen by one of us, in conjunction with Mr. Frank Kidd, for a small ulcer on the penis, which he had noticed for four days, coitus having taken place six days and six weeks previous to the appearance of the sore.

The *Spirochaeta pallida* was found in large numbers in the sore; the Wassermann reaction was negative, and in view of this the probability was that the infection took place from the coitus ten days previously. Three intravenous injections of galyol, 0.4 gram, were given, the last on April 15th, 1917. No mercurial treatment was given. The sore healed rapidly and there were no further manifestations of syphilis.

The patient was not seen again till July, 1917, when he was advised to have a Wassermann reaction done. He, however, did not follow the advice, and it was not till February 3rd, 1918, that he again came, as he said he feared he had a recrudescence of the old infection.

On examination there was a small group of herpetic vesicles the size of a threepenny piece on the lower lip, and he had nasal catarrh. The Wassermann reaction was taken and was negative. The patient did not come again till February 16th, when he complained of "swelling of the neck." Examination now showed an erosion of the lower lip covered with a yellowish-grey false membrane with distinct induration around the base and edges. The submaxillary lymphatic glands on the right side were very enlarged and hard, bulging out under the lower jaw (the giant bubo). The *S. pallida* was found in the erosion and the Wassermann reaction was completely negative. The patient gave a history of having kissed a girl about three weeks previously.

The diagnosis of extragenital chancre was made, and the same day an injection of 0.6 gram novarsenobillon was given, followed by three more, each of 0.9 gram, given at weekly intervals; twenty-four hours after the first injection the swelling of the glands had entirely disappeared, and ten days later the sore had completely healed.

This seems an undoubted case of reinfection in syphilis, the following conditions being satisfied. In the first infection in March, 1917, a sore developed on the penis, the *S. pallida* being found in large numbers, and the Wassermann reaction being negative. In the second infection eleven months later, in February, 1918, a sore developed on a different site—on this occasion being on the lip—the *S. pallida* being found in the sore and the Wassermann reaction being negative, thus excluding a diagnosis of chancre redux, chancreiform gumma, or indurated secondary lesion of the lip.

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THE EFFECT OF ULTRA-VIOLET RAYS ON THE SKIN AND EYES.

IT was with great interest that I read the article by Dr. Oscar Holden of Southampton, in the BRITISH MEDICAL JOURNAL of April 20th, p. 454, on the effects of electric arc welding upon the eyes and skin. I should like to know what electrodes were used in this process and the length of time to which the operators were exposed to the light.

For the last two years I have been treating patients, both in military hospitals and in private, with ultra-violet rays. The light is produced from wolfram electrodes, and latterly by pure metal electrodes, and I should like to know what electrodes Dr. Holden used (p. 454). The exposure for wounds varies from one and a half to three minutes—that is, until a definite reaction occurs. For other conditions the time may be slightly increased.

The reddening of the skin, though slight at the end of the treatment, is very much more marked within two or three hours, and particularly so if the patient washes the part treated. An exposure of the back for two minutes at a distance of a foot can cause desquamation at the end of three days. This is not due to the heat produced, as there is only a moderate degree of rise of temperature even when the ray is allowed to impinge directly on or is focussed on the bulb of a thermometer. I have exposed many x-ray plates enclosed in light-proof envelopes. Lead seems to be a slight protection. Whether the rays are conducted or

¹ BRITISH MEDICAL JOURNAL, January 19th, 1918, p. 73.

transmitted by glass I know not, though they can certainly be deflected by quartz. An x-ray plate covered by a sheet of $\frac{1}{8}$ -inch lead, with a hole the size of half a crown in the centre, was uniformly fogged, nor was there any shadow of a metal disc placed directly in the centre of the aperture. I have learnt of lacrymation and conjunctivitis by bitter experience when giving several treatments during a day. I have not yet been able to discover any adequate protective glasses. Lead blue, green, and Crookes's yellow, do not seem to absolutely cut out this particular ray. In spite of the fact that one's eyes are protected by a metal screen placed behind the arc, the ray seems capable of being reflected from the walls of the room in which the treatment is given. Pigmentation of the skin is in some cases very marked.

Harrogate.

FREDERICK A. JOHNS, M.B.Lond.

Reports of Societies.

CHOICE OF OPERATION FOR MYOMA OF THE UTERUS.

At a meeting of the Section of Gynaecology and Obstetrics of the Royal Society of Medicine held on May 2nd, Dr. G. F. BLACKER, the President, being in the chair, Dr. HERBERT R. SPENCER gave an account of two cases of myoma of the uterus treated by total abdominal hysterectomy, in which cancer of the body was present.

Case I was an instance of recurrent cancer in which the growth involved the peritoneum. The recurrent mass was removed, together with the lower end of the right ureter, and the right half of the bladder. The kidney became infected subsequently and was removed. There was a second recurrence, which was inoperable. Death occurred twenty-six months after hysterectomy. In Case II the growth (in an unmarried woman aged 49) had advanced to within 1 mm. of the peritoneum. The patient was well and free from recurrence after five years.

Dr. Spencer declared himself an advocate of total abdominal hysterectomy for myoma. He had never amputated a uterus for cancer of the body, whether complicated with myoma or not. Three experienced gynaecologists, advocates of amputation for myoma, had overlooked cancer of the body as a complication and performed amputation (or, in one case, incision before removal) in 14 out of 18 cases (77 per cent.), and in no case was a five-year after-history given. Two of these three gynaecologists had overlooked cancer of the body uncomplicated with myoma, and performed amputation in 3 out of 12 cases (25 per cent.), 2 of the 3 cases recurring (66 per cent.). Advocates of amputation for myoma needed to take greater care than advocates of total hysterectomy in making the diagnosis of cancer of the body as a complication, and should clamp the uterus before dividing (with the cauter). Total abdominal hysterectomy by Doyen's method, the vagina being opened and severed with the galvano-cautery, was superior to amputation for myoma, in that it lessened the risk from cancer of the body, should it have been overlooked.

In the course of the discussion, the PRESIDENT said that he had seen only one case of cancer of the stump after the supravaginal operation. Most operators considered that they did not get such a good result from total hysterectomy as from this operation, which was both safer and simpler. The number of cases of cancer of the stump was so few that the danger to the patient from the more severe operation of total hysterectomy was greater than the possible chance of the occurrence of cancer. Mr. J. D. MALCOLM said that he always removed the uterus completely except in cases of simple fibroid. Dr. H. RUSSELL ANDREWS thought that cancer of the body would not be overlooked if histories were taken very carefully. A distinct interval of amenorrhoea—eight months to a year—occurring when periods had been profuse, was very suggestive of a new condition. Dr. R. A. GIBBONS thought it important to leave the pelvic floor. Mr. OSWALD DINNICK said that if total hysterectomy were well done convalescence was easy and smooth, more so than in the case of the supravaginal operation. There was no rise of temperature and less danger of sepsis. Dr. LAPHORN SMITH said that he always did total hysterectomy in suspicious cases.

ANNUAL CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY.

The annual congress of this society was held at the Royal Society of Medicine, London, last week. On the first day the president, Mr. Treacher Collins, read a paper on an experimental investigation as to some of the effects of hypotony in rabbits' eyes. The immediate changes on tapping the eye were found to vary according to the site of the incision. If the anterior chamber were opened, then fluids were found to pass from the anterior surface of the iris; if the posterior chamber were opened, fluids passed into the vitreous from the posterior surface of the ciliary body and from the retina. Colonel Elliot made a contribution to the histology of the trephined disc; Mr. George Thompson spoke on herpes zoster affecting the ciliary nerves; Captain Cruise read a further note on the use of the visor; Mr. Freeland Fergus contributed a paper on vision and work, founded on the results obtained at a recruiting office; Mr. George Young suggested clinical tests for the threshold of light and colour; Captain W. Wallace discussed the dioptric mean in the myopic soldier; Colonel G. McPherson gave a note on the use of glare glasses; and Captain Thomson Henderson spoke on contracted sockets. In the afternoon there was a discussion on plastic operations of the eyelids, opened by Major H. D. Gillies, Messrs. C. Higgins and Harrison Butler, and continued by Major A. W. Ormond, Captain R. Cruise, Mr. M. S. Mayou, and Captain F. Derwent Wood. Of much interest was a method of deepening a shallow lower fornix of the conjunctival socket described by Major Gillies. An epithelial graft was removed from the leg or other suitable place and wrapped round a wax mould of the intended extension of the socket. The conjunctiva was then incised, and the incision extended until the graft-wrapped wax could be buried and sutured beneath the conjunctiva. The graft became an implantation cyst. When time had elapsed for the fixation of the graft the conjunctiva was incised over the cyst, the wax removed, and the pocket formed kept open by suitable shells. The report of the special committee on the conditions affecting the standards of vision in the British army was received. On the second day a visit was made to the Metropolitan Asylums Board Ophthalmia School at Swanley, where a discussion took place on contagious diseases of the conjunctiva. In the evening a clinical meeting was held in London, at which a large number of cases were exhibited, and some novelties in instruments for investigating fields of vision demonstrated. The morning of the third day was devoted to a visit to the National Hospital for Paralysis, Queen Square, where a number of cases were shown by Dr. Kinrier Wilson, Dr. James Taylor and Mr. Leslie Paton, and discussed.

PROPHYLAXIS IN VENEREAL DISEASE.

At a meeting of the London Association of Medical Women on April 9th, with Lady BARRETT in the chair, Dr. MORNA RAWLINS, in a paper on prophylaxis in venereal disease, distinguished between prophylaxis in general and personal prophylaxis. For general prophylaxis, education of the medical profession, of nurses, and of the lay public was of great importance. Systematic lectures were now given to the general adult population, and especially to the army. Infected persons were instructed at the various clinics. Prostitution was a breeding place of venereal disease, but the Contagious Diseases Acts should be strongly opposed as they gave false security to men. Moreover, the diseases were conveyed more by amateur than by professional prostitutes, and these were not touched by the Acts. To fight prostitution every one must have a living wage. Personal prophylaxis before coitus was known as prophylaxis proper, and after coitus as early preventive treatment. Men were given outfits containing argyrol, or a similar medicament, and calomel, etc., but this treatment was full of fallacies. For women nothing was done. The American navy employed early preventive treatment; after illicit intercourse a rigid course of treatment was enforced. The percentage of venereal disease was very small in consequence, as was also the number of men having illicit intercourse, the enforced treatment probably acting as a deterrent. The time at which treatment was carried out was important; if within eight hours success was practically certain, and disease was usually prevented

even after forty-eight hours. Preventive centres would probably soon be set up all over the country. The speaker asked, in conclusion, whether it was possible or desirable to set up early preventive treatment centres for women also.

Reviews.

THE PARASITIC THEORY OF TUMOURS.

ALTHOUGH the proper function of hypothesis is to furnish a basis for research amongst investigators, nevertheless the etiology of tumours is a subject of such exceptional interest that the publication of Dr. D'ESTE EMERY'S small work entitled *Tumours, their Nature and Causation*,¹ will doubtless prove acceptable to many general readers.

The author has brought together in a succinct manner the different problems in connexion with the biology of new formations as they now present themselves. He himself is impressed with the theory that now growths have a parasitic origin—a somewhat old proposition; for it was formally set out by Ballance and Shattock in 1887 (*Path. Soc. Trans.*, vol. 38). By a parasitic hypothesis is meant, of course, the action of an extraneous virus. The cells of a malignant growth have themselves been regarded as parasitic (by the late Sir Henry Butlin) in the sense that they invade and produce a fatal metastasis in the host. But no advance is made by applying such a terminology to what is actually witnessed, unless some explanation of the altered biological character of the cells is forthcoming.

Dr. Emery would extend the parasitic doctrine to cover not only malignant but benign tumours. Many of the holders of the doctrine, however, will not follow him in this. The great character of a malignant tumour, even though it may be quite minute, is its power of local invasion and dissemination; that of a benign tumour, however large, is the absence of such a property. To many this fundamental difference will indicate a different kind of pathogenesis. Cohnheim's original theory of cell-rests will still appeal to many as satisfactory in regard to some of the forms of innocent tumours, though it has its limits. No adequate explanation can at present be offered, to take an example, for the growth of a simple circumscribed lipoma. The experimental grafting of tumours in the lower animals, the prophylactic immunization of animals, and kindred subjects, are briefly dealt with by Dr. Emery, so that altogether an excellent view may be gained by the general reader, of the present position of knowledge and theory in regard to the subject of neoplasia.

LIPINS.

THE substances extracted from organs and tissues by ether and alcohol may be roughly classified as neutral fats and fatty acids, substances having no relation to fats, such as cholesterol and some pigments, and the fat-like bodies dealt with in the volume under the title of *Lecithin and Allied Substances*, by Dr. HUGH MACLEAN.² The word "lipoids" has been used vaguely, and has not been restricted to the fat-like phosphatides and cerebro-sides, and as for this reason it is not applicable, the word "lipins," which is also unfortunately not entirely free from confusing associations, is employed by the author for these bodies. They are defined as substances of a fat-like nature, yielding on hydrolysis fatty acids or their derivatives, and containing in their molecule either nitrogen or phosphorus. Of the phosphatides, which Leathes, who wrote the volume on fats in this series, suggested would more conveniently be called phospholipins, lecithin and the closely related cephalin are the best known, while of the cerebro-sides, which do not contain phosphorus, there are only two—phrenosin and kersin.

Dr. Maclean gives a very thorough account of lecithin and of the allied and other bodies reputed to belong to this group, and in doing so has handled a difficult and rather dry subject most efficiently, and in places with

flashes of welcome humour. Protagon, described in 1865 by Liebreich and the cause of bitter discussion since, is considered at length, and the author concludes that it is a mixture of cerebro-sides and sphingomyelin with traces of other bodies. Similarly, jecorin, carnaubon, and other bodies alleged to be definite lipins, are also adjudged from the available evidence to be mixtures. Throughout the monograph, which is of a high standard and fully worthy of this biochemical series, full due is paid to Thudichum's brilliant but now neglected work, and it is shown that recent work is in many instances only confirmatory of his experimental results. Much research has given barren results in connexion with this subject, and there is little positive knowledge as to the function of lipins. The belief that lecithin can act as an antigen in the Wassermann reaction is disproved by the author's and Dudgeon's experiments, which show that this depends on the presence of an unknown substance, difficult to separate from lecithin, and similarly its curative effect on beri-beri disappears as it is more highly purified.

THE USES OF TUBERCULIN.

IN a paper addressed to the Ulster Medical Society in November last, and now published in book form,³ Dr. J. R. GILLESPIE, Tuberculosis Medical Officer for county Down, discussed the various methods of using tuberculin, and placed on record his own experiences at the five dispensaries under his control. The actual number of cases treated was not very large, but the percentage of success would appear to have been markedly higher among the dispensary cases treated with tuberculin in the manner recommended than among sanatorium cases and others treated at their own homes. Believing that the conflicting results observed and recorded by other users of tuberculin are essentially due to want of uniformity of method in administration, Dr. Gillespie pleads for a more strictly graduated system both of dosage and of interval between doses, the greatest caution being observed to avoid excessive reaction. With this principle in view, however, it is still absolutely necessary to deal with each case individually, and no hard and fast lines can be laid down for general guidance. A tabulated statement of the cases dealt with during the years 1913-15 inclusive is appended.

NOTES ON BOOKS.

IN *The Happy Hospital*,⁴ Mr. WARD MUIR gives a sympathetic account of the life of a military hospital from the orderly's point of view, under such titles as "Problems of a Ward Orderly," "The Orderlies' Recreation Room," "Night Convoys," and so on. If he has any disposition to criticize organization he represses it, although he ventures the suggestion that the employment of male nursing orderlies in military hospitals—he means, no doubt, base hospitals—will some day cease, and tells an amusing story of the reform of the men's mess after a visit from the assistant matron. The work of Mr. (now Captain) Derwent Wood, A.R.A., in the department of masks for facial disfigurement, is described, and a well-deserved compliment is paid to him, and also to the officer in command who helped him to discover what he could do. The most moving chapter in the book is "Transport," and very good it is. From the same publisher comes an Australian detective story, *Many Thanks*—Ben Hassett, purporting to be written by HERBERT DE HAMEL, which contains more cases of mistaken identity to the page than any we remember.

We welcome the appearance of the eighth edition of Professor STELWAGON'S treatise on *Diseases of the Skin*,⁵ a well written and scientific manual that has long been valued in this country as well as in America. It is full of practical hints, well up to date, and admirably illustrated. Many references to the literature are contained in its pages; the book may be warmly commended to the general practitioner of medicine as well as to the specialist. The third edition of Professor PUSEY'S

¹ *Tumours, their Nature and Causation*. By W. d'Este Emery, M.D., B.Sc. London: H. K. Lewis and Co. 1918. (Crown 8vo, pp. xx + 146. 5s. net.)

² *Lecithin and Allied Substances: The Lipins*. By Hugh Maclean, M.D., D.Sc. Monographs on Biochemistry, edited by R. H. A. Plimmer, D.Sc., and F. G. Hopkins, M.A., M.B., D.Sc., F.R.S. London: Longmans, Green, and Co. 1918. (Med. 8vo, pp. vii + 206. 7s. 6d. net.)

³ *A Rational Method of Using Tuberculin in the Treatment of Pulmonary Tuberculosis*. By John R. Gillespie, M.A., M.D., D.P.H. Belfast: Graham and Heslop. 1918. (Med. 8vo, pp. 33. 2s. 6d. net.)

⁴ Simpkin, Marshall, and Co., Ltd. 1s. 6d.

⁵ *A Treatise on Diseases of the Skin*. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology in the Jefferson Medical College, etc. Eighth edition, revised. Philadelphia and London: W. B. Saunders Co. 1916. (Roy. 8vo, pp. 1309; 356 figures, 33 full-page coloured and half-tone plates. 28s. net.)

*Principles and Practice of Dermatology*⁶ offers the reader a sound general discussion of the subject, and is well illustrated. It affords a considerable contrast in style and outlook to the more ambitious volume on *Diseases of the Skin*⁷ by Professor HARTZELL, in which the attempt has been made to cater for medical readers of all classes, informed and uninformed alike. Here much space is given to etiology and pathology, and treatment is naturally considered less fully. The illustrations are excellent, and include no less than fifty-one coloured plates.

MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE FRIENDLY SOCIETY.

THE thirty-fifth annual general meeting of the Medical Sickness, Annuity, and Life Assurance Friendly Society was held on May 3rd, when Dr. F. J. ALLAN presided.

The CHAIRMAN in his address reported that, as in the case of every insurance company, the amount of business done during the year showed a falling off. The society had to deplore the loss of seventeen members who had died from wounds or illness contracted at the front, while two lost their lives in a hospital ship which was torpedoed. The claims for sickness benefit of members on active service amounted to £3,575, which was slightly in excess of 1916. The sum paid as sickness disbursements in respect of 618 civilian claims during the year was £14,357; this included twenty-nine members who were on the funds for the whole year, some of whom had been permanently incapacitated for several years. The total amount of sickness experienced during the year, however, was 22 per cent. below the expectation, and the amount paid out in 1917 was £2,223 less than in the previous year. The sum of £3,676 had been paid in annuities, which showed an increase over 1916, and the increase was one which would normally continue for some years, as no business had been done for many years under the old tables under which the annuities had been taken out. The Life Insurance Fund was gradually growing, and the new tables introduced appeared to be much appreciated. There had been an increase in the Management Fund, due partly to the cost of paying a proportion of the salaries of the members of the staff who had joined the forces and the expense of engaging substitutes to do the work, partly to the great increase in the cost of printing, stationery, lighting and heating, and partly to the decision of the committee to pay a fee of £1 ls. to the practitioner who examined a candidate for insurance. In view of the depreciation of all securities since the last valuation of the society's assets, it had been thought advisable to ask Mr. Warner, President of the Institute of Actuaries, to make an examination of the society's financial affairs at the end of 1917 rather than at the end of the present year. The result showed that the society was in a thoroughly sound financial position. Arising out of the report was a suggestion to transfer £4,884 from the Sickness Fund, which amounted to £176,105, to the Annuity Fund, in order to bring the required reserve of the latter up to the proper standard. The Reserve Fund of £20,000 was considered by the auditor to be sufficient to meet the depreciation at the end of 1917 on all stocks. In view of further likely depreciation owing to the war, the committee, on Mr. Warner's suggestion, considered it safer to recommend the suspension of the payment of any bonus in connexion with the Sickness Fund. The committee proposed, however, to allot a reversionary bonus of 25 per cent. on the whole life assurances in the Life Assurance Fund.

On the motion by Dr. W. K. SIBLEY for the adoption of the report, Dr. BEATON expressed the opinion that to stop the bonus would be a hardship on the members who would shortly be going out of benefit on reaching the age limit, and moved to refer back the paragraph of the report referring to this matter. The amendment was seconded by Dr. VINRABE, but, on being put to the meeting, was lost, and the original motion that the report be adopted carried.

⁶ *The Principles and Practice of Dermatology*. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois. New York and London: D. Appleton and Co. 1917. (Med. 8vo, pp. xxiv + 1243; 54 plates, 466 figures. 30s. net.)

⁷ *Diseases of the Skin: Their Pathology and Treatment*. By Milton B. Hartzell, A.M., M.D., L.R.C.P., Professor of Dermatology in the University of Pennsylvania, Philadelphia and London: J. B. Lippincott Co. 1917. (Med. 8vo, pp. xiv + 753; 242 figures, 15 coloured plates. 30s. net.)

Certain alterations in the rules, which the CHAIRMAN explained were proposed with a view to making clear certain points, were adopted.

The list of officers nominated were elected, Captain the Hon. Rupert Guinness, C.B., C.M.G., M.P., being appointed a trustee in the vacancy caused by the death of Sir Victor Horsley.

The CHAIRMAN then gave informally particulars of the report of a subcommittee which advised the conversion of the society into a company under the Assurance Companies Act, 1909, in order to enable it to undertake insurances for larger amounts; at present its scope was limited under the Friendly Societies Act. Dr. DE HAVILLAND HALL said that the whole trend of insurance work was in favour of amalgamation instead of forming new companies. Dr. SIBLEY said the committee had received several propositions to combine with insurance companies; and while it saw that it would be greatly to the benefit of the companies to combine with the society, it had failed to see any benefit which would accrue to the society. The CHAIRMAN announced that of approximately 1,100 who had replied to his circular letter to members on this subject, 970 were in favour of the scheme, 112 were against the proposal, and 25 were neutral.

SPECIAL SCALES OF RATIONS FOR HOSPITALS, ETC.

THE Ministry of Food has issued (May 6th, 1918) to the local food offices particulars of special scales of rations for hospitals, sanatoriums, and kindred institutions. These scales have been drawn up by the Food Controller after consultation with the medical officers of the Ministry of Food and of the Local Government Board, with the Medical Committee of the Food (War) Committee of the Royal Society, and with an Advisory Committee of Hospital Managers.

The scale for civil general hospitals is as follows, the quantities being the average per head per week, as purchased, for all classes of patients taken together:

Meat*	16 oz.	Potatoes	70 oz.
Poultry or game or fish† ...	32 "	Fresh vegetables ...	23 "
Sardines and other dried ...	...	Milk	8 ½ pts.
or preserved fish	4 "	Jam	8 oz.
Bacon (boneless)‡	4 "	Rice§	8 "
Bread	70 "	Oatmeal and pulses§ ...	4 "
Sugar	8 "	Eggs	4 "
Butter and margarine	4 "	Cheese|| ... ..	4 oz.

* The term meat denotes meat of all kinds, and the whole or any part of the allowance may be taken out in the form of butcher's meat.

† As from May 5th and until further notice, a ration of 8 oz. of bacon per head per week may, at the option of the hospital, be substituted for the whole of the ration of 32 oz. of poultry or game or fish per head per week.

‡ Or the equivalent current amount purchasable on one coupon, whichever is the larger.

§ In Scotland the scale will read, rice, oatmeal, and pulses 12 oz.

|| Cheese should be used as little as possible, and only the less solid kinds.

The civil general hospitals scale is applicable to general hospitals, to most special hospitals, to Poor Law infirmaries, and to the sick wards of other establishments classed as institutions under the meat rationing scheme; and also, under certain conditions, to convalescent homes and nursing homes. It will apply not only to in-patients, but also to the medical, surgical, and nursing staffs.

Special scales have also been drawn up for children's hospitals and for tuberculosis sanatoriums (including special tuberculosis wards of other institutions), whilst naval and military patients treated by understanding with the naval or military authorities are entitled to the naval and military hospital patient's scale. The medical, surgical, and nursing staffs of these institutions will receive the civil general hospitals scale, except that at sanatoriums they will, if themselves tuberculous, receive the same scale as the patients.

Applications to be registered as entitled to a special institutional scale must be made to the local food office. The same hospital may apply for more than one scale. There may, for instance, be naval and military patients, civilian patients and professional staff, and tuberculous patients in special wards, besides other residents and non-residents receiving ordinary rations as members of the general public.

INVALID RATIONS.

The order as to special rations for invalids (M.G.R.M. 27), discussed by Dr. Spriggs in a paper published last week, will shortly be supplemented by the issue of an abbreviated leaflet (M.G.R.M. 27a), which will be supplied by the Ministry to food offices for circulation to registered medical practitioners in their districts.

OWING to the dangers of using rat and mouse viruses the German authorities have recently issued instructions to prevent careless use and to limit the risks.

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SATURDAY, MAY 11TH, 1918.

MEDICINE IN PARLIAMENT.

THE new reform act which became law on February 6th will not take effect until Parliament is dissolved, but the large task of making the new list of persons entitled to vote has been begun. It is probably safe to assume that there will be no general election until the new register is ready. It was thought at first that it might be completed by October, but the President of the Local Government Board stated the other day that it could not, and he did not give any clear indication of when he thought it would be ready. At the same time the present House of Commons is old, if not senile, and there can be little doubt that no long period will elapse after the register is completed before we have a general election. Already the constituencies are looking out for candidates, and the grinding of the old party machinery can be heard. Consequently it is full time that the medical profession should consider what means it can take to ensure an adequate representation of medicine in Parliament.

It is therefore very opportune that the Council of the British Medical Association, at its meeting a fortnight ago, should have determined to take steps to raise a voluntary fund from members of the Association to assist the candidature of such members of the medical profession as may be adopted as candidates for parliamentary seats. The suggestion seems to us more practical than some of those which have been put forward in the past. It recognizes that the medical profession cannot in any one constituency ensure by its own votes the election of a member, and the resolution goes on to affirm that the assistance contemplated should be given to medical candidates of any party whose membership of the House of Commons appears to the executive body of the fund to promote the interests of the medical profession. Many details will have to be worked out, and the Medico-Political Committee of the Association has been instructed by the Council to set its Parliamentary Subcommittee to consider the methods for carrying out the principle contained in the resolution.

The air is already full of schemes for reconstruction, and the Ministry of that name is engaged, with the aid of numerous committees, in examining many of them and in evolving some of its own. Many of the reconstructive policies which have been announced or foreshadowed touch nearly the future of public health, medicine, and the medical profession. For this reason it is more than ever necessary that the medical profession should take all steps in its power to ensure that it shall be adequately represented. The Annual Representative Meeting in 1914 resolved "that the representation of the medical profession in Parliament at the present time is inadequate, and in the interests of the public and the profession alike should be improved." In 1909 the opinion had been expressed that the medical profession should be represented in the House of Lords as part of the legislature. And this principle would apply to any second chamber which may result from the proposals for the reform of the House of Lords.

In addition to what may be done in ordinary constituencies along the lines indicated above, the medical profession may reasonably hope to have a considerable influence in the selection of university representatives in Parliament, and it might perhaps best achieve its object by working in harmony with other professions and callings interested in science. The number of members the universities are entitled to elect has been increased by the new Act from nine to fifteen. One representative is given to the University of Wales; two to the universities of Durham, Manchester, Liverpool, Leeds, Sheffield, Birmingham, and Bristol, voting as one constituency; an extra member to the four Scottish universities, which will in future, voting as one constituency, have three representatives; and two new members to the Irish Universities, one elected by graduates of the National University and the other by the Queen's University of Belfast. The university franchise is open to men and women graduates on the same terms, with the exception that a woman must have attained the age of 30 years. The university franchise is in addition to, and not in substitution of, the ordinary right to be on the register and to vote for the locality in which the person resides or has his place of business; that is to say, a person may vote on his residence qualification, and also in his university constituency. Under the new Act a man is entitled to be registered on his residential qualification in one constituency, and on his business qualification in another constituency, but if he makes use of his university qualification he foregoes the right of claiming the business qualification. He may exercise only two votes—one in respect of residence qualification, and one in respect of any other qualification—namely, business or university. The definition of "business" is held to include such qualification as is afforded by the tenure of a surgery or consulting rooms in a constituency other than that of residence.

A register of graduates entitled to vote will be kept by the university authorities; the persons entitled to vote are, generally, those who have received a degree other than an honorary degree from the university, but a woman has the right to be on the register if she has passed the final examination and kept, under the conditions required of women by the university, the period of residence necessary for a man to obtain a degree, though the university did not admit women to degrees at the time she passed the examination. The governing body of each university is required to cause a register to be kept of persons entitled to vote, but it is eminently desirable that every graduate should take care to ascertain from the authorities of his or her university that the name is on the university register. This is essential in the case of graduates of the old Queen's University in Ireland and of its successor, the old Royal University of Ireland, since they have an option between the Queen's University of Belfast and the new National University, Dublin, as is more fully explained elsewhere in this issue. The elector will vote at a poll by the delivery of a signed voting paper in a certain form, though in England, Ireland, and Wales a provision may be made for voting in person. The returning officer will be, as a rule, the vice-chancellor of the university. Nomination must take place not less than four days and not more than twelve days after the receipt of the writ, and the poll must be opened not less than three clear days after the day of nomination and not more than twelve; it will remain open for five days. Some of these details are of importance to medical graduates who may be serving abroad. As will be seen, the longest possible

time between the issue of the writ and the close of the poll is twenty-nine days, and the longest possible time between the nomination and the close of the poll, which is the period of practical importance, is seventeen days. This outside interval of seventeen days, which may, if the returning officer so directs, be reduced to eight, will be by no means too long, and makes it all the more important that all medical graduates should at once communicate with the authorities of their university.

A contested election for a university constituency having more than two members will be conducted according to the principle of proportional representation, each elector having one transferable vote, which is defined as "a vote capable of being given so as to indicate the voter's preference for the candidates in order and capable of being transferred to the next choice when the vote is not required to give a prior choice the necessary quota of votes, or when, owing to the deficiency in the number of votes given for a prior choice, that choice is eliminated from the list of candidates." The governing body of a university may direct that a person who before the passing of the Act had received a degree, but was not entitled to vote in respect thereof, shall have no right to be registered unless he makes a claim for the purpose.

ACIDOSIS AND DEATH.

ACIDOSIS has recently attracted much attention, especially in America, where Joslin, once an ardent advocate of the alkaline treatment of diabetic acidosis, now believes that its dangers outweigh its advantages; Howland and his collaborators at the Johns Hopkins Hospital have done much good work on the acidosis of renal disease and of food poisoning in children; and Sellard's monograph containing an account of the acidosis of renal disease and of cholera was reviewed in this JOURNAL on January 5th last. In the same number Dr. B. A. Peters brought forward evidence to show that some of the symptoms in the grave vomiting cases of diphtheria may be due to adrenal exhaustion caused, according to Crile, by a previous acidosis. This observation fits in with Whitney's conclusion that infection has a very well-marked influence in causing acidosis, for Peters's cases received antitoxic serum somewhat late in the disease.

Some recent studies on acidosis, which we also owe to Whitney,¹ contain an interesting discussion of the part played by this condition in causing death, and thus open up a wide field for inquiry. Why does an organism which has carried a load of disabilities for perhaps many years break down altogether at one particular time rather than at another? On the answer to this and other questions rational treatment must depend. Of the ways in which death comes the most common is paralysis of the respiratory centre, and this in its turn is in the majority of instances due to soluble poisons; toxic proteoses, for example in intestinal obstruction, may be responsible, and so may acids. The effect of an increase of acid radicals is first to stimulate and then to paralyse the respiratory centre, and it makes little difference whether this finally increased acidity is due to carbon dioxide or to other acids. Shock has interesting relations with the subject of acidosis and death; the phenomena of shock are to all intents and purposes the same as those of the terminal states preceding death, and Martin Fischer and Yandell Henderson believe that acidosis of the tissues accounts for the passage of the fluid parts of the blood out of the vessels, which is an important feature of shock.

Out of a number of human cases investigated by Whitney the great majority showed a more or less well-marked acidosis at the time of death, and in many of these the acidosis was so considerable that it alone could have led to respiratory paralysis, and so may be assumed to have been the cause of death. But death itself, or the state preceding it, does not necessarily cause acidosis; for in two cases of pyloric stenosis with gastric tetany there was the opposite condition of alkalosis, and two cases of circulatory failure without acidosis are quoted. Infection appears to be a powerful factor in causing acidosis; thus all the cases of acidosis except one showed evidence of severe infection, and the cases without acidosis were not infected. But there may be well-marked infection without acidosis provided the urinary excretion is properly maintained. Thus in pneumonia among the young and previously healthy persons there may be an absence of acidosis and a low mortality, whereas it is a deadly disease for the aged and for patients with chronic disease, especially nephritis. The terminal acidosis due to infection develops rapidly, and is usually followed by death in a few days or even a few hours; this suggests that the influences restraining acidosis are in most conditions extremely efficient, and also that their failure is followed by rapid and fatal accumulation of acid products.

In his brief remarks on the treatment of acidosis Whitney points out that alkalis should not be given indiscriminately, for the neutralization of the acid ions is not the only thing to be considered; the salts thus formed must be eliminated, and if excretion is so poor as to allow acidosis to develop it is probable that these salts will also accumulate, and possibly to a highly dangerous concentration in the blood and tissues. Diuresis should therefore be promoted by giving large quantities of fluid by the mouth, under the skin, or perhaps best by J. B. Murphy's drip method of continuous rectal injection. Fresh air should be provided in the form of a gentle breeze across the face to prevent the rebreathing of carbon dioxide, which may prove the last straw to the overloaded respiratory centre. Morphine, which is well known to be a respiratory depressant, must also be used with great caution.

CINQ ANS APRES.

IN 1912 the inexorable age limit of 65 deprived the Massachusetts General Hospital of the services of Dr. F. C. Shattuck, but with the entry of his country into the war he returned to his post, or as he puts it was resurrected, and his attractive address¹ to the Johns Hopkins Hospital Medical Society contains some shrewd *obiter dicta* on what five years can do for hospital practice, which are interesting in the light of our experience on this side of the water. One striking feature is the fall in the number of typhoid patients, to 5 per cent. of the medical beds, as compared with its incidence in the past. Gastric ulcer, formerly common in women, now appears to be more frequent in men, and x-ray examination, as is the case in this country, has come to occupy a more important position, partly from improved methods but mainly from accumulated knowledge, while the surgical treatment has apparently become more discriminating than it was. Five years ago the fresh cold air treatment of pneumonia was in full swing at the Massachusetts General Hospital, and was perhaps more thoroughly carried out than at present. The strains of pneumococci had not been differentiated in 1912, and until the specific treatment is more fully developed the mortality must be expected to remain much the same; a review of this question shows that the mortality

¹ J. L. Whitney: *Arch. Int. Med.*, Chicago, 1917, xx, 931-950.

¹ *Bull. Johns Hopkins Hosp.*, Baltimore, 1913, xxix, 77-80.

has been practically unchanged during the varying phases of the old heroic bleeding and mercurial methods, of the expectant and alcoholic, of the symptomatic, and of the fresh air treatment. Dr. Shattuck suggests that the pendulum may have swung too far away from alcohol in grave cases, and asks if fifty years hence alcohol will be regarded as always, everywhere, and in all circumstances the unmitigated poison that it is to some present-day apostles and the American Medical Association; its undoubted abuse in the past does not affect the belief that in some instances it is life-saving, but, as Opie said of his pigments, it must be mixed with brains, and the best results are obtained only under skilled supervision which contraindicates the repetition of the dose while its toxic effects, such as flushing, or its odour in the breath, persist. The increased value of skiagraphy in the detection of gall stones of late years depends on the shortening of the time of exposure from twenty seconds to a fraction of a second. From a more general survey of the changes it appears that the increasing elaboration of reports and records is not free from the danger of obscuring the wood by reason of the trees, and it is well to emphasize the necessity of a brief, clear and consecutive summary of the essentials of a case—a moral which many writers of clinical articles might take to heart. With the multiplicity of instruments of precision the possibilities of investigation are becoming progressively so numerous that some patients now have time to die or get well before a really scientific diagnosis is reached, and there is a greater chance than formerly for the patient to be forgotten in the pursuit of his disease. Finally, the plea entered for humanism is most appropriate on the scene where a great humanist—now the Regius Professor at Oxford—scored so many of his triumphs.

PHYSIOLOGICAL ASPECTS OF FLYING.

THE physical qualifications for admission to the air service are necessarily high, but even now there is no finality about the standards, which are always subject to modification in the light of the experience accumulated from day to day. The medical assessors of the physical and nervous capacity of the flying man have had to formulate their testing methods gradually from a study of the airmen who have "made good." Previous observations of life at high altitudes were of little value for this purpose, because the airman, unlike the mountaineer, does not become acclimatized to the higher levels; the amount of time which a constant flier spends at a height above 10,000 ft. is extremely brief, even in a period of service measured by years. The only possible expedient, as Major Martin Flack, R.A.M.C., stated in his lecture at University College on May 6th, is to take as a criterion the physiological standards of the men who have withstood the sudden and violent accommodations which flying involves; certain definite conclusions as to the flying temperament also can be reached in the same way. The first physiological change on making a flight is an increase in the depth of respiration, although this is not immediately noticeable by the subject unless he watches for it; at a height of 12,000 or 15,000 ft., however, every man becomes a month breather. Next there occurs a quickening of the pulse, and then certain subjective and objective sensations, including possibly a certain amount of illusion, as a result of oxygen want. In some cases there is nausea and dizziness, and, exceptionally, fainting. Major Flack, in the course of his lecture, gave illustrations of the tests used in examining candidates for the air service. Among the first requirements, given general bodily soundness, is a large respiratory capacity. Any one with a respiratory capacity below 3,400 c.cm. should be regarded as a doubtful subject whatever his general physique. A firm and hard abdominal wall is also necessary. The response of the heart to a

definite amount of work has to be tested, during which the quickening is noted, and also the length of time taken to return to the normal. The diastolic as well as the systolic pressure are taken into account; when the former sinks below a certain level, even though the systolic is maintained, the man is considered unfit to fly. Other requirements are a high degree of visual acuity, keenness of hearing and ability to resist the tendency to deafness which sometimes accompanies the act of rising in the air, a capacity for maintaining bodily balance, delicate hands, and, generally, a sporting and fearless temperament. But standards can only be set up for other recruits by observing the men who have already worn well in actual service.

THE DEAF SOLDIER.

DR. DUNDAS GRANT contributes an interesting paper on the treatment and training of the deaf soldier to the third number of *Recalled to Life*, a journal devoted to the interests of disabled sailors and soldiers, the earlier numbers of which have already been noticed in these columns. The author, from his position as chairman of the special aural board appointed by the Ministry of Pensions, is in close touch with all the work that is being done on behalf of deafened ex-service men. The chief aim is to restore to these men the capacity for understanding and communicating with their fellows. Of the various ways and means, lip-reading is by far the most important. "When skill in lip-reading is attained," says Dr. Grant, "the individual is again made a sociable being, and is saved, to a great extent, from that isolation and self-inclusion which render him both sullen and suspicious." He next tells of his tour among French schools for the instruction and re-education of the deaf soldier. At one place he asked the chief gardener, an expert lip-reader, whether he could tell that he was not French, and received the answer that "les mouvements de vos lèvres ne sont pas les mêmes que les nôtres," showing that it is possible to see the foreign accent of a good linguist. Good results have already followed skilful teaching in France, and parallel work in the United Kingdom has recently been started, notably in Edinburgh. It appears that the number of soldiers so completely deafened by warfare as to be unfit for reasonable enjoyment of social and industrial life is relatively not very considerable, and that from three to six months' methodical instruction in lip-reading will usually remove their main disability to a notable extent. Although the number of the totally deaf is relatively not very great, there are many other discharged men with diseases of the ear and minor degrees of deafness for whom suitable treatment should be freely available in the form of aural out-patient clinics in convenient and accessible centres. Dr. Grant gives a very clear account of the functions of the special aural board. A point upon which he dwells more than once is the concentration of attention needed for the acquisition of lip-reading, leading to fatigue, especially in men who have worked hard at other pursuits during the day, and this is an obstacle to regular attendance at evening classes. For the purposes of the pensions department the United Kingdom is divided into areas, each under the control of a representative of the Ministry and one or more aural surgeons, with a lip-reading specialist attached. The chief difficulty so far seems to have been to get the men to respond to the invitations to come up for examination and training. This is, no doubt, due to the fact that during the present exceptional demand for labour even very deaf men are offered employment at abnormally high rates of pay. Hence the warning that when the war is over and healthy hearing men return to the labour market, the unfortunate victims of deafness who have not learnt to lip-read will find themselves elbowed out of their employment by the mere force of circumstances. Another factor in the small response is the mistaken idea that

a man's pension will be cut down when he has learnt to lip-read. The machinery for training now exists, and it is of the utmost importance for the men to profit by it without delay.

STATE PURCHASE OF THE LIQUOR TRADE.

THE reports of the three Liquor Trade Finance Committees were issued last week. It was necessary to appoint separate committees for Scotland, for Ireland and for England and Wales because the organization and legal conditions of the trade differ in all three countries. In Scotland, for instance, the Temperance Act of 1913 provides for local option at June 1st, 1920, which affects the estimate of goodwill, rights of compensation, etc. The reference to the committees confined them strictly to the financial questions relating to the terms upon which intervention in the manufacture and supply of intoxicating liquors should be acquired, and the financial arrangements during the period of control. The committees were not instructed to advise as to the need of control or the policy of purchase, the Government being of opinion "that it may shortly be necessary as an urgent war measure to assume control of the manufacture and supply of intoxicating liquors during the war and the period of demobilization, and that such control would involve the purchase after the war of the interests concerned in such manufacture and supply." The committees have kept closely to their reference, and their reports are in substantial agreement on all main points. The three committees agree that the Government cannot take control without an obligation to purchase, and that the purchase consideration should be arrived at by capitalizing pre-war profits, giving the holders an equivalent investment in Government stock. They agree that the scheme of purchase should include breweries with or without tied or managed houses, free houses, the interests of on-licensed tenants and of retail off-licences, but not hotels, restaurants, clubs, railway refreshment rooms and cars, steamer licences, and theatre and music-hall licences, allied trades, or the interests of wholesale dealers. Business carried on in shades or vaults of an hotel or restaurant would be included, as also the business of an hotel or restaurant which forms part of a brewery asset or is inseparable from the attached retail off-licence. The committee for England and Wales deferred a decision as to distillers and rectifiers until the Scottish and Irish committees had reported. These committees recommend the inclusion of such businesses in the purchase scheme. The Irish committee advises the reduction of licences in that country by at least one-half, with compensation to those suppressed from money raised entirely or largely by a special levy on the Irish trade. The purchase price suggested is fifteen times the annual profit ascertained for the five years before the war. The Irish scheme recommends twelve years' purchase on the net pre-war profit in the case of distillers. The committees recommend that persons losing employment, including holders of on-licences, should be compensated in accordance with a schedule. The total estimated cost is somewhat more than four hundred millions, but substantially less than five hundred millions.

A COUNCIL OF BRITISH OPHTHALMOLOGISTS.

A MEETING of ophthalmic surgeons and physicians was held at the rooms of the Royal Society of Medicine on May 2nd for the purpose of forming a council to take action in ophthalmological matters arising in connexion with public affairs. Mr. Treacher Collins, President of the Ophthalmological Society of the United Kingdom, was in the chair, and the resolution affirming that such a council should be formed was proposed by Sir Anderson Critchett. It would, he said, meet a definite need and tend to weld the elements of ophthalmology more closely together, as well as making for the welfare of the public. Mr. Richardson Cross (Bristol) seconded the

resolution, remarking that governments and governing bodies needed expert advice in order to be efficient, and the best experts were those who enjoyed the confidence of their colleagues in that special line of practice. Owing to the amalgamation of the journals devoted to ophthalmology, and the representation on the Ophthalmological Society of the various similar bodies in the kingdom, the profession was now well organized and could present a powerful front on all questions specially concerning it. He instanced ophthalmia neonatorum, army and navy visual standards, visual and lighting requirements in various kinds of industry, organized inquiries concerning the blind, and grades of compensation payable according to degrees of visual disability. Mr. J. B. Lawford, in supporting the resolution, said that the days were rapidly passing when the nation could afford to ignore scientific discoveries and the new methods based upon them. He believed more attention would be paid in the future to the views of representative bodies and less to the opinions of individuals, however eminent. We were much behind other civilized countries in that ophthalmology was not a compulsory subject of the medical curriculum. At present a man receiving the minimum qualifying medical diploma could at once take up the practice of ophthalmology; if the proposed committee did no more than insist that men should not take up this work without special training, it would fully justify its formation. Other speeches in support of the resolution were made by Mr. Grey Clegg (Manchester), Sir George Berry and Dr. G. Mackay (Edinburgh), and it was carried unanimously. It was further decided that the council should consist of all the past and present presidents of the Ophthalmological Society of the United Kingdom and of the Section of Ophthalmology of the Royal Society of Medicine as permanent members, four members nominated annually by the councils of each of these societies, and one representative from the Oxford Ophthalmological Congress.

SHAKESPEARE'S HANDWRITING.

DR. R. W. LEFTWICH put forward, at the fifty-ninth annual Shakespeare festival of the Urban Club on May 7th, a suggestion with regard to Shakespeare's handwriting which is ingenious and certainly fits well with some of the facts. The specimens which have been preserved of Shakespeare's handwriting all date from the later years of his life, from 1612 to 1616. They all appear so laboured that they must have been written very slowly. The difficulty is to reconcile the theory that he wrote slowly with his very large output. The inference from the statement of Hemming and Condell is that his penmanship of the plays was excellent, "his mind and hand went together," and the "William" of the full signature to the will proves that he was able to write at least a word or two well. If his later writing is so much worse than his earlier, the change must have been due to disease; yet it could not have been a constitutional disease, for, in the preamble to his will, Shakespeare solemnly declares that he is in perfect health. Now, all possible diseases, with one exception, are ruled out by age, duration, good mental capacity, the non-rhythmic tremor, etc. Dr. Leftwich's contention is that only one condition fulfils all the indications, and that is writer's cramp. To test this, he collected the opinions, as to the causes and the signs of the disorder, given by twelve eminent authorities on the subject. In the first place, as is well recognized, all persons who suffer from writer's cramp have been voluminous writers; that Shakespeare must have been a voluminous writer is proved by the fact that the first folio alone contains one thousand double columns. Again, a cramped position of the hand in writing is held to be one of the causes, and the handwriting of Shakespeare's time was cramped. The age also agrees: Shakespeare was 48 in 1612, and of 194 cases seen by Jelliffe 45 were in persons between the ages of 40 and 50.

With the help of facsimiles of the signatures the presence of all the signs enumerated by authorities was demonstrated by Dr. Leftwich, who concludes that the advent of the disorder in or about 1611—the year in which the last play, *The Tempest*, was produced—explains why Shakespeare retired to Stratford in the prime of life. The suggestion recalls the note in which Popps explained the reason why he gave up keeping his diary; in his case it was defective vision, probably due to failure of accommodation.

MEDICAL PRACTITIONERS UNDER THE MILITARY SERVICE ACT.

REGULATIONS giving effect to the provisions of the Military Service Act, 1918, rendering liable to military service medical practitioners who have not attained the age of 56 years, have been drafted by the Local Government Board, in consultation with the Ministry of National Service, and have been under the consideration of the Central Professional Committees. These regulations will probably be issued next week, and will come into force at once, since they are made under Section 1 of the Act. Medical practitioners brought within the scope of the Military Service Acts will receive at an early date a notification from the Ministry of National Service requesting them to appear for medical examination, as their cases are brought under review by the medical tribunals (the Central Professional Committees) in consultation with the Ministry. The places at which the medical examinations shall be made will be selected with due regard to the convenience of medical practitioners in the various areas as these are brought under review.

We understand that the bacteriological investigations have not so far confirmed the suggestion that the cases recently observed in London, Sheffield, and some other parts of the country, presenting obscure nervous symptoms characterized especially by ophthalmoplegia, are to be attributed to infection by *B. botulinus*. The diagnosis of botulism is therefore in doubt, and that of poliomyelitis cannot be excluded. The investigations into the nature of the disease are being made by the Local Government Board with the assistance of the Medical Research Committee.

Medical Notes in Parliament.

Criminal Law Amendment Bills.

In the House of Lords, on May 7th, second reading was given, on the motion of Viscount Sandhurst, to a Government measure, the Criminal Law Amendment Bill, which, subject to a few important alterations, has been modelled on the lines of a bill that passed through Standing Committee of the House of Commons last year, but could not be taken further. The Lords also gave second reading to a Sexual Offences Bill, introduced by Lord Beauchamp, and referred both measures to a Joint Committee of the two Houses.

In explaining the provisions of the Government bill, Lord Sandhurst said that Clause I would abolish the plea of defence that a person under sixteen consented to the act complained of. Clause II would withdraw as a defence the reasonable cause of belief that the girl was sixteen years old, and it proposed to extend the period during which proceedings might be taken to twelve months after the alleged offence. Clause III would enact that where any girl was convicted before any court that, "being a common prostitute," she loitered or importuned for the purposes of prostitution and solicitation, such a girl, under 18, might, until the age of 19, be detained in a home in lieu of punishment. The clause, he said, laid down that such a course should be taken only after most careful inquiry by a probation officer, or by a committee of which two of the members should be women.

The bill of last year did not restrict the application of the clause to "common prostitutes"; nor was a term for detention in a home given, as in this bill, with limitation of a year. As in the previous bill, there is right of appeal to Quarter Sessions against an order for such detention.

In regard to Clauses V and VI, dealing with venereal disease, Lord Sandhurst said that the position was much changed since the bill was originally drafted and introduced last year. Much was being done under the Venereal Diseases Act—in diagnosis,

treatment, and in the organizing of institutions, which had already done much better work than many had expected.

Clause V of the bill takes up the old provisions against sexual intercourse by persons suffering from venereal disease, and has a new subsection, as under:

(3) A person charged with an offence under this regulation shall if he so requires be remanded for a period (not less than a week) for the purpose of such medical examination as may be requisite for ascertaining whether he is suffering from such a disease as aforesaid. The defendant shall be informed of his right to be remanded as aforesaid, and that he may be examined by his own doctor or by the medical officer of the prison.

By Clause VI an offence under the previous clause is added to the list of offences which afford ground for judicial separation for women. Clause VII is designed to consolidate and amend the Indecent Advertisement Act of 1889, and the Venereal Diseases Act of last session.

Army Medical Service Report (France).—Major David Davies asked Mr. Maopherson on May 2nd whether, in view of the increased demands upon the medical man power of the country, he would take immediate steps to present to the House the report of the committee of inquiry into the medical service in France. Mr. Maopherson replied: In the opinion of the recognized heads of the civil medical profession there is nothing in the report on which action is likely to be taken affecting the medical man power of this country. As I informed my hon. and gallant friend on April 23rd, consideration of the report has had to be suspended during the present emergency. It is not proposed to publish the report.

Medical Students and National Service.—A full statement as to the position of medical students in regard to national service was made by Mr. Beck, on May 2nd, in reply to a question by Mr. Snowden. He said that it was determined by National Service Instruction 35 of 1918 and Army Council Instruction 153 of 1918. These instructions were summarized in the JOURNAL of March 16th and February 23rd respectively. Mr. Beck added that medical students who did not fulfil the conditions of exemption were posted to the army in the ordinary way and not necessarily to the R.A.M.C.

Medical Men's Chauffeurs.—Sir Watson Cheyne asked whether chauffeurs employed by medical men carrying on large general practices, not only of their own, but also of medical men serving in the army and very dependent on their experienced drivers, might be exempted from military service. Mr. Beck replied that the Decertification Order of April 9th applied to chauffeurs within the age and medical category stated, but that a certain discretion was vested in National Service representatives to be exercised in urgent and exceptional cases until an efficient substitute had been found. It could not be too strongly urged that all motor drivers fit for military service should be replaced at the earliest moment by women, by unfit men, or by men discharged from the forces.

Indian Medical Service.—On an inquiry by General Page Croft, on May 8th, Mr. Herbert Fisher said that, as a special measure, the Secretary for India last December authorized the ante-dating of the promotion of certain captains of the Indian Medical Service with a view to securing for them a relative equality in seniority with that of corresponding officers of the Royal Army Medical Corps whose promotion had been accelerated by war conditions.

Voluntary Red Cross Workers.—The position under the Military Service Act of voluntary Red Cross workers who convey wounded soldiers from railway stations to hospitals was explained by Mr. Beck on May 2nd. The Army Form O 337 was a certificate of identity issued by the War Office to civilians wearing Red Cross brassards, and conferred no exemption or protection from military service. Men certified as full-time workers by the British Red Cross Society whose engagement had been sanctioned by the Director of National Service in the region were not called to the colours under present instruction if placed in Grade 3. It was intended that men now liable for service by the raising of the military age should have this protection if they fulfilled the above conditions.

National Service Grading.—Mr. Beck informed Mr. Anderson that the standard of medical grading by National Medical Boards had not been altered, except that a slightly lower standard of vision had been adopted in accordance with the views expressed by a committee of military and civil ophthalmic specialists.

Examinations by Medical Boards.—In reply to Mr. Cathcart Watson, Mr. Beck, on May 1st, said that under present arrangements for the medical examination of recruits every effort was made not only to obtain evidence of each man's medical history but to weigh this evidence carefully before deciding on a man's grading.

Supplemental Rations.—Mr. Clynes, the Parliamentary Secretary to the Food Department, said, on May 3rd, that it was not at present possible to state the number of persons who were obtaining a higher scale of food rations. So far as civilians were concerned heavy manual workers obtained two extra meat coupons a week, and these were valid for the purchase of any meat other than uncooked butcher's meat. There was no differentiation of rations between different classes of heavy workers. A certain number of women and children were included in this class. Adolescent boys from 13 to 18 obtained half the amount, while an additional meat meal was provided for persons working a specified amount of overtime at night after a full day. The Food Control Committees were ordinarily the deciding authorities, but acted under general instructions from the Ministry of Food. The arrangements were provisional.

THE WAR.

TREATMENT OF WOUNDS IN WAR.

(Concluded from p. 516.)

THE following are the final sections of the conclusions of the Inter-Allied Surgical Congress at Val-de-Grâce from March 11th to 16th.

IV. TREATMENT OF PSEUDARTHROSIS.

1. The unavoidable cause of false joints in war fractures is the primary destruction of a part of the diaphysis. The other causes which actually have to be taken into account are infection, excessive removal of splinters of bone, and bad reduction, and these ought to disappear. A certain number of false joints can be avoided by sterilization of the seat of fracture, prudent removal of fragments of bone, good reduction carefully supervised, and in certain well-defined cases by immediate or early fixation of the bones.

2. Save in exceptional cases, false joints should only be operated upon after a considerable interval, when the skin wound is completely cicatrized and when clinically the inflammatory process appears to have ceased. The existence of buried organisms should be investigated by all means at our disposal, such as forcible active and passive movements, elastic bands, vigorous massage, etc.

The following note is added at the request of Sir Arbuthnot Lane:

(a) In cases in which the lower end of the femur, or the upper end of the tibia, or both, are removed the treatment may differ according to the occupation of the wounded man. In workmen an attempt should be made to obtain ankylosis between the femur and tibia either directly or by means of a graft; in men following sedentary occupations a false joint fixed by an apparatus which permits of flexion may be more advantageous. Either of these two conditions is preferable to amputation of the thigh and an artificial limb. (b) In a case in which there has been extensive loss of substance of the lower end of the humerus, the elbow being intact, it is often desirable to obtain a false joint permitting flexion between the humerus and its shattered lower end, leaving rotation to be produced at the radio-humeral articulation. This condition is more useful and permanent than that given by resection of the elbow.

3. From the point of view of treatment two conditions are to be distinguished: (a) In simple false joints and in certain examples of false joint with loss of substance in the part of a limb containing only a single bone, it is possible, after freshening the bone in the manner that pathological anatomy suggests, to unite the bones by a metal plate. The best method appears to be fixation with a metal plate, using screws, the screws being placed as far as possible from the false joint. The combination of the use of the metal plate and of an osteo-periosteal graft has given very good results. (b) A false joint with loss of bony substance usually requires a bony or osteo-periosteal graft.

4. Perfect asepsis. Complete excision of the fibrous tissue which surrounds the fragments and of any diseased portions of the bones are conditions indispensable to success.

The following note is added at the request of Sir Arbuthnot Lane: An additional means of detecting and eliminating the persistence of infection is the use of autogenous or stock vaccine.

V. CONSERVATIVE OPERATIONS ON THE FOOT.

As it is very desirable to maintain the integrity of the sole, incisions or resections through it should only be performed when absolutely necessary. Every endeavour should be made to obtain primary union in every case. The same considerations apply to the dorsal surface of the foot when cicatricial contraction might interfere with the functions of the sole of the foot. It is even justifiable to resect certain bones in order to permit primary or secondary union and the maintenance of the skin of the sole in its normal condition. Amputation of one or several toes causes little inconvenience. The preservation of one toe, especially the first or the fifth, is often embarrassing. Disarticulation of the metatarsal bones, with preservation of

the corresponding toes, generally gives bad results. Resection of the first and fifth toes, with their metatarsal bones, generally gives a satisfactory result. The result of preservation of the great toe alone, with its metatarsal bone, is not generally good. Excision of the second, third, and fourth metatarsals produces a narrow foot, and walking and standing are seriously impeded. As a general rule the loss of three metatarsal bones seriously upsets the mechanism of the foot. The results of amputation through the metatarsus with a good plantar flap, whether performed through the anterior or posterior part of the metatarsus, are very favourable. After Lisfranc's disarticulation walking may be easy and even elastic if the remainder of the foot is in good condition. As it is a difficult operation, it may be simplified by leaving the bases of the metatarsal bones. Pre-scapheoido-cuboid amputation gives good functional results. In short, all the operations through the front of the tarsus give good results if there be no complication due to the cicatrix or the conditions of the articulations. Chopart's amputation when done under good conditions and carefully watched may give a good result, but the equinism and the displacement of the stump often cause functional troubles which render it inferior to the amputations of Lisfranc and Syme. Partial resections of the astragalus and calcaneum, or horizontal resection of the calcaneum, check the tendency to equinism. Amputation below the astragalus (Pirogoff's amputation and more especially Syme's) leaves the patient able to walk easily and quickly. On the other hand, operations on the posterior tarsus are very often followed by functional difficulties. Total or subtotal excision of the astragalus gives good results, but they are not so good as those obtained in peace; the causes of failure are infection of neighbouring tissues, stiffness of joints and tendons, and insufficient supervision of the attitude of the foot after operation. Excision of the whole or greater part of the calcaneum, if bony regeneration does not take place, leaves a bad condition, very frequently attended by tibio-tarsal or mediotalar ankylosis. Partial resections, whether posterior or inferior, give less unfavourable results if the foot is well maintained at a right angle during the whole course of treatment. Combined resection of the calcaneum and the astragalus gives usually a bad result.

Atypical Operations.—Resections of the anterior part of the tarsus involving the scaphoid and cuboid are often followed by equinism, with valgus or varus, or falling in of the arch of the foot. The functional condition can be greatly improved by an orthopaedic boot. The seriousness of the consequences of excision of either of these bones seems to be about equally great. The results of atypical operations on several bones of the anterior part of the tarsus are determined much more by the degree of preservation of the arch of the foot, the strength of the points of contact of the sole with the ground, and the preservation of the action of joints and tendons than on the site of the operation itself. Vicious positions of the foot, if the joints be freely movable, can be cured or improved by the division or transplantation of tendons. Transplantations are particularly useful when certain tendons have been destroyed. Some vicious positions with ankylosis call for secondary operations on the bones (resection of the cuneiform or astragalus). In short, conservative operations on the metatarsus are good, but in the posterior tarsus excision of the calcaneum or resection of several bones often cause functional disturbances which are graver than those following disarticulation or a Syme's amputation.

Note.—Professor Depage points out that in suppuration of the joints of the tarsus, persisting in spite of excision of the astragalus, an operation turning the foot forwards and inwards by extensive section of tendons and ligaments, and the maintenance of the position by means of a bandage, favours disinfection of the suppurating focus. The foot can be replaced in the normal position after a week or a fortnight.

VI. FIXATION OF COMPOUND FRACTURES.

A distinction must be drawn between a primary operation for fixation of a compound fracture and an operation performed during the period of infection.

Primary Fixation.—The possibility of applying primary suture or delayed primary suture to a great number of wounds complicated by fracture justifies in principle the

immediate fixation of compound fractures, but the indications for the operation are uncommon. They are:

1. In certain fractures of joints in which the operation appears to be a method of choice to obtain anatomical and functional restoration.

2. In fractures of shafts which are irreducible or cannot be maintained in correct reduction (especially subcondylar fractures of the femur, fractures of the arm, etc.), and when large displaced fragments of bone are present.

Modern improvements in splints, however, render it possible in the majority of cases to obtain satisfactory adjustment without a fixation operation. Primary fixation is a difficult operation which exposes the patient to grave complications; it should be performed only by surgeons who have specialized, and at the present time the indications for it are uncommon. In the British army it is not the custom to have recourse to a primary fixation operation, for two reasons: (1) The good results now obtained with splints; (2) the bad results which fixation operations have often given in the past.

Fixation during Infection.—Operation for fixation during infection is accepted by some, but expressly rejected by others; those who accept it hold that it lessens the infection at the seat of fracture, is not accompanied by prolonged osteomyelitis, and is rarely attended by secondary sequestra. The results obtained, as a whole, are favourable. The indications for the operation would be the impossibility of reducing certain fractures of shafts or of maintaining them in correct reduction. Nevertheless, modern improvements in splints render possible such satisfactory reduction that fixation by operation is rarely indicated. Temporary fixation by means of plates and screws commands a majority of suffrages.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON H. N. DALE-RICHARDS, R.N.

Surgeon Hedley Norman Dale-Richards, R.N., was reported as killed in action, in the casualty list published on May 1st. He was educated at St. Mary's Hospital, and graduated B.Sc.Lond. in 1912, after which he held the posts of joint lecturer in biology and senior demonstrator in physiology in the Middlesex Hospital Medical School. In 1917 he took the diploma of L.M.S.S.A., and immediately joined the navy as a temporary surgeon.

SURGEON PROBATIONER W. C. HOLDSWORTH, R.N.V.R.

Surgeon Probationer W. C. Holdsworth, R.N.V.R., was reported as killed in action, in the casualty list published on May 1st. He had previously been reported as "missing, presumed killed," in the loss of H.M.S. *Begonia* in October, 1917.

Died of Injuries.

SURGEON R. W. BRANDER, R.N.

Surgeon Robert William Brander, R.N., died of accidental injuries at South Queensferry Naval Hospital on May 1st. While returning on a motor cycle from duty at Burntisland he was run into by a train of wagons at a siding at Rosyth. He was the son of Mr. Brander of Cupar, Fife, and was educated at the University of Glasgow, where he graduated M.B. and Ch.B. in 1914, and served as resident assistant to the Regius Professor there, till he took a temporary commission in the navy. For fifteen months he was surgeon on a cruiser in the North Sea, and afterwards served for eight months as house-surgeon at the Marchioness of Bute's naval hospital at Mount Stuart, Rothersey. Subsequently he was surgeon on a cruiser in the West Indies and the Atlantic.

ARMY.

Killed in Action.

CAPTAIN T. J. FEHILY, R.A.M.C.

Captain Thomas Joseph Fehily, R.A.M.C., was reported as killed in action, in the casualty list published on May 3rd. He was educated at Queen's College, Cork, and in the medical school of the Royal College of Surgeons, Ireland, and took the Irish double qualification in 1908 and the D.P.H. of the R.C.S.I., in 1910. After serving as house-surgeon at Jarvis Street Hospital, Dublin, and as assistant

medical officer and pathologist at the Devonshire County Asylum at Exminster, he became assistant medical officer at the Lancashire County Asylum at Rainhill. He took a temporary commission as lieutenant in the R.A.M.C. on October 10th, 1914, and was promoted to captain after a year's service.

CAPTAIN R. S. KENNEDY, M.C., R.A.M.C.

Captain Ronald Sinclair Kennedy, M.C., R.A.M.C., was reported as killed in action, in the casualty list published on May 6th. He was educated at Guy's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1912, and at Cambridge, where he graduated B.A., M.B., and B.C. in 1913, and M.D. in 1917. He entered the Egyptian service, where he successively filled the posts of ophthalmic surgeon to the Daquahia Provincial Hospital, and of inspector of ankylostoma hospitals, till he took a temporary commission in the R.A.M.C. towards the end of 1916, being promoted to captain after a year's service. He received the Military Cross on September 26th, 1917, and was recently attached to the South Lancashire Regiment.

CAPTAIN I. KEITH-FALCONER MACLEOD, R.A.M.C.

Captain Ion Keith-Falconer MacLeod, R.A.M.C., was killed in action on April 27th. He was the only son of the Rev. D. J. MacLeod, of the United Free Church Manse, Boddam, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1914. After serving as resident house-surgeon in the Edinburgh Royal Infirmary, he joined the R.A.M.C. as a temporary lieutenant, and was promoted to captain a year later.

CAPTAIN H. E. ROBINSON, R.A.M.C.

Captain Henry Ellis Robinson, R.A.M.C., attached West Yorkshire Regiment, was killed on April 26th, aged 31. He was the fourth son of the Rev. E. C. Robinson, of Malvern, formerly of Haubury, Staffordshire, and was educated at St. Bartholomew's Hospital, obtaining the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1915. Shortly after, he took a temporary commission as lieutenant in the R.A.M.C. and became captain a year later.

Died on Service.

CAPTAIN H. G. MASSY-MILES, R.A.M.C.

Captain Harry Godfrey Massy-Miles, R.A.M.C., died on service on April 26th, aged 32. He was the eldest son of the Rev. Canon J. H. Miles, of Teignmouth, and was educated in the medical school of the Royal College of Surgeons, Ireland, taking the diplomas of L.R.C.S.I. and L.R.C.P.I. in 1909. After acting as extern maternity assistant at the Rotunda Hospital, Dublin, and as house-surgeon of Fermanagh County Hospital, he went into practice at Trafford Park, Manchester. He took a temporary commission as lieutenant in the R.A.M.C. on December 21st, 1914, and was promoted to captain after a year's service.

Died of Wounds.

MAJOR W. S. GARNETT, A.A.M.O.

Major W. S. Garnett, Australian Army Medical Corps, was reported as having died of wounds, in the casualty list published on May 3rd. He had previously been reported as wounded in that of April 30th.

CAPTAIN H. S. PALMER, R.A.M.C.(T.F.).

Captain Hugh Salisbury Palmer, R.A.M.C.(T.F.), died of wounds on April 25th, aged 30. He was the younger son of the late Mr. C. A. Palmer, of Norwich, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1914. He took a commission as lieutenant in the 1st Home Counties (Maidstone) Field Ambulance on November 10th, 1914, and had subsequently served as medical officer to the 2nd Battalion Rifle Brigade, and in the 2/2nd Home Counties Field Ambulance.

CAPTAIN C. E. A. WILSON, R.A.M.C.

In the JOURNAL of April 30th we printed an obituary notice of the late Captain C. E. A. Wilson, who died of wounds on April 8th. A former teacher states that Captain Wilson received his fatal wound in the spine whilst attending the wounded under heavy fire; in spite of the gravity of his condition he insisted upon others being attended to first. He had previously been recommended for the Military Cross for conspicuous courage. Wilson achieved

the rapid success in practice which his professional ability, devotion to work, and kindness of disposition could not fail to bring. He was a man of high ideals and culture, combined with a modest and unassuming demeanour; a delightful companion and a staunch friend.

Wounded.

Lieut.-Colonel A. L. G. Gilday, Canadian A.M.C.
Major J. B. Lowe, R.A.M.C. (temporary).
Major J. Purdie, M.C., R.A.M.C. (S.R.).
Major A. W. Rattrie, R.A.M.C. (temporary).
Brevet-Major N. W. Stevens, R.A.M.C.
Captain E. S. Cathbert, R.A.M.C. (temporary).
Captain G. Fleming, R.A.M.C. (temporary).
Captain W. A. N. Fox, R.A.M.C. (S.R.).
Captain H. L. Gauntlett, R.A.M.C. (T.F.).
Captain F. C. Harrison, R.A.M.C. (S.R.).
Captain J. G. Hill, R.A.M.C. (T.F.).
Captain C. H. Leeman, M.C., Australian A.M.C.
Captain G. T. MacLean, R.A.M.C. (temporary).
Captain A. Malseed, M.C., R.A.M.C. (temporary).
Captain O. D. B. Mawson, R.A.M.C. (temporary).
Captain A. F. L. Shields, R.A.M.C. (S.R.).
Captain C. G. Skinner, R.A.M.C. (temporary).
Captain P. R. Woodhouse, M.C., R.A.M.C. (temporary).
Lieutenant G. L. Gall, R.A.M.C. (temporary).
Lieutenant and Quartermaster W. Gough, R.A.M.C.

Wounded and Missing.

Captain R. D. MacGregor, R.A.M.C. (temporary).

Missing.

Captain A. G. Clark, M.C., R.A.M.C. (temporary).
Captain S. A. Forbes, R.A.M.C. (temporary).
Captain C. C. Gibson, R.A.M.C. (temporary).
Captain A. H. Little, R.A.M.C. (T.F.).
Captain J. P. Macvoy, R.A.M.C. (temporary).
Captain C. O'Malley, R.A.M.C. (temporary).
Captain H. W. White, R.A.M.C. (temporary).

Prisoners of War.

Captain T. E. Carr, R.A.M.C. (temporary).
Captain H. Cranweller, R.A.M.C. (temporary).
Captain E. H. Griffin, D.S.O., M.C., R.A.M.C. (temporary).
Captain R. W. Hodgson-Jones, R.A.M.C. (temporary).
Captain A. T. I. Macdonald, R.A.M.C. (temporary).
Captain J. G. M. Molony, R.A.M.C. (temporary).
Captain J. C. Muir, R.A.M.C. (temporary).
Captain S. Smith, R.A.M.C. (temporary).
Captain J. Tate, R.A.M.C. (temporary).

Captain E. H. Griffin, D.S.O., was previously reported as killed; a notice of his services was published in the *BRITISH MEDICAL JOURNAL* of April 13th.

DEATHS OF SONS OF MEDICAL MEN.

Baker, Harold Glasspool, Captain, M.C., 8th Somerset Light Infantry, second son of Dr. Thomas Baker of Waterlooville, Hants, aged 28, killed April 5th. He gained the M.C. and bar in 1917.

Boucher, Henry Mason, Captain Somerset Light Infantry, only surviving son of the late Dr. Arthur Henry Boucher of Hertford, killed April 23rd, aged 27. He got a commission on March 24th, 1915.

Crerar, Donald Campbell, Lieutenant R.F.A., attached R.E., fifth surviving son of the late Dr. John Crerar of Maryport, killed April 24th, aged 34. He got a commission in the Cumberland howitzer battery of the 4th East Lancashire Brigade of Artillery (T.F.) on February 28th, 1915.

Culpin, Clarence H., Australian Infantry, son of Dr. M. Culpin of Taringa, Brisbane, Queensland, killed in France on April 16th.

Cunnington, Lieutenant C. H., eldest son of Dr. Cunningham of West End Lane, Hampstead, died on April 26th from illness contracted on active service. At University College, London, he took first class honours and gained the University scholarship in geology. Subsequently he was appointed assistant geologist in the Geological Survey. He obtained his commission in the 8th Wilts and subsequently was sent to the Dardanelles as geological expert attached to the Royal Engineers, and while there suffered a severe illness. On returning to England, he joined a machine gun corps and went to France in February, 1917, but was invalided out of the army in October. After an operation he resumed his work for the Survey, but his health again broke down last month.

Grange, James Burness, Second Lieutenant West Yorkshire Regiment, youngest son of Dr. J. D'Oyley Grange of Harrogate, formerly of Moffat, killed April 20th. He was educated at Repton and at Guelph Agricultural College, Canada, where he graduated B.Sc. Returning to England, he got a commission

through the Ions of Court O.T.C., and went to the front about a year ago.

Millar, Arthur Liberty, Captain Rifle Brigade, only son of Dr. James Millar of Nottingham, killed April 15th. He got his first commission on November 21st, 1914.

Palmer, Edwin, Lance-Corporal London Regiment, youngest son of the late Dr. Grimes Palmer of Loughborough, Leicestershire, reported missing June 15th, 1917, now presumed killed on that date.

Peskett, Guy Eastwood Harry, Second Lieutenant Duke of Wellington's West Riding Regiment, eldest son of the late Dr. A. W. Chalmers Peskett, reported missing on May 3rd, 1917, now presumed killed on that date, aged 25. He was born in September, 1883, became a chartered accountant, got his commission in October, 1915, and went to the front in January, 1917.

Saunders, Robert Stratford Howard, Lieutenant R.F.A., only son of Captain Charles Howard Saunders, R.A.M.C. (T.F.), of Southampton, died of wounds on April 12th, aged 19. He was educated at Marlborough, entered Woolwich in 1915, got his commission in May, 1916, and was promoted to lieutenant in November, 1917. His father is now serving with the Italian Expeditionary Force.

Snell, Eric Aylmer Goldney, Major Bedfordshire Regiment, only son of Dr. G. Snell, late of the Colonial Medical Service, killed in German East Africa on November 16th, 1917. He was born in 1892, educated at Bedford School, and got his commission through Sandhurst in 1912. In March, 1914, he was appointed an assistant commissioner in Uganda, and when war broke out was posted to the King's African Rifles. He served in the Sudan, at Khartoum, in the Belgian Congo, and on the White Nile, and raised a new battalion of the K.A.R. He became captain in the Bedfords in 1916, major in the K.A.R. in 1917, and was mentioned in despatches on March 27th, 1918.

Stanton, Robert G., Lieutenant Royal Marines, eldest son of Dr. Stanton, of Market Deeping, South Lincolnshire, died at Dover of wounds received in the attack on Zeebrugge on St. George's Day, April 23rd.

Tuzo, John Atkinson, Captain Royal Sussex Regiment, son of the late Dr. Henry Atkinson Tuzo of Warlingham, Surrey, died in East Africa on April 8th, aged 43. His commission as captain in the 6th (Cyclist) Territorial Battalion of the Royal Sussex was dated April 15th, 1915.

Second Lieutenant S. Jackson (acting Captain), 2nd Battalion West Yorks Regiment, only son of Mr. H. L. Jackson (of Messrs. H. K. Lewis and Co., Ltd.), is reported missing since April 24th. He enlisted as a private in the R.A.M.C. (T.), in 1914, was transferred to an O.T.C. in January, 1917, gained his commission in May, and went to France in July of that year.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

A SPECIAL Supplement to the *London Gazette*, dated April 25th, contained the following statements of conspicuous gallantry and devotion to duty for which the awards indicated have recently been granted:

Bar to the Distinguished Service Order.

Temporary Surgeon William James McCracken, D.S.O., M.C., R.N.

He tended and evacuated the wounded in the open under heavy shelling. Hearing that there were many wounded lying in mud and water in shell holes, he led up two platoons with stretchers. When they were fired on he made them take cover and himself advanced through the enemy's fire, bearing a Red Cross flag on his walking stick. This the enemy eventually respected, and so he was able to clear the area of wounded. By his courageous action he saved many lives.

Distinguished Service Order.

Temporary Captain Archibald Stirling Kennedy Anderson, M.C., R.A.M.C.

Under heavy shell fire he led forward a party of stretcher-bearers and collected twenty-five wounded men who were lying within fifty yards of the enemy line. He set a splendid example of courage and self-sacrifice.

Temporary Captain James Thornley Bowman, R.A.M.C.

During an attack he attended to the wounded for five hours in the open under heavy fire. He showed the greatest coolness and courage throughout the day.

Captain George Vernon Davies, A.A.M.C.

He went forward through an intense barrage and established a regimental aid post in an advanced position, remaining on duty continuously for fifty-four hours, often working in the open under heavy fire. When the aid post was hit by a shell he extricated a man who was buried, and continued his work. He remained for fifteen hours after the battalion was relieved till the last man was carried back to safety, and set a magnificent example to all.

Temporary Captain Howard Boyd Graham, R.A.M.C.

During a heavy barrage he personally reconnoitred the advanced aid posts, with the result that many cases were evacuated the moment the barrage lifted. This action undoubtedly saved many lives. On another occasion he went out and brought in two officers and four other ranks who were lying out unattended. Later, hearing that an officer had become a casualty, he went forward and brought him back single-handed to a point whence he was evacuated. His coolness, fearlessness, and devotion to duty were beyond praise.

Captain (acting Lieut.-Colonel) Robert Thin Craig Robertson, R.A.M.C.(S.R.).

When two ammunition lorries were hit by enemy shells he went forward at great risk to where several men had been killed or wounded, dressed their wounds, and had them evacuated. He displayed great initiative and coolness.

Temporary Captain Harvey Gordon Young, C.A.M.C.

During an attack he went forward with a stretcher squad through a heavy barrage and established an advanced aid post. For two days he was entering in his work of attending to the wounded, and getting them in from advanced areas with complete disregard of danger. By his skilful organization and untiring energy he attended to and evacuated over 400 cases in two days.

Second Bar to the Military Cross.

Temporary Captain George D'Rastrik Carr, M.C., R.A.M.C.

He reconnoitred a route for his bearers under heavy shelling. From 4 a.m. till late the following evening he was continually under heavy fire between his collecting post and the regimental aid post. His constant knowledge of events in the first line enabled only the requisite number of bearers to be used in the more dangerous parts.

Bar to the Military Cross.

Temporary Surgeon James Ness McBean Ross, M.C., R.N.

He attended the wounded in the front line under heavy fire, until himself severely wounded.

Captain David MacDonald Steele, M.C., A.A.M.C.

He was in charge of the evacuation of the wounded from a whole divisional front during thirteen days' operations. On several occasions, when it was impossible to bring casualties through by the existing route, he personally inspected the new line of evacuation on each occasion, and made admirable arrangements for getting them clear and avoiding further casualties.

Captain Robert Bell Stewart, M.C., R.A.M.C.(S.R.)

He successfully carried out the evacuation of the wounded from the regimental aid post, over extremely bad ground, and under very heavy fire.

Temporary Captain Francis Ruthven Thornton, M.C., R.A.M.C.

When in charge of bearers he evacuated the wounded under very adverse weather conditions. When, owing to an intense barrage, bearers repeatedly failed to get through to the advanced regimental aid post, he personally led them forward and remained there for ten hours, evacuating thirty-six serious cases.

Military Cross.

Temporary Captain John Frederick Broughton, R.A.M.C.

He attended the wounded in an exposed aid post under heavy fire throughout the day. He visited the advanced positions whenever he could to organize his bearers and collect wounded. After the battalion was relieved he stayed in the line all the following day to search for wounded. When the medical officer of a neighbouring battalion became a casualty he passed from one aid post to the other under heavy fire and attended to the wounded of both battalions.

Captain Angus Cameron, R.A.M.C.

He attended to the wounded under constant shell fire, during which his regimental aid post was blown up, and he had to continue his work in the open. After heavy casualties had occurred among the stretcher-bearers he organized stretcher parties from all available men, and carried in wounded men himself.

Temporary Lieutenant (temporary Captain) William Kealty Campbell, D.S.O., R.A.M.C.

In searching for wounded he and his party came under heavy fire. Ordering his bearers to take cover in shell holes, he searched the ground by himself, calling up bearers as he required them. When moving away with the last wounded man a shell severely wounded one of the bearers. Ordering the remainder to take their stretcher case into a "pill-box," he remained in the open with the wounded bearer till he died.

Temporary Captain Charles Lauder Chalk, R.A.M.C.

He displayed great initiative under shell fire. When his dressing station was crowded with wounded he dressed in the open those who were unable to find cover. Through his promptitude and headlessness of danger in dressing and clearing away the wounded he undoubtedly saved many lives during a critical period.

Captain Archibald John Collins, A.A.M.C.

He organized a party of forty stretcher-bearers, leading them through two barrages to the front line, and dressing and attending wounded under heavy fire and direct observation.

Captain Joseph Wilfrid Craven, R.A.M.C.

When in charge of bearer parties removing the wounded he discovered many wounded in an old enemy "pill-box," he returned for bearers, and so saved the lives of one officer and six men. During the whole time he was under severe machine-gun fire and shrapnel.

Captain Henry Clarke Davis, C.A.M.C.

He was continually on duty as regimental medical officer for four days and nights, under heavy fire, attending to the wounded, and frequently dressed cases in the open. His courage and determination were responsible for the evacuation of all the wounded before the battalion was relieved.

Temporary Captain Henzell Howard Dummere, R.A.M.C.

He voluntarily left shelter and went across difficult ground under very heavy fire to help three seriously wounded men, afterwards conducting the stretcher-bearers to the aid post half a mile away.

Captain Eric Macallan Gordon-Glassford, A.A.M.C.

He attended the wounded under intense shell fire. Finding a squad of bearers exhausted owing to the mud, he and his orderly relieved two of them and helped to carry a wounded man for three miles under shell fire. Finding that a dog-out had been hit and three men buried, he went with a couple of bearers, and, in spite of heavy shell fire, succeeded in extricating the men and getting them away.

Captain Hugh Edward Kirkland, A.A.M.C.

When the enemy concentrated a heavy fire on a battery, one officer and five men being wounded, he went out at great personal risk under this fire and got them to a place of safety.

Captain Guy Ardlaw Lawrance, A.A.M.C.

In addition to his ordinary regimental duties he accompanied a daily convoy of thirty G.S. wagons detailed for road repair. He attended to the wounded in the open irrespective of units, under extreme difficulties and heavy shell fire.

Temporary Captain John Tryweryn Lloyd, R.A.M.C.

As battalion medical officer he frequently went forward under heavy machine-gun and shell fire to supervise the work of his stretcher-bearers.

Captain Alfred James Angel McCabe Dallas, R.A.M.C.

Seeing a trench some distance off being heavily shelled, although not in medical charge of the troops occupying it, he at once ran to see if he could help any casualties, and while so doing was severely wounded.

Temporary Captain James MacGregor, R.A.M.C.

When in charge of a bearer division he followed up the barrage closely and evacuated the wounded under heavy fire. By magnificent work he cleared the ground of wounded before dusk.

Temporary Captain James Murdoch MacKay, R.A.M.C.

He remained at work although suffering from gas poisoning and continually left the aid post to direct his orderlies and bring in walking wounded cases.

Captain John Shaw Mackay, A.A.M.C.

When in command of bearer division he attended to many casualties which occurred amongst the personnel of batteries and working parties, carrying out his duties in the open with utter disregard of danger.

Captain Philip McRitchie, R.A.M.C.

Coming upon a party of sixteen men wounded by shell fire, he dressed their wounds under a heavy barrage and called for volunteers to carry them to the aid post. Hearing that his commanding officer and adjutant had been wounded about a mile away, he made his way across country under heavy fire and got them to the dressing station.

Captain Melrose Holton Moller, A.A.M.C.

He worked for forty-eight hours attending the wounded in the open under most difficult conditions and heavy shell fire.

Captain James Frederick Stewart Marshall, C.A.M.C.

Hearing that there were many wounded in "No Man's Land," he called for volunteers and went forward in charge of them under intense fire. He was continuously on duty for forty-eight hours, and brought in many wounded under most trying conditions.

Temporary Lieutenant Kekbasu Sobrabji Master, I.M.S.

He pushed forward his advanced dressing station and kept in close touch with the regimental aid posts, and collected, dressed and evacuated the wounded. He showed great courage and coolness under heavy fire.

Temporary Captain David Matthew, R.A.M.C.

During two days' heavy fighting he established a dressing station in an advanced position whence he continually went forward to dress wounded and organize carrying parties under heavy fire. He inspired his men to continue their work by his splendid example.

Captain Thomas Williamson Moore, C.A.M.C.

When in charge of bearer parties at an advanced regimental aid post cases had to be attended to in the open under heavy fire, and he worked continuously for forty-eight hours.

Captain Edgar Percival, D.S.O., R.A.M.C.

While he was leading a party of sixteen stretcher-bearers towards the aid post they came under heavy shell fire, and seven were wounded. He got them back and brought up fresh men. One of this party was wounded, and while an attempt was being made to get him back the patient and three bearers were killed. After replacing these casualties he succeeded in getting through at the third attempt, and removed all the wounded.

Temporary Captain Maurice Aloysius Power, R.A.M.C.

When in charge of a bearer division, he collected and dressed wounded under heavy fire. On the way to the aid post his bearer was killed by a shell and he was wounded, but he succeeded in clearing his sector of wounded before dark, and then had to be assisted in an exhausted condition to the dressing station.

Captain Henry Frederick Preston, C.A.M.C.

As regimental medical officer he established an aid post in a most advanced position, and worked under continuous shell fire. He set a magnificent example by his coolness and courage, and his fearlessness and untiring energy saved many lives.

Captain William Dempsey Quilty, A.A.M.C.

When in charge of a bearer division he remained at a cross roads throughout the day attending to casualties and supervising their evacuation, though the enemy was persistently shelling the area with gas and high explosive shells.

Temporary Captain Reginald Thompson Raine, R.A.M.C.

During an intense barrage he went out in the open to attend to wounded, and when his stretcher-bearers became casualties he himself carried cases in. Returning later, he also brought in the stretcher-bearers, though exposed all the while to an intense shell fire. He showed a magnificent example to all, and undoubtedly saved many lives.

Captain Clive Frederic Robinson, A.A.M.C.

On hearing, while with another battery, that two batteries 500 yards away were being heavily shelled with gas, shrapnel, and high explosive shells, and many casualties were occurring, he at once went there, and, in spite of the intensity of the shelling, remained for an hour and a half attending to the wounded.

Captain Christopher Rogers, R.A.M.C.

As medical officer to his battalion during an attack, when his aid post was blown in and all his staff killed or wounded, he remained at his post, working in the open under continuous shell fire over twenty hours, 200 cases passing through his hands. After most of his stretcher-bearers had been killed or wounded, he brought in a large number of wounded himself until he was exhausted.

Captain John Gray Ronaldson, R.A.M.C.(S.R.).

He was in charge of bearers for nine days, almost without rest. He several times went forward under heavy shell fire to attend to gunners who were wounded and lying in the open. During a heavy gas bombardment, in which there were many casualties, he was himself gassed.

Captain Walter Hepburn Scott, C.A.M.C.

He led his stretcher-bearers forward over "No Man's Land" and dressed and brought in many wounded men under very heavy fire. Although buried and severely shaken by a shell, he continued his work.

Temporary Captain Reginald Herman Tribe, R.A.M.C.

Having organized an aid post behind the front line, he dealt untiringly with many wounded cases belonging to several different units, his courage and efforts being the means of saving many lives and much suffering. He showed splendid determination and resource.

Captain Ernest Coultter Whitehouse, C.A.M.C.

He attended to the wounded under heavy fire, going out repeatedly to bring in wounded officers and men.

NOTES.

**VACCINES PREPARED AT THE VACCINE DEPARTMENT,
ROYAL ARMY MEDICAL COLLEGE.**

WE are indebted to Lieut.-Colonel D. Harvey, C.M.G., R.A.M.C., for the following information:

Since the outbreak of the war and up to the present time the prophylactic vaccines in use for the inoculation of the troops on the various fronts have been prepared in the vaccine department of the Royal Army Medical College, London.

Typhoid.—Down to December, 1915, a simple typhoid vaccine containing 1,000 million bacilli in 1 c.cm. was employed; the amount of this issued was $4\frac{1}{2}$ million doses of 1 c.cm. In addition, 20,000 c.cm. of a mixed paratyphoid vaccine was issued in 1915. Since January 1st, 1916, T.A.B. vaccine so called—that is, a mixed vaccine of *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B—with a dose of 2,500 million bacilli per cubic centimetre has been used, and of this 14 million doses of 1 c.cm. have been issued.

Cholera.—Of cholera vaccine composed of several strains of *V. cholerae* $5\frac{1}{2}$ million doses of 1 c.cm. have been sent abroad, the dose being 8,000 million vibrios in 1 c.cm.

Dysentery.—A new dysentery vaccine has also been prepared; this consists of a mixture of several strains of the various dysentery bacilli, and is injected along with a dose of a specially prepared serum which neutralizes the toxic properties of the bacilli without interfering with their vaccinating powers; 60,000 c.cm. have been issued mostly to Salonica and Egypt, where its use has been attended with success.

Other Vaccines.—The following vaccines have also been prepared and issued: *B. coli* 22,842 c.cm., *Staphylococcus albus* 30,306 c.cm., *Staphylococcus aureus* 95,967 c.cm., *staphylococcus* (mixed) 62,753 c.cm., acne vaccine 33,736 c.cm., streptococcus vaccine 65,865 c.cm.

Tetanus Antitoxin.—All the tetanus antitoxin and other serums prepared elsewhere is received at the Vaccine Department and issued to the various base dépôts overseas and to hospitals at home. The equivalent of 10 million doses of 500 units of tetanus serum has been dispatched.

Preparation and Dispatch.—The total amount of vaccine prepared and issued, or at present in stock, for the three and a half years of war amounts to 25 million doses of 1 c.cm., equivalent to an average daily output of 20,000 c.cm. The whole of this vaccine has been prepared, standardized, and tested by the medical officers of the department. A large part of the bottling of the vaccines has been carried out by teams of voluntary lady workers, who attend for some hours on certain days, about 70 litres of vaccine being bottled in an afternoon. The vaccine is practically all issued in rubber-capped bottles holding 25 c.cm. and 50 c.cm., about twenty gross a week being used.

A MEETING of delegates from Belgium, France, Great Britain, Serbia, and the United States has decided that the International Surgical Society should be dissolved after the publication of the *Transactions* of the meeting held in New York on April 14th, 1917. Any funds remaining after such publication are to be divided *pro rata* among members. Austrian and German members will receive their share, but moneys belonging to members of other nationalities will be applied to some object of scientific reparation in Belgium. A new society on a similar basis, to be called the Inter-Allied Surgical Society, will be constituted after the war. Surgeons of neutral countries will be eligible for membership.

Ireland.

**PARLIAMENTARY REPRESENTATION OF THE QUEEN'S
UNIVERSITY OF BELFAST.**

It was stated in the issue of April 6th that Sir William Whitla had consented to stand as a candidate for the parliamentary representation of this university. The response to the letter of the secretary of his committee has been most gratifying and enthusiastic; up till now he is practically the only candidate, and the recognition of the claim of the profession to have a medical man filling the seat is widespread. Leaders of all professions are on his committee. There is still some confusion as to who has the right of voting. The Queen's University in Ireland granted degrees up to 1832. This university was then dissolved, and was succeeded by the Royal University of Ireland. Every graduate of the Queen's University became automatically a graduate of the Royal University, and his name was transferred to its roll. On the dissolution of the Royal University in Ireland in 1909, each graduate on its roll had the privilege of deciding whether he would enrol himself as a graduate of the new Queen's University of Belfast, or of the new National University, Dublin. In many cases this right has not been exercised. Unless it be exercised, such graduates of the old Queen's University in Ireland and of its successor, the old Royal University of Ireland, will not have a vote for his university representation. Registration on the roll for a university will not interfere with his right to be registered on the residential franchise in his own district. A woman graduate is entitled to be registered on a university roll on the same conditions as a man if she has attained the age of 30 years. Fortunately, it is still open to any graduate who has not yet registered in the Queen's University of Belfast (or in the National University) to do so before the register closes. He should immediately send a letter to the "Secretary, Queen's University, Belfast," asking to be enrolled as a graduate. No fee or expense attends this procedure. Each graduate thus has the privilege of an extra parliamentary vote for life for the asking of it, provided he acts at once. Medical graduates of the old Queen's University of Ireland, or of the old Royal University of Ireland, who took out their classes in Queen's College, Cork, or Queen's College, Galway, or University College, Dublin, and who do not intend to enrol in the National University, can also be registered as graduates of Queen's University, Belfast, if they state any special grounds for so wishing. The voting is carried out by proxy or post.

Scotland.

DR. NORMAN WALKER has been appointed inspector of anatomy for Scotland in the room of the late Sir James A. Russell, M.B.

CHAIR OF MATERIA MEDICA, EDINBURGH.

Sir Thomas R. Fraser, whose resignation of the chair of materia medica in Edinburgh, which he has held since 1877, was announced last week, will be succeeded by Dr. A. R. Cushny, F.R.S., professor of materia medica and pharmacology in the University of London (University College) since 1905. Professor Cushny, who is the son of the late Rev. John Cushny, of Speymouth, Morayshire, graduated at Aberdeen, M.A. in 1886, M.B., C.M. in 1889, and M.D. in 1892. He was assistant to the professor of pharmacology at Strassburg, 1892-3, and professor of pharmacology in the University of Michigan, Ann Arbor, 1893-1905. He is the author of a well-known textbook of pharmacology and therapeutics, which is in its sixth edition, and of an important monograph on the secretion of the urine, published last year.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

At a special meeting of the Scottish Central Midwives Board held recently a report by the local supervising authority on the deaths of two patients from puerperal septicaemia was considered; two certified midwives

appeared in answer to the charges of failure to send for medical assistance, and negligence in keeping registers of cases, records of pulse, temperature, etc., as required by the rules. On the conclusion of the hearing the board deliberated *in camera*. Sir Halliday Croom, the chairman, intimated that the Board had in each case found the charges proved, and had directed that the secretary remove the name from the roll of midwives and cancel the certificate.

England and Wales.

LEICESTER PUBLIC MEDICAL SERVICE.

REFERENCE has been made in these columns on several occasions to the Leicester Public Medical Service, founded largely through the initiative of Dr. Wallace Henry. We have now received a memorandum describing this organization and its work, which has been issued in anticipation of an extension and development of medical arrangements by local authorities under a Ministry of Health. It is claimed that the Leicester system is capable of being adapted to meet future needs upon any lines which are considered desirable. The service was inaugurated on January 1st, 1913, to provide medical attendance for dependants of insured persons and others. There is a central dispensary and office, with eight branch dispensaries in various parts of the town, at most of which there are consulting rooms. Qualified dispensers make up all the prescriptions. Adults pay 2d. a week, and children less—this payment entitling the member to ordinary medical attendance, and drugs, dressings, etc., and domiciliary visits to those unable to attend at surgery or consulting room. Members have choice of doctor on a panel of more than sixty, and are allowed to change their doctor quarterly, or more often in the event of removal to another part of the town. Specialist treatment for eye, ear, nose, and throat is available for a moderate additional fee, and dental treatment is also arranged for. All the friendly societies in Leicester make arrangements on a contract basis for medical treatment upon their uninsured members through the Public Medical Service. At the inception of the service a complaint committee was set up consisting of four representatives of the friendly societies, four representatives of the medical profession—two only of these being active members of the service—with an independent lay chairman; but no complaint has yet been received. Other activities of the Public Medical Service include the dispensing of medicines for the outdoor sick poor of Leicester by arrangement with the guardians and the provision of specialist treatment for children by arrangement with the Education Committee. Near the central dispensary is a hospital with twenty-seven beds and two operating theatres, where members can be attended by their own doctor at an arranged fee. The number of uninsured members exceeds 42,000, and about 190,000 prescriptions are dispensed annually. There is no canvassing. During the absence of many medical men on military service the central and branch organizations have carried through a scheme for arranging medical attendance for the patients of absentees. From the foregoing summary it will be seen that there is force in the claim that the Leicester Public Medical Service provides for its members a wider range of service and choice than is now afforded by the State for insured persons. Hence the Board of Management confidently suggests that a Ministry of Health or other central authority should encourage the continuance and development of work so successfully carried out by voluntary effort for more than five years past.

THE MATERNITY AND CHILD WELFARE BILL.

The London County Council on May 7th adopted the recommendations of a report by its Parliamentary Committee on the Maternity and Child Welfare Bill to the following effect:

1. That the powers and duties of the local authorities should be more specifically stated and not left to be determined wholly by the Local Government Board, and in any case concurrent powers should not be placed upon the council and the metropolitan borough councils;

2. That the bill should be amended so as not to require the appointment of statutory committees, and that if such committees were set up the local authority should have complete

freedom of action as regards matters ancillary (in a wide sense) to the special purpose of the committees;

3. That the powers of the new committees as regards children under 5 years of age who might be eligible for the nursery schools to be established under the Education Bill should be so defined as to prevent competition of authority.

Correspondence.

FUNCTIONAL HEART DISEASE AND RECRUITING.

SIR,—As a member of a medical board, my experience is somewhat different to that of Dr. Drinkwater in his letter of April 27th (p. 494). I do not agree that men who have dilated pupils, marked accentuation of cardiac impulse, and a small compressible pulse are necessarily victims of masturbation. The majority of these cases are due to the cigarette habit, a few are nervous, and a small percentage take drugs to upset their heart.

I have come across similar symptoms in women who are smokers, and I cannot think they are all victims of the vicious habit named in Dr. Drinkwater's letter.—I am, etc.,

Overton, Ellesmere, May 1st.

REGINALD MORETON.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

SIR,—With regard to the reply of the chairman and honorary secretary of a Conservative and Unionist Association formed to secure the election of a member of Parliament for the seven combined universities to my letter published on April 20th, I desire to point out that I did not express my party political views. I objected to any candidate being asked to express his party political views. The universities concerned were never formed for party political purposes; the graduates did not depend on their party political "views" to obtain their degrees; and this association has advanced no arguments to justify the introduction of party politics now. That such a procedure has existed elsewhere in the past is no justification for its continuance. The old idea that party politics alone can govern satisfactorily this country or the empire is dead. The Government contains amongst its members many who are now proving this to be the case.

I never expressed my opinion on the keenness or otherwise of this party political association's candidate for social questions. I have not heard his name as yet. I never proposed "that these official bodies—that is, the senates—should take any part in the matter." I said "those in authority," quite a different grouping. In the medical profession we electors would look to the medical leaders of the universities to combine, and thereby assist us "to crystallize our opinions and actions before it is too late."

I would again urge that my medical co-electors put on one side all candidates who come before them wearing a party political label. Such men will be quickly absorbed by the party they belong to, and our profession, now wishful to be represented in the House, will find it might as well have never asked for or obtained the university vote.

My attention has been drawn to a "Universities Parliamentary Representative Association" (honorary secretary: J. F. Ashby, 9, Shalston Villas, Surbiton, Surrey), which includes amongst its conditions "that, other things being equal, preference be given to a candidate who is not the nominee of any of the old political parties." It might be useful for medical electors to write for further details.

Belfast University is finding a medical candidate without looking to a party in politics for any assistance. Surely the medical graduates in the seven universities can do likewise. Who will start the ball?—I am, etc.,

Hove, Sussex, May 4th.

E. ROWLAND FOTHERGILL.

PHYSICAL DETERIORATION OF BOYS UNDER WAR CONDITIONS.

SIR,—The State is showing great activity in promoting the welfare of infants and school children.

At the present national crisis there is now another class which needs even more careful protection. I refer to boys between the ages of 14 and 18. Living and practising as

I do in a very extensive munition area, I am of opinion that a very large number of youths will be found physically unfit when the time arrives for them to submit themselves to medical examination for military service.

Three to four years of absence of paternal control, of practically unlimited supplies of money and cigarettes, lack of sufficient sleep through frequent cinemas and music halls, and, finally, in many cases a tendency to indulgence in alcoholic drinks, must all exact an inevitable toll on the growing boy. Were it not for my wish to be brief I could give many instances of mere boys becoming physical and moral wrecks, and I have no doubt doctors in other munition areas could relate similar experiences.

Are the authorities aware of what is going on? If so, cannot some means be adopted to mitigate the mischief? For boys of 16 and 17 to be earning and spending three or four pounds a week (in many cases more) is nothing less than demoralization. Too much money is the root of the evil. I would suggest that no one under the age of 18 be allowed to receive more than (say) 30s. a week, and that any wages in excess of this amount be held in trust till the earner returns to civil life.

I commend to the notice of the Ministry of National Service this very serious subject, for never was there a time when *mens sana in corpore sano* was more urgently necessary in the male adolescent than the present.—I am, etc.,

Enfield, May 4th.

HOWARD DISTIN, M.B.

Obituary.

DR. LÉON REVILLIOD, formerly professor of clinical medicine in the University of Geneva, died on March 7th at the age of 82. He was directly descended from Dr. Jean Revilliod (1582-1645), who married Louise Bonet, a sister of Theophilus Bonet, author of the *Sepulchretum*, the first work on morbid anatomy. Léon was born near Geneva in 1835, and was educated at the Academy of that city and afterwards in Paris, where, after serving as interne, he took his doctor's degree in 1865. In 1866 he was appointed assistant physician to the Cantonal Hospital of Geneva, becoming senior physician in 1871. In 1876, when the Faculty of Medicine was established, he was invited to occupy the chair of clinical medicine. In 1899 he resigned his professorship and his hospital appointment. He wrote largely on tuberculosis, and among other subjects dealt with by him were thyroidism, affections of the medulla, fixation abscesses, and the treatment of asthma by antidiphtheria serum. Revilliod was president of the Medical Society of Geneva in 1875 and again in 1902, and was elected a corresponding member of the Paris Académie de Médecine in 1894. He took an active part in the international medical congresses held at Geneva (1877), Amsterdam (1879), London (1881), and Rome (1894), being an honorary president of several of these assemblies.

DR. THOMAS DAVISON CROTHERS, the well-known American authority on inebriety, died at Hartford, Connecticut, of pneumonia, on January 13th. He was born at West Charlton, New York, in 1842, and took his degree at the Albany Medical College in 1865. He was appointed assistant professor of the practice of medicine in the college in 1870, and in 1875 became assistant professor at the New York Inebriate Asylum at Binghamton. In 1878 he was appointed superintendent of the Walnut Hill Asylum, Hartford, and when that institution became the Walnut Lodge Hospital in 1880 he was chosen president and superintendent, and retained that position till his death. He was editor of the *Journal of Inebriety* from 1876, and secretary of the Association for the Study and Care of Inebriates. Dr. Crothers's whole professional life was devoted to the treatment of inebriety and the drug habit. He was the author of *The Diseases of Inebriety* (1893), *Drug Habits and Their Treatment* (1901), *Morphinism and other Drug Diseases* (1902), *Clinical Study of Inebriety* (1911), besides numerous contributions to medical journals.

The death has occurred, at the age of 58, of Dr. WILLIAM HENRY FORDHAM, who had practised in Sheffield for more than thirty years. After studying medicine at

Edinburgh and the Leeds Medical School, he obtained the diplomas L.R.C.P. and L.R.C.S. in 1886. Dr. Fordham had long taken a prominent part in the public affairs of Sheffield, serving for nine years on the city council and doing good work on numerous committees and other local bodies. He was deputy chairman of the Health Committee, in the work of which his professional knowledge and sound common sense were especially valuable. Every form of public endeavour found in him a keen supporter, and last year he was appointed a justice of the peace for the city. For the past year or two his health had been failing, but he was not seriously ill until a week before his death.

MANY members of the profession will have heard with deep regret of the death, on April 24th of Mr. MUNRO SCOTT, who was warden of the Medical College of the London Hospital from 1880 to 1910. During the whole of this period he served the institution with the greatest zeal and devotion, and was rewarded by seeing it steadily advance in influence and prosperity. Conservative in his outlook, he relied on the maintenance of a high standard on old traditional lines. A man of great perspicacity, wide experience, and sound judgement, a man, too, of warm heart and genial humour, he will be long and honourably remembered by all who knew him.

PROFESSOR BERNHARD KRÖNIG has died at the age of 53. He did much to make Freiburg a teaching centre for gynaecology, and though his name has lately been much associated with "painless" labour, his chief work was concerned with the use of ray treatment in gynaecology.

Universities and Colleges.

UNIVERSITY OF OXFORD.

At a congregation, held on May 2nd, the degree of M.D. was conferred, in absence, upon E. Burstal.

UNIVERSITY OF CAMBRIDGE.

THE election of a representative of the university upon the General Medical Council will take place on May 14th. Professor Sir T. Clifford Allbutt, the representative since 1908, does not seek re-election.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—†D. A. Dyer, †C. W. Hayward, †S. C. Ho, †G. L. Mitchell.
 MEDICINE.—†N. Cheua, †A. E. Collie, †M. Girgis, †S. V. Goldhurst.
 FORENSIC MEDICINE.—N. Cheua, M. Girgis, S. V. Goldhurst, H. A. Hughes, T. A. Jordan, C. W. Lakin.
 MIDWIFERY.—H. Carter, G. F. Smith, W. J. Wood.

* Section I. † Section II.

The diploma of the society has been granted to Messrs. C. W. Hayward, S. C. Ho, and G. L. Mitchell.

The Services.

INDIAN MEDICAL SERVICE.

TEMPORARY COMMISSIONS.

THE India Office is prepared to receive applications for temporary commissions in the Indian Medical Service to medical men having a knowledge of Indian languages and customs. Full particulars can be obtained from the Secretary, Military Department, India Office, S.W.1. The pay will be at the rate of 24s. a day when serving with an expeditionary force unless the applicant is liable to serve under the Military Service Acts, when it will be at the rates admissible for permanent officers of the Indian Medical Service. An outfit allowance of £30 will be issued. The applicant must be prepared to serve for the duration of the war. A gratuity will be awardable, after the termination by Government of a period of satisfactory service with an expeditionary force overseas. Wound and family pensions and gratuities will be granted under conditions and on the scales applicable to the Indian Medical Service.

ROYAL ARMY MEDICAL CORPS FUND.

THE annual general meeting of the R.A.M.C. Fund (Regular Army) will be held in the library of the Royal Army Medical College, Grosvenor Road, S.W., at 2.30 p.m., on Monday, June 10th, under the presidency of the Director-General. The annual general meeting of the R.A.M.C. Benevolent Society

Regular Army) will take place immediately afterwards. Officers desiring information regarding these funds are requested to communicate beforehand with the secretary, Lieut.-Colonel E. M. Wilson, 124, Victoria Street, S.W.

AUXILIARY ROYAL ARMY MEDICAL CORPS FUNDS. THE usual quarterly committee meeting was held at 11, Chandos Street, Cavendish Square, W., on April 25th, 1918, when grants were made to the orphans of three commissioned officers of the Auxiliary R.A.M.C. and to the widows of three of the rank and file of the Auxiliary Branch of the R.A.M.C. Applications for grants and subscriptions to the funds should be addressed to the honorary secretary, 11, Chandos Street, Cavendish Square, W.1.

Medical News.

THE inter-allied conference on the after-care of discharged sailors and soldiers will be opened at the Central Hall, Westminster, on Whit Monday, May 20th, at 11.30 a.m., by the Duke of Connaught. The King and Queen will visit the exhibition arranged in connexion with the conference at 12.30 on the same day. The conference and exhibition will close on Saturday, May 25th.

ANOTHER discussion at the Royal Society of Medicine on the future of the medical profession under a Ministry of Health will be opened by Sir William Osler on Wednesday, May 29th, at 5 p.m.

DR. R. HOWDEN, professor of anatomy in the Faculty of Medicine, Newcastle-on-Tyne, has been appointed to represent the University of Durham on the General Medical Council.

DR. JAMESON B. HURRY has presented to the Town Council of Reading an historical picture by Mr. Harry Morley, A.R.C.A., representing the martyrdom of Hugh Faringdon, last Abbot of Reading.

THE Disabled Soldiers' Aid Committee (40, Ebury Street, London, S.W.) asks for disused periodicals, to be made into war envelopes by disabled soldiers, whereby they are able to earn as much as £1 a week.

ON the initiative of Professor Gradenigo stations of psycho-physiological research on the effects of aviation have lately been founded at Turin and Naples. They are chiefly intended for the examination of candidates for service as air pilots.

A CONFERENCE on maternity nursing will be held in the Board Room of the Metropolitan Asylums Board (Embankment, Blackfriars Bridge) on June 4th. Sir William J. Collins, M.P., who will preside, will open a discussion at 5 p.m. on maternity nursing in relation to the district nursing services of London.

THE first of a course of lectures and demonstrations on ambulance work and first aid will be given at the College of Ambulance, Vere Street, Cavendish Square, W., on Thursday next, at 4.30, by Sir James Cantlie, K.B.E., who will deal with aid to the agricultural worker. Other lectures will be given at the same hour and place on Thursdays during May, June, and July. Particulars can be obtained from the secretary.

DURING the annual meeting of the South-Eastern Union of Scientific Societies, which is to take place in London at the end of this month in the rooms of the Linnean Society (Burlington House, Piccadilly, W.), a discussion on mosquitos in England will be opened by Colonel Sir Ronald Ross, K.C.B., F.R.S. This discussion will be held at 8 p.m. on Thursday, May 30th, in the theatre of the Civil Service Commission, Burlington Gardens, Piccadilly, W., and will be open to all interested in the subject.

AT a meeting of the East Sussex Medico-Chirurgical Society held at the East Sussex Hospital on April 26th Dr. Overend gave an x-ray demonstration of certain diseases of the chest by means of lantern slides. After illustrations of the normal chest slides were shown of hilar and peritracheal phthisis in various stages; of interlobar tubercle (discrete and confluent) and its subsequent development, either into ordinary disseminated peribronchial phthisis, or into a slow, advancing fibro-caseous form, with the formation of cavities in the interlobar area, which are often silent to the stethoscope. In one example the interlobar opacity was grafted on pneumoconiosis. Radio-slides were also exhibited showing disseminated peribronchial tubercle, unilateral and bilateral, active and progressive, stationary and arrested, with the production of cavities; chronic indurated phthisis, and unilateral pure fibroid lung; asthma and emphysema; commencing and resolving pneumonia; Hodgkin's disease and mediastinal sarcoma affecting the paratracheal glands, before and after x-ray treatment; bronchiectasis and subphrenic abscess.

THE United States Secretaries of State of War and Navy have authorized the organization of a committee in Washington, with branch committees in London and Paris, for the collection, classification, and dissemination of scientific, technical, and industrial research information, with special reference to war problems, and the interchange of such information between the Allies in Europe and the United States. The British and French committees are to establish contact with all important research laboratories and agencies, governmental and private. They will prepare reports on the results obtained; maintain continuous contact with the work of military and naval attachés; serve as auxiliaries in the collection, analysis, and compilation of information, and as centres of distribution to the American Expeditionary Forces in France and to the American naval forces in European waters of scientific and technical information originating in the United States and to the Allies in Europe. The headquarters of the Committee in Washington are in the offices of the National Research Council, 1023, Sixteenth Street. The branch committees are located at the American Embassies in London and Paris.

Letters, Notes, and Answers.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 423, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Atitology, Westrand, London*; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Mediscera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 423, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

HAY FEVER.

DR. LIONEL JAMES PICTON writes in response to our request for suggestions for the local treatment of hay fever: I have found that the unguentum acidi salicylici introduced several times a day into the nostrils—either with the little finger or the butt end of a wax match or wax taper—is of value.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

J. C. writes: Dr. Fothergill's letter in the BRITISH MEDICAL JOURNAL of April 20th contains the following: "... who knows his subject and *who* we can support." The letter in the JOURNAL of May 4th signed by Sir W. M. Abbot Anderson and Herbert G. Williams contains the following: "These are presumably the official bodies *whom* he suggests should wake up." Alas for the preliminary education which is displayed in these letters.

INVALID RATIONS.

DR. A. KINSEY-MORGAN (Bournemouth) writes with reference to Dr. E. I. Spriggs's article (p. 505): Differentiation is not always made between constitutional and alimentary diabetes; thus with a mistaken diagnosis the patient is burdened with an unsuitable diet for his requirements; such a case has quite recently come under my observation. "Extra rations," as Dr. Spriggs points out, are only suitable for "subjects of persistent glycosuria who are in need of special diet." In tuberculous cases it is imperative that a generous diet of protein and fat should be allowed; nutrition is thus maintained, and the arrest of the disease is a manhood gain from the public point of view. Dr. Spriggs's concluding remarks on "restricted tastes" are words of wisdom which should appeal to all of us as a great help out of many of our daily difficulties.

TWO CASES OF PTOSIS (? BOTULISM).

DR. JOHN W. DUNCAN (Hockley, Birmingham) sends us notes of two cases he has seen within the last fortnight which may be instances of botulism. (1) A married woman, several months pregnant, who had been ill a few days, was, when first seen, sitting by the fireside with both eyes closed. She was dull, but spoke when addressed and could raise the eyelids, the right more than the left. She had herpes on the upper lip. She was admitted to hospital next day. (2) A man aged 55, first seen on April 19th, had been ill for some time with drowsiness, closed eyes, and twitching fingers. On the previous night he had delusions. He was constipated, and the temperature was raised—on May 4th it was 103°; since May 3rd he had been confined to bed, comatose, speechless, and taking no food. The eyelids are persistently closed, and he does not respond when spoken to. The right side of the face is smooth, the left drawn, showing a deep line. The hands twitch; the plantar reflexes are present. The bowels

have been opened after castor oil. The only point in his history bearing on his illness was that he had eaten pig's pudding a fortnight before being taken ill.

TREATMENT OF MENINGITIS.

MRS. Fysh, M.B.Lond. (Dryhurst, Tonbridge), writes: In reply to Captain Cade (April 13th, p. 444) I would recommend the iodine treatment, which must be carried out carefully in every detail, for example, the iodine tincture being applied all over the head and not merely "to the shaven crown," for meningitis in cases of the acute suppurative variety either alone or complicating an acute fever such as pneumonia or enteric. I have only tried it in one case of the tuberculous variety; it was unsuccessful, but the child (a Jewess of 10 years) came under my care late in the second week of her illness. Of the four other cases mentioned in my previous letter, one, a woman, died, and pus was found in the meninges in all parts; it was white, and in places inspissated, as if beginning to undergo absorption. Dr. Castellani reported the presence of a diplococcus in this case. The diagnosis of the other three was made on clinical grounds only; they were all very acute and apparently hopeless young children suffering from the characteristic symptoms, one having passed the convulsive stage and being in deep coma when he began at last to respond to treatment. This is a kind of meningitis which so far I have not seen in England, but which occurs with some frequency in Ceylon.

GLYCERIN IN THE TREATMENT OF WOUNDS.

DR. A. OGIER WARD (London, E.C.) writes with reference to Mr. A. E. Morison's article (March 23rd) on the virtues of magnesium sulphate for wounds: I find that the recipe contains 1½ lb. magnes. sulph. and 11 oz. glycerinum ac. carbol. (1 to 10). Why use the magnesium sulphate? Is it not true that the key to all antiseptic treatment should be recognized to be osmosis? And is not glycerin the simplest and most ideal substance for its promotion?

DO MOVING PICTURES INJURE THE EYES?

IN a communication to *The Annals of Ophthalmology* last year Dr. Bahn of New Orleans comes to the following conclusions: (1) Moving pictures, under favourable conditions, do not cause as much fatigue as the same period of concentrated reading. (2) Most persons who complain that the pictures cause ocular discomfort have some defect of the eye. (3) Moving pictures act as a test of distant vision endurance. A person with no ocular defect should be able to enjoy at least four sittings, of one and a half hours each, a week with no discomfort. (4) Under unfavourable conditions the pictures produce ocular fatigue. (5) A review of the literature up to date records no permanent harm to the eyes from the cinema.

AN OLD MILITARY MEDICAL PHARMACOPOEIA.

DR. OLDERIGO GRANDINI gives in *La Medicina Pratica* an account of a *Pharmacopoeia Austriaco-Castrensis*, printed at Vienna in 1795. It is a list of the remedies then considered most useful for soldiers on campaign. It includes vulneraries (Hoffmann's liquor and the theriaca); extracts of aconite, anodynes, taraxacum, and bark; liquorice plasters (simple, compound, and blistering); sublimate and other mercurials; anodyne, mercurial, and purgative pills; Dover's powder; resins of guaiacum and julep; confections of elder, juniper, and prune; Glauber's salts, tartar emetic and other forms of tartar; oils of aniseed, juniper berry, peppermint, turpentine, and laurel berry; antimony in various forms; vinegars (litharge and squills); mercurial, "nerve," and other ointments, one being for scab. Fifty-nine formulae are given for the use of these substances in military hospitals.

THE BEGINNING OF CLINICAL TEACHING.

ANDREA FERRANNINI, writing in the *Riforma Medica*, claims for Italy priority in the foundation of scientific academies. The Accademia Cosentina was founded by Parrasio at Cosenza in 1550; the Accademia dei Segreti, a leading member of which was Giovanni Battista della Porta, discoverer of the camera obscura and founder of the science of physiognomics a century before Lavater, at Naples in 1600; the Accademia dei Lincei at Rome, by Prince Cesi, in 1603; the Accademia del Cimento, by pupils of Galileo, under the patronage of Prince Leopold of Tuscany, in 1657. The Royal Society of London was founded in 1660, and the Paris Académie des Sciences in 1666. The first Academy of Medicine in Europe was founded at Palermo in 1623 as an annexe to the School of Anatomy. Ferrannini also claims precedence for Italy in the foundation of university chairs of medicine. He says that the first anatomical amphitheatre was established at Padua in 1490 through the efforts of Alessandro Benvenuto, and the first chair of clinical medicine at Padua by Giovanni Battista Da Monte in the hospital of St. Francis in 1543. Instruction at the bedside had, however, been given in ancient Rome, as we know from Martial's epigram about Symmachus; in the Nestorian school at Edessa in the fifth century, in the Arabic schools, and also by some mediaeval teachers, such as Lanfranc. Withington, in his *Medical History from the Earliest Times* (p. 312), says that although the system had been revived at Padua for a short period during the Renaissance, clinical teaching in the modern sense had its origin in the "little infirmary at

Leyden with its twelve beds." Francis de la Boe (Sylvius, the discoverer of the fissure in the brain which bears his name), writing in 1664, says: "I have led my pupils by the hand to medical practice, using a method unknown at Leyden, or perhaps elsewhere, that is taking them daily to visit the sick at the public hospital."

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the week ending May 4th:

	£	s.	d.		£	s.	d.		
Dr. John Fletcher	...	1	1	0	Dr. E. C. Prichard	...	3	3	0
Dr. W. O. Magoris	...	2	2	0	Lieutenant John Ritchie.	...			
Dr. Hodgson Moore	...	1	1	0	R.A.M.C.	...	1	1	0
Dr. J. B. Cumming	...	2	2	0	Dr. T. Ridley Bailey	...	1	1	0
Dr. J. A. Alston	...	1	0	0	Dr. Percy Rowland	...	0	10	6
Surgeon James M. Harrison, R.N.	...	0	10	5	Sir Alfred Pearce Gould	...	6	0	0
Dr. Archibald Donald	...	5	5	0	Dr. H. Morley Fletcher	...	3	3	0
Dr. F. W. Garrad	...	1	1	0	Mr. E. Spencer Evans	...	0	10	0
Dr. Percy Ashworth	...	1	1	0	Dr. W. H. Davies	...	2	2	0
Dr. R. W. Jones Smith	...	5	5	0	Dr. G. Rome Hall	...	1	1	0
Dr. E. C. Duncan	...	1	1	0	Dr. W. B. Bennett	...	2	2	0
Royal College of Physicians of London (per Sir Dyce Duckworth, treasurer)	...	105	0	0	Dr. Herbert Caiger	...	1	1	0
Dr. B. S. Browne	...	1	1	0	Captain T. G. Longstaff.	...	4	17	0
					Dr. W. Harigan	...	1	1	0
					Dr. C. Smyth	...	2	2	0
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Surgeon P. G. S. Davis, R.N.	...	0	10	0	Mr. E. Spencer Evans	...	0	10	0
Sir Alfred Pearce Gould	...	5	0	0	Dr. Herbert Caiger	...	0	10	5

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W. 1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyd's Bank, Limited.

THE COMMEMORATIVE MEDAL IN THE SERVICE OF GERMANY.

THE industry of German propagandists in keeping up warlike enthusiasm in their own homes and in attempting to impress neutrals is curiously shown in the issue of war medals, of which at least 580 have found their way to other lands; selections can be studied in the Victoria and Albert Museum, South Kensington, and in the War Exhibition at Burlington House. With the light touch of a velvet-covered hand, Mr. G. F. Hill, Keeper of the Department of Coins and Medals, British Museum, has described, in a pamphlet with the title at the head of this note (Longmans, 6d.), the various kinds, and criticizes their bearings—the patriotic impressions of the reigning house, including that of the Crown Prince, which, if, as is reported, they be accurate, have surely rendered the caricaturist's skill unnecessary; the hero-worshipping reproductions of von Hindenburg, of von Tirpitz—nothing if not genial—of von Kluck wistfully gazing at the distant fortifications of Paris; the "victory pennies" of the bombardment of Scarborough and Hartlepool and of Zeppelin attacks on the London docks; and the medals for satiric purposes, such as the notorious *Lusitania* production "flagellating the levity of mind of the Cunard line," and that of the landing of the Indians at Marseilles. While exposing the want of humour and the bad taste obvious in many instances, Mr. Hill refers to the pleasing conception of Götz's memorial medal of Admiral von Spee and his two sons with the German Eagle flying over a waste of waters to lay a laurel branch on their ocean grave. This is shown in one of the seventeen illustrations. That museums devoted to the ethnology of primitive races should preserve specimens of these German war medals for the future student is a proper provision.

A GAS GANGRENE RHYME.

H. M. E. sends us the following metrical "tip," which, though rather absolute, has, he says, proved helpful to a casualty clearing station in France:

When a compound fracture's seen, bobbly pus denotes gangrene.
If the skin is grey and mottled and the circulation's throttled,
Resonance upon percussion does away with all discussion.
Amputate by night or day; death ensues if there's delay.

THE appointment of certifying factory surgeon for Newbury (Berks) is vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

INTRAVENOUS INJECTION IN WOUND SHOCK.

ABSTRACT OF THE OLIVER-SHARPEY LECTURES DELIVERED
BEFORE THE ROYAL COLLEGE OF PHYSICIANS ON
APRIL 30TH AND MAY 2ND, 1918.

BY

W. M. BAYLISS, D.Sc., F.R.S.,

PROFESSOR OF GENERAL PHYSIOLOGY, UNIVERSITY COLLEGE,
LONDON.

THE founder of these lectures was never tired of insisting on the importance of clinical measurements of the blood pressure, and himself devoted much valuable work to the design of appropriate methods of performing such estimations, as well as to methods of determining the haemoglobin percentage contained in the blood. It is therefore not inappropriate that I should ask your attention to the part played by changes in the blood pressure in wound shock, and to the importance of the supply of oxygen to the tissues.

The name "wound shock" was given by Captain Cowell to that state, resulting from injury, which shows itself as a general depression of vital activities, and may end in death if not combated. The names "surgical" and "traumatic" shock have also been used, but "wound" shock seems to be, on the whole, preferable.

Two stages are usually met with in the development of this state, which stages have been called "primary" and "secondary" shock. Either of these may be absent, and the former may pass insensibly into the latter.

DEFINITION.

Primary shock occurs immediately on receipt of the wound, and is in many ways similar to an exaggerated fainting. The collapse and fall of blood pressure is of benefit in that it tends to lessen haemorrhage. If the patient is kept warm and quiet during transit to the casualty clearing station the blood pressure may return to normal. On the other hand, after partial recovery, secondary shock may present itself with renewed low blood pressure and the various results of this condition. The low blood pressure and its consequences are the most general and obvious signs of the state of secondary shock, and it is with these that we are concerned in this place. When I refer to wound shock, it is to be understood that it is the secondary state which is under consideration, as being that requiring treatment.

NATURE OF WOUND SHOCK.

What is the actual nature of wound shock, and especially what is the immediate cause of the low blood pressure apart from haemorrhage, is still obscure.

Conditions which can be Excluded.

It will clear the way, however, if I mention briefly some suggestions that can be at once put on one side.

Acapnia (diminished carbon dioxide in the blood)—because the respiration is not of such a kind as to result in excessive removal of carbon dioxide.

Adrenal exhaustion—because adrenaline is present in excess when shock comes on.

Exhaustion of nerve centres—because reflexes are not diminished to any important degree except when the blood pressure has remained at a low level sufficiently long to paralyse the centres from want of oxygen.

Inefficient action of the heart—because when the arterioles are constricted by a dose of adrenaline the heart is quite able to raise the blood pressure to a high level.

Paralysis of arterioles or veins, especially of the abdominal area—because direct observation in the course of abdominal operations fails to show any abnormal distension.

The Hypothesis of "Exaemia."

The view which finds most favour is that of an accumulation and stasis of blood in capillary areas, so that it is removed from currency as effectively as if lost to the exterior. The name "exaemia" has been proposed by Major Cannon on this hypothesis. Whether there has been haemorrhage or not, then, there is a deficiency of blood in circulation, and the natural result of this is a low

arterial pressure and a failure to supply the tissues with their normal requirements in oxygen.

But why is a low blood pressure the cause of such serious results as to need correction as soon as possible? It will be clear that the due supply of blood to the organs of the body depends upon an adequate pressure. The blood conveys oxygen and removes carbon dioxide and other waste products. Gesell has shown that the blood flow through an organ is reduced more by a fall from a high pressure to a moderate one than by a further fall of the same extent, and that, as the pressure falls, the blood supply is reduced to a greater proportion than the pressure itself. I have been able to confirm this statement, and the practical conclusion to be drawn is that even a moderate fall of blood pressure is not to be looked upon as of little consequence.

Effects of Insufficient Blood Supply Owing to Low Pressure.

The pathological changes which take place in cells when insufficiently supplied with blood are well known. I may mention the suppression of renal secretion, the failure of cardiac contraction below about 90 mm. Hg (Markwalder and Starling), and the changes in nerve cells. Recovery takes place if the pressure is restored without too long a delay. In cats I found that the vasomotor centre loses reflex excitability after one to two hours of an arterial pressure of 60 mm. The respiratory centre fails earlier (Pike and Stewart, Pilcher and Sollman).

A good blood supply is also necessary because various other injurious influences, such as cold, injury to muscles, asphyxia, anaesthetics, acid production, temporary obstruction of circulation to a large part of the body, may not be great enough to have serious consequences, each by itself alone, but becomes so when combined with a small loss of blood, itself also innocuous alone. Gas gangrene is stated to be held in check by a good circulation of blood. Finally, renal secretion is directly dependent on the arterial pressure, so that the elimination of acid and toxic products in the urine is retarded by a low pressure. Experimentally, one finds that the other symptoms of shock disappear when the blood pressure is raised. For example, the rapid shallow respiration after muscle injury is restored to normal when the blood pressure is raised by injection of gum solution.

It appears, indeed, that what we call wound shock is the result of a more or less complex combination of various deleterious factors, not always the same, but always exaggerated by haemorrhage, which is rarely absent, though sometimes not great.

Since the introduction of the Riva-Rocci instrument and its modifications, of which the "Tycos" is very easy to use and keep in order, the measurement of the blood pressure has become a simple matter and ought to become a routine practice.

MEANS TO RAISE BLOOD PRESSURE IN WOUND SHOCK.

What means shall be used, then, to raise the blood pressure in shock? I would point out, to begin with, that a high blood pressure is not our object for its own sake. We wish to increase the blood supply and oxygen supply to the tissues, especially to vital organs such as the nerve centres and the heart. For this reason the use of vaso-constrictor drugs is to be deprecated. Apart from their transitory effect, the result is actually a lessened blood supply to the tissues, because the rise of blood pressure is obtained by narrowing the arterioles which convey the blood. The correct way is to increase the volume of blood in circulation, which involves a raised arterial pressure without decrease of peripheral blood flow.

It is natural to assume that transfusion of blood itself is the best way to do this. I do not propose to discuss this matter at length. A detailed memorandum will shortly be published by the Shock Committee of the Medical Research Committee. Donors are not always available in sufficient number, however, and it is a difficult matter to keep on hand preserved blood or suspensions of corpuscles in sufficient quantity to meet emergencies. A substitute, if efficient, is highly desirable, especially if of such a kind as to be available in unlimited amounts. I may anticipate a little here to remark that, somewhat to my surprise, blood has not shown itself, experimentally, to be so far superior to certain artificial solutions as would have been

expected. If a given case failed to respond to gum, blood was also ineffective. It is probable that, under ordinary conditions, we possess a reserve of haemoglobin, so that the tissues are sufficiently supplied with oxygen by a diluted blood, so long as the body is at rest. Captain Bazett has found cases doing well with a very low haemoglobin value. Another experimental fact seems of some significance: a dilute blood is more effective under a high pressure than a normal blood under a low pressure. This is no doubt connected with the fact above mentioned, that a high pressure is relatively more effective than a low pressure, a fall of one-third means a fall in blood supply by two-thirds or more.

Various Fluids Proposed and Used.

Ringer's solution, although naturally one of the first to be tried, has been found to be useless, both experimentally and in actual practice. It leaves the vessels in the course of half an hour or so, while the blood pressure returns to its former level or even lower. Why is this? Such saline solutions have two obvious defects when compared with blood. These are (1) a low viscosity, so that a given volume is much less effective than its equivalent in blood, even in its immediate effect, and (2) the absence of a colloid with an osmotic pressure. The value of the latter is somewhat difficult to explain shortly. Since the blood vessels are freely permeable to water and salts, while impermeable to colloids, the osmotic pressure of the latter is active and prevents the escape of fluid to the tissues by its attraction for water. Thus the colloids of the blood must not be diminished in strength, for otherwise they do not keep the water from being filtered out in excessive amount by the arterial pressure.

Hypertonic Saline.—This has been used with the object of preventing this escape of fluid by means of the osmotic pressure of the salt. But it will do this only so long as the salt content in the blood remains higher than that of the tissue fluid. Since salts diffuse through the walls of the blood vessels at a great rate, their concentration rapidly becomes equal on both sides, and then the conditions are the same as with Ringer's solution. Experimentally I have found that 2 per cent. sodium chloride is very little, if any, superior to isotonic saline for the purpose in view. It may be mentioned that its value in cholera may be due to other causes, which do not concern us here. Hypertonic saline produces oedema of a perfused organ just as isotonic saline does. Moreover, the injection of hypertonic solutions of any kind requires care; I have seen unpleasant symptoms, such as gasping respiration and slowing of the heart, in cats.

Addition of calcium has been recommended for two reasons. It acts as a vaso-constrictor. But this is very transitory, and we have seen that it is undesirable. It has been stated to decrease the permeability of the blood vessels, and so prevent oedema and transudation in various situations. I have, however, been unable to detect any difference between the rate at which Ringer's solution with and without excess of calcium leaves the circulation, and Cushman has tested the effect on transudations without obtaining any effect.

Acidosis.

Alkaline solutions (sodium bicarbonate) are advocated on the ground that "acidosis" is found to be present in wound shock (Cannon). A brief consideration of this matter is necessary. The blood, of course, never becomes really acid. What happens is that a part of its normal bicarbonate content becomes neutralized by combination with some fixed acid (lactic, etc.) produced in the tissues on account of defective oxygen supply. The point is, does this involve an increase of the hydrogen ion concentration? Is there any real increase in acidity? Some observers have thought such a change to be the essential cause of shock. We may note that the various results described as produced by acidosis are those due to rise in the hydrogen ion concentration. In experiments made to test the question, I have found that as much as one-third to one-half of the bicarbonate can be combined with fixed acid without the production of any increase in the hydrogen ion concentration of the blood.

What is the explanation of this? The first effect of the introduction of acid into the blood is to drive off carbon dioxide from a part of the bicarbonate, thus temporarily

raising the hydrogen ion by excess of carbonic acid. But as soon as such blood reaches the respiratory centre, hyperpnoea is caused and the excess carbon dioxide is rapidly removed by the increased ventilation of the lungs. Normally, as Haldane and Priestley have shown, the respiratory centre is extraordinarily sensitive to hydrogen ions and responds by a vigorous discharge.

But, it will be said, suppose the centre is less sensitive, owing to a dose of morphine, for example. Can the "acidity" of the blood rise to a serious extent? I have also tested this possibility. As Lawrence Henderson has shown, as long as any bicarbonate remains there can only be a small rise in the hydrogen ion concentration of the blood, or any similar solution, since the carbon dioxide for the most part cannot remain in solution. The actual change in the blood in my experiments was not greater than the difference between the values of concentrations of hydrogen ion between 1.58×10^{-7} and 1.26×10^{-7} normal. This is extremely small and would be produced by the addition of 0.01 gram of lactic acid to about 10,000 litres of water. To change the more acid blood into normal blood would require merely the reduction of the alveolar content in carbon dioxide to one-half its normal value, a change easily effected by respiration. Henderson and Haggard point out that to maintain the hydrogen ion constant when the Van Slyke value falls from 63 to 42, a marked "acidosis," requires only 50 per cent. more ventilation of the lungs, and that people living at high altitudes have a "normal" hydrogen ion concentration although their carbon dioxide level is very different from that at ordinary barometric pressure.

We may next consider briefly whether the physiological results ascribed to acidosis could be produced by so small a rise in hydrogen ion concentration as may occur.

Stimulation of Nerve Centres.—With the exception of the respiratory centre, the bulbar centres are not easily stimulated by acid. We know that the vasomotor centre is stimulated in asphyxia by the carbon dioxide in the blood, but Mathison has shown that a fairly strong acid injection is required to do this.

The Heart.—Patterson showed that the heart is affected deleteriously by respiration of carbon dioxide of 5 per cent., but not below this value. This is equivalent to neutralizing more than two-thirds of the bicarbonate by acid, supposing that the respiratory centre were inactive. Moreover, the effect of acid is antagonized by very small amounts of adrenaline.

The Arterioles.—Very weak acid (1 in 10,000) causes dilatation. But the hydrogen ion concentration of Ringer's solution is raised by this addition to more than 1,000 times that possible in acidosis.

Capillary blood vessels, Severini stated, were dilated by carbon dioxide, but Roy and Graham Brown failed to confirm the statement. Dale and Richards have brought forward indirect evidence that acid has not this effect.

Transport of Oxygen.—As Barcroft showed the presence of acid in the blood, while it does not much affect the amount taken up by haemoglobin at the alveolar tension of oxygen, reduces the amount held by it at the oxygen tension in the tissues. Consideration will show that this is really an advantage, since the blood arrives at the tissues with practically as much oxygen as normally, while it leaves the tissues with less. The state of acidosis provides the tissues with an increased supply of oxygen.

Viscosity of Blood.—Although statements have been made that acid increases this property, I have been unable to detect any change, even on saturation with carbon dioxide.

Red corpuscles, Hamburger showed, swell in the presence of carbon dioxide. That this does not produce a rise in viscosity is possibly to be explained by the fact that they do not increase in diameter, but become more spherical.

Swelling of Colloids.—Martin Fischer has advocated a series of theories of oedema and nephritis, etc., on the basis of the swelling of colloids and cells by acid. But his experiments show that a concentration of lactic acid greater than N/80 is necessary to affect fibrin or muscle. This has a hydrogen ion concentration more than 10,000 times that possible in blood.

Oxidation Processes.—Some oxidation processes are depressed by acid, but others are not, and the increase found experimentally in soa-urbin eggs was produced by comparatively strong alkali. Lactic acid is rapidly oxidized

in muscle in acid medium, provided that oxygen is freely supplied.

In *diabetes* there is a low bicarbonate reserve, but the blood pressure is not low, while the state could scarcely be called one of shock. Poulton has shown that there is no increase in the hydrogen ion concentration in coma.

Experimental Injection of Acid.—Sometimes, especially in unhealthy animals, the introduction of acid leads to progressive fall of blood pressure to a shock level. But, on the other hand, large quantities may be injected without result, as Dale and Richards have shown. I find no difference between the effects of acid and neutral phosphates in equal amounts.

Conclusions as to Acidosis.

On the whole, I am compelled to conclude that "acidosis" is not in itself a serious factor in shock, and that alkaline injections are not called for. The existence of a decreased bicarbonate content is, however, a sign of defective oxygen supply. In various forms of experimental shock I have found the injection of bicarbonate solutions of small and temporary value only. What effect was produced might have been equally well due to the volume of fluid introduced. If other reasons are thought to require the use of alkali, it is best given by stomach or rectum. The effective way of treating the production of acid in the tissues is by increasing their supply of oxygen from the blood. This suggests that a slight increase of acidity may really be of benefit, since it stimulates the respiratory centre to increased ventilation of the lungs.

Solutions of salts in general are merely of temporary value, and liable to be followed by a greater fall of blood pressure.

REASONS FOR USING A COLLOID: GUM ARABIC.

A colloid must be added to remedy the defects of such solutions. What substances are available and possible for the purpose?

Since such a colloid must possess an osmotic pressure, starch and agar can be excluded at once. Dextrin is deficient in viscosity. Proteins are inadmissible on account of anaphylaxis. They have also an injurious effect on the kidney. We are left with gelatin and gum arabic, both of which satisfy requirements both as to viscosity and osmotic pressure. There are objections to gelatin on account of its liability to contain tetanus spores. But the more serious objection is its liability to cause intravascular clotting, as found by Dale and Richards. Fortunately, gum has none of these defects. A solution of 6 per cent. strength has been found, both in the case of wounded men and in lower animals, to maintain the blood pressure indefinitely. It does not leave the blood vessels. Gum is quite innocuous, even in a volume equal to one-half of the total blood volume, or an injection of more than a litre and a half in man. It produces no haemolysis nor agglutination in man and does not increase the viscosity of the blood. Since it contains no protein, anaphylaxis in case of a later injection would not be expected, and, tested on guinea-pigs, was found not to occur.

Although gum seems rather a strange substance to introduce into the blood, it is chemically a very inert substance and is not really foreign to animal metabolism. It consists of derivatives of galactose and of arabinose. Galactose is a natural sugar present in milk. Arabinose appears in the urine in pentosuria and appears to arise from galactose by removal of carbon dioxide (Neuberg).

Since commercial products contain small amounts of calcium and potassium salts, there is no need to add them. All that is necessary is the addition of 0.9 per cent. of sodium chloride, and tap water may be used. The solution must be filtered through flannel or other convenient medium and then sterilized. A strength of 6 per cent. is probably the best for routine use, and arrangements are made for its supply through the usual mechanism of the Army Medical Department. In practice, even 3 per cent. has been found greatly superior to saline solutions, but it is clear that its osmotic pressure is not the optimal one.

The value of gum infusions is, naturally, most striking and rapid after haemorrhage. But practical experience, as shown, amongst others, in the cases reported by Captains Cowell and Drummond and Taylor, has demonstrated its utility in various other forms of shock. It is not to be expected to be of avail when the bulbar centres have

permanently lost their excitability; but even blood is useless in such cases. Hesitation might be felt in transfusing blood in a case apparently hopeless, and one advantage of gum is that no restriction in its use need be felt. A case is reported by Captain Cowell, pulseless and moribund on arrival at the casualty clearing station, restored permanently by gum. The dangers of prolonged low blood pressure justify the contention of Colonel Fiaschi and Captain Bullock, who insist on the importance of early intravenous injection, as soon as possible after the injury. There is, of course, some risk of increasing haemorrhage. Drummond and Taylor advocate the use of the tourniquet in the case of wounds of limbs. If there is internal bleeding, it may unfortunately be necessary to defer intravenous injection until operation is commenced.

Experiments with Gum Solution.

On account of the fact that gum showed itself to be useful in wound shock generally, I have made some experiments on cats in order to investigate its effect in states of low blood pressure other than those due to haemorrhage alone. We may remember that there is reason to believe that in all such cases blood is out of currency somewhere and can be replaced by an appropriate solution, allowing recovery to take place in due time.

A shock-like condition may be produced experimentally by prolonged cold, by asphyxia, by local anaemia on reopening the blood current, and sometimes by injection of acid. In all cases the state is much exaggerated by slight haemorrhage and is effectively treated by gum injection. Erlanger and his colleagues have recently found that gum holds fluid in the vessels in all forms of shock with which they worked, that due to exposure and manipulation of the intestines, in addition to that of temporary anaemia of a part of the body. I may remark that, although intestinal trauma is a common mode of inducing experimental "shock," it seems to me that it is rather dissimilar to the actual wound shock met with after shell wounds.

SHOCK IN INJURIES OF MUSCLES.

Probably the most interesting form of experimental shock is that due to crushing of muscles. The experiments were commenced in conjunction with Major Cannon and continued, from another point of view, since his departure. The appearance of the injured muscle reminded us very strikingly of that of muscles in recent shell wounds as we had seen them in France, and the general phenomena are more like those of wound shock than most forms of experimental shock are. General Cuthbert Wallace has called attention to the greater liability to operative shock when large masses of muscle are cut. Compound fractures and multiple wounds are commonly followed by more or less severe shock.

In a typical experiment severe mutilation of the thigh muscles in decerebrate cats, or cats under urethane or ether, results in a primary fall of blood pressure, which may or may not be partially recovered from. This fall is usually followed by a further progressive fall, which can be counteracted by gum with return of the blood pressure permanently to the normal height. The phenomena appear to be due to the absorption of some depressant substance from the injured tissue, since they occur when the spinal cord has been divided in order to exclude nervous reflexes. This substance is either oxidized or eliminated if the blood pressure is high enough. It is not lactic acid, as would naturally be supposed, since the injection of lactic acid during the state of low pressure is rather beneficial than otherwise, and bicarbonate injections are almost useless. Massage of the injured muscles results in a further fall of blood pressure, with dilatation of the intestinal vessels. This fact is of interest in connexion with the great benefit known to follow the immobilization of fractured thighs by the use of the Thomas splint during their transit to the casualty clearing station.

Respiratory Disturbance in Shock.

A remark may be made on the peculiar form of respiration shown in these cases of muscle injury. It has often been noticed that wound shock is associated with a rapid but shallow breathing, occasionally interrupted by a deep sigh. This is also the case in cats, where the rapid return to normal when the blood pressure is raised by gum is

very striking. The cause and nature of the phenomenon require investigation. It may also be seen after haemorrhage, but, so far as my experiments go, a mere fall of blood pressure, as by inhibition of the heart or the injection of a dose of acetyl-choline, does not produce it. It has some significance in connexion with acidosis, because it is quite different from the rapid but deep breathing caused by rise in hydrogen ion concentration. A condition similar to the respiration of shock has been described by Haldane in late stages after gassing, and ascribed to an exaggeration of the Hering-Breuer inhibition of inspiration.

Conditions in which Gum Injections are Valuable.

Some cases treated with gum injections by Fraser and Cowell and by Drummond and Taylor may be briefly mentioned in order to indicate the variety of states in which it may be of service to practise such injections. Severe haemorrhage from abdominal wounds and from arteries; cases in which haemorrhage and shock were not excessive, but in which a dangerous fall of blood pressure followed operation; other cases in which there was severe shock, but only slight haemorrhage, were all treated with success. Some of these were complicated by gas gangrene, and one case of this infection in which there was neither shock nor haemorrhage, but a blood pressure of only 70 mm. Hg, recovered after the blood pressure had been restored by gum.

GENERAL CONCLUSION.

The general practical conclusion to be drawn from the various considerations brought forward is, I think, that the main factor in the successful treatment of wound shock is to ensure an adequate supply of blood—that is, of oxygen—to vital organs, especially to the nerve centres. This is most simply done by intravenous injection of gum solution, which does not appear to be, in most cases, inferior to blood. When very great haemorrhage has occurred, it would seem reasonable that blood transfusion should be preferred.

If the use of sodium bicarbonate is thought necessary, it is best given by stomach or rectum. But it has not yet been demonstrated that the symptoms relieved by bicarbonate would not be more effectively cured by raising the blood pressure. In principle it would seem to be a mistake to reduce the slight increase of acidity in the blood, since this is of value in stimulating the respiratory centre, and there is no evidence that the slight increase of hydrogen ion concentration which is present in some cases of acidosis, but not always, is in any degree harmful in itself.

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OF

TEN THOUSAND RECRUITS WITH DOUBTFUL HEART CONDITIONS.

Conducted at the National Hospital for Diseases of the Heart by C. CHAPMAN GIBBES, R. O. MOON, S. RUSSELL WELLS, P. HAMILL, F. W. PRICE, and J. STRICKLAND GOODALL.*

Preliminary Report, compiled by
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In February, 1916, by desire of the War Office, the honorary medical staff of the National Hospital for Diseases of the Heart undertook to act as expert referees on all cases of doubtful cardiac conditions referred to them by the various recruiting boards of the metropolitan area.

Methods Employed.

In every case an exhaustive medical history was taken, inquiry was made into subjective symptoms complained of, and the ordinary clinical examination by inspection, palpation, percussion, and auscultation was undertaken. In addition to this the urine of every recruit was examined, the pulse, blood pressure, and the respiration was taken in

the recumbent position before and immediately after a standardized piece of exercise, and again after three minutes' rest in the recumbent position. Each case was electro-cardiographed, and the heart was examined by means of the *x* rays. As the result of these various methods of examination a diagnosis was arrived at, and the medical boards were advised as to the category for service for which, in the opinion of the examining physician, the recruit was fitted, the responsibility for the actual classification adopted necessarily resting with the medical boards. The subjoined form, which was filled up in the case of every recruit examined at the hospital, a copy of which was transmitted to the medical board sending him for examination, will show the character of the inquiry.

REPORT ON CARDIAC CONDITION OF RECRUIT.

Name Date
Occupation Age
Recruit's Statement

Previous Diseases:

Specific Fevers	Growing Pains
Rheumatic Fever	Diphtheria
Chorea	Influenza
Tonsillitis	Haemorrhages
Other Diseases	

Habits:

Exercises	
Alcohol	
Tobacco	

Subjective Symptoms:

Breathlessness	Faintness
Pain	Sleeplessness
Palpitation	Nocturnal Decubitus
Vertigo	Diuresis
Sense of Exhaustion	

Inspection:

Appearance	
Anaemia	Clubbing
Cyanosis	Jugulars
Palpitations and Impulses	Oedema
Vasomotor Disturbances	

Palpation.

Heart.—Rate	Thrills
Apex Beat.—Position	Character
Remarks	
Pulse.—Rate	Rhythm
Character	Volume
Vessel Walls	

Percussion.

Limits of cardiac dullness.	
Right..... inches from mid sternal line.	
Left..... inches from mid sternal line.	
Remarks	

Auscultation.

Heart sounds	
Adventitious sounds	

State of Other Organs

Urine.—Sp. gr.	Albumin
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Reaction to Standard Work.

Before Exercise:	
Pulse..... Blood pressure..... Respiration.....	
After Exercise:	
Pulse..... Blood pressure..... Respiration	
After Exercise (3 minutes).	
Remarks	
Work done foot lb. in seconds.	

Electrocardiogram.

X-ray Examination.

Remarks

DIAGNOSIS

RESULTS OF EXAMINATION:

So far as concerns his heart the above recruit is fit for

Signed

As the result of this work a large number of records have been accumulated, and it is felt that the material thus obtained, if carefully analysed, may assist in elucidating certain problems connected with affections of the heart.

* Dr. Moon left for army service in April, 1917; Dr. Hamill left for army service in July, 1916; Dr. Price was away on leave of absence for six months from the beginning of December, 1916.

Special Nature of Cases Investigated.

It is necessary to bear in mind the general character of the cases dealt with. They are not, and cannot be, an average sample of the population. All recruits presenting themselves had been, in the first instance, examined by boards of competent medical advisers, cases where the heart was obviously normal having been passed by them, if suitable in other respects, as fit for service, and also most of those who showed well marked and definite diseases having been rejected. Consequently, the men referred to the Heart Hospital were only cases about whose fitness there was some doubt, or cases of cardiac disorders in regard to whom there was difficulty in deciding in which category they should be placed. These cases, therefore, may be considered a fair example of the difficulties encountered by the practitioner in cardiac medicine.

It is in this fact that their value, as a subject for investigation, lies. While it is not suggested that the diagnoses of the staff of the hospital are in any way infallible, the facts observed may be taken to represent observations by physicians who have had more than the average experience in dealing with this class of case.

Up to January 14th, 1918, 10,000 different recruits were examined, as well as 181 men already in the army, who were referred for opinion by army medical officers.

In order to eliminate, as far as possible, the personal equation, and to promote a uniform standard, for some months every recruit was examined independently by two physicians, the two working together being varied from time to time.

The average time that each individual recruit was actually under examination was a little over an hour. The taking of histories, x-ray examination, urine examination, and exercise test of about the first thousand was carried out by the examining physicians. After that, these portions of the examination were made by trained assistants. The actual examination by the physician then averaged a quarter of an hour per recruit.

When over 2,000 had been examined conjointly, and there was a probability of a general consensus of opinion having been established, on account of the time required and of the number of recruits, each was examined by one physician only.

Classification of Recruits to August, 1916.

From February 10th, 1916, to August 7th, 1916, the recruits were classified by the authorities according to the following schedule:

1. Fit for general service at home and abroad.
2. Fit for field service at home.
3. Fit for garrison service (a) abroad; (b) at home.
4. (a) Fit for labour purposes (road-making, entrenching, works companies, etc.). (b) Fit for sedentary work as clerk, etc.
5. Unfit for any service.

Results of 3,830 Examinations.

The annexed schedule gives the classification recommended by the examining physician in the case of the 3,830 recruits examined between these dates, classified in periods of 1,000 each.

Table showing Results of Examinations from February 10th, 1916, to August 7th, 1916.

Class.	No. 1-1000.	1000-2000.	2000-3000.	3000-3830.	Total.
	%	%	%	%	%
1	405 40.5	273 27.3	252 25.2	177 21.3	1107 29.0
2	184 18.4	184 18.4	226 22.6	174 21.0	768 20.0
3A	63 6.3	145 14.5	115 11.5	135 16.3	458 12.0
3B	174 17.4	164 16.4	224 22.4	198 23.8	760 19.8
4A	5 0.5	7 0.7	2 0.2	—	14 0.4
4B	114 11.4	163 16.3	125 12.5	107 12.9	515 13.4
5	55 5.5	58 5.8	56 5.6	39 4.7	208 5.4
Total	1000	1000	1000	830	3830

It is interesting to note that there is a steady decline in the proportion of men presenting themselves who were considered fit for full service. Class 1 consists of men who, after the full examination at the hospital, were con-

sidered to have sound hearts, although the less extensive examination at the recruiting office had left some doubt in the minds of the examiners, and in this first group of 3,830 they constitute 29 per cent. of the whole. Classes 2, 3A, and 3B were considered fit for some modified form of combatant service, although they presented evidence of some cardiac abnormality; 1,986 men were placed in these groups—that is to say, 51.8 per cent. of all examined. They were largely men showing the so-called "functional" murmurs and the like. Classes 4A, 4B, and 5, which comprised 737 men—that is, 19.2 per cent.—were considered unfit for combatant service, because in most cases, in the opinion of the examining physicians, definite structural lesions, either valvular or myocardial, or grave functional disturbances, were present. That this class is so small is due, no doubt, to the care with which definite and obvious cases of heart disease had been eliminated by the medical boards.

New Classification from August, 1916.

On August 8th, 1916, the classification was changed, and from then till the present date the following schedule has been in operation:

- A. Fit for general service. Recruit should be fit for general service as soon as trained.
- B. Fit for service abroad, but not fit for general service:
 - (1) In garrison or provisional units.
 - (2) In labour units or on garrison or regimental outdoor employments.
 - (3) On sedentary work as clerks or storemen only.
- C. Fit for service at home only:
 - (1) In garrison or provisional units.
 - (2) In labour units or on command garrison or regimental outdoor employments.
 - (3) On sedentary work as clerks, storemen, batmen, cooks, orderlies, sanitary duties, etc.
- D. Unfit for any service.

It will be observed that A corresponds to 1 in the old scheme, while B1 and C1 correspond to 3A and 3B; B2 and C2 may be taken as corresponding to 4A, and B3 and C3 to 4B, while D is the same as 5.

Results of 6,170 Examinations.

The results of examination from August 8th, 1916, to January 14th, 1918, are shown in the following schedule:

Class.	3830-4000.	4000-5000.	5000-6000.	6000-7000.	7000-8000.	8000-9000.	9000-10000.	Total.
	%	%	%	%	%	%	%	%
A.	43 25.3	196 19.6	174 17.4	100 10.0	50 5.0	76 7.6	80 8.0	719 11.6
B1.	39 22.9	250 25.0	289 28.9	241 24.1	108 10.8	101 10.1	102 10.2	1130 18.3
C1.	39 22.9	216 21.6	221 22.1	242 24.2	222 22.2	204 20.4	169 16.9	1343 21.8
B2.	—	7 0.7	36 3.6	56 5.6	54 5.4	80 8.0	106 10.6	339 5.5
C2.	4 2.4	10 1.0	29 2.9	71 7.1	119 11.9	125 12.5	129 12.9	487 7.9
B3.	11 6.5	83 8.3	39 3.9	56 5.6	69 6.9	128 12.8	212 21.2	598 9.7
C3.	27 15.9	173 17.3	178 17.8	217 21.7	315 31.5	210 21.0	163 16.3	1283 20.8
D.	7 4.1	35 3.5	34 3.4	17 1.7	63 6.3	76 7.6	39 3.9	271 4.4
Total	170	1000	1000	1000	1000	1000	1000	6170

At first the class of men presenting themselves was fairly similar to those dealt with in the last 1,800 in the previous schedule; but, as time went on, fewer and fewer fit men were seen. No doubt this is partly due to the fact that the absolutely fit joined the army early, and that by this time the general standard of the population to be drawn on was lower; but another factor of great importance, so far as these returns are concerned, is that the later numbers contain an ever-increasing proportion of men who had previously been rejected by medical boards and were called up for re-examination. It also seemed to the examining physicians that the medical boards increasingly referred to them men whom they proposed to put in some of the lower categories but who themselves were desirous of being placed still lower, and probably in this way the hospital performed a useful function in convincing many discontented recruits that their cases had been adequately investigated, and their category only decided on after full investigation.

The full-service men on the new classification from August 8th, 1916, to January 14th, 1918, fell to 11.6 per cent. The total rejections remained fairly constant, being

4.4 per cent. as opposed to 5.4 per cent., while those considered capable of some form of combatant service fell from 51.8 per cent. to 40.1 per cent., and the labour and clerical class rose from 13.8 per cent. to 43.9 per cent.

Age in Relation to the Above.

The annexed table of ages shows no striking accumulation of numbers for any particular age. The large number at 18 is accounted for by the calling up of this class, which commenced towards the end of 1916.

Age.	No. of Recruits.	Age.	No. of Recruits.	Age.	No. of Recruits.	Age.	No. of Recruits.
15*	1	24	433	32	452	40	314
16*	5	25	410	33	429	41	110
17	129	26	424	34	419	42	25
18	910	27	445	35	413	43	3
19	386	28	497	36	401	44	7
20	321	29	469	37	312	45	1
21	357	30	499	38	343	46	1
22	369	31	397	39	334	48	1
23	387						

* Trying for the Royal Flying Corps as boy mechanics.

Classification of Occupations.

Considerable difficulty was experienced in arriving at a suitable basis of classification of the various occupations. The scheme of classification adopted in the census returns, though very suitable for the purpose for which it was designed, did not bring out the features which are important from the medical standpoint, nor could we find any widely accepted method of classification suitable for our purpose. It was therefore decided to adopt a vertical classification of indoor, partly indoor, and outdoor occupations, subdividing these into sedentary, semi-sedentary, and active, the active being again subdivided into light, medium, and heavy, with reference to the amount of muscular work entailed, while a transverse or cross classification was made dependent upon professions and trades.

Occupations. Summary of Classification.

	Indoor.					Partly Indoor.			Outdoor.			Total
	Sedentary.	Semi-sedentary.	Active.			L.	M.	H.	L.	M.	H.	
			L.	M.	H.							
Professional ...	162	313	—	—	—	8	27	—	—	—	—	510
Theatrical ...	—	23	57	—	1	—	—	—	—	—	—	81
Commercial ...	2345	62	25	—	—	10	1	—	—	—	—	2443
Shopkeepers ...	—	—	1178	455	—	—	—	—	—	—	—	1641
Miscellaneous ...	10	—	—	1	—	227	1	—	—	—	—	241
Liquor trade ...	—	—	10.	88	—	—	—	—	—	—	—	189
Domestic ...	—	—	93	—	—	—	—	—	—	—	—	98
Iron, copper, brass ...	—	—	50	424	249	—	1	2	7	4	—	692
Lead ...	4	—	50	16	4	112	43	—	—	—	—	184
Mercury ...	—	—	1	—	—	—	—	—	—	—	—	1
Wood ...	—	—	43	250	—	2	2	6	1	3	—	348
Leather ...	—	—	4	142	—	—	—	—	—	—	—	146
Textiles ...	—	—	107	23	—	—	—	—	—	—	—	130
Printing ...	—	12	155	62	—	—	—	—	—	—	—	270
Stone, cement ...	—	—	7	15	9	—	—	58	—	40	—	129
Glass, pot ...	—	—	4	8	—	—	—	1	—	—	—	13
Miscellaneous handicrafts	—	172	172	417	412	3	2	183	307	608	—	2131
Transport ...	—	—	—	—	—	—	—	72	250	226	—	578
No occupation, 35	—	—	—	—	—	—	—	—	—	—	—	35
Total (+ 35) ...	2521	180	1966	2011	675	362	75	327	575	881	10,000	

As was to be expected in dealing with an urban population, those following an indoor occupation greatly preponderate over the outdoor workers, 7,743 being engaged indoors, 439 partly indoors, and 1,733 out of doors; 35 had no occupation; 5,756 were engaged in sedentary, semi-sedentary and light active occupations, while 4,209 followed employments entailing medium or heavy muscular exercise, 2,651 being in the medium and 1,553 in the heavy class. Since the total was 10,000, percentages are given simply by moving the decimal point two places to the left.

Comparison with London Census.

It is interesting to compare these figures with the Occupation Returns for the County of London. Vol. xxiii of *London Statistics*, issued by the London County Council, contains a classification of the employments of the male population of the County of London based upon the census returns of 1911. This classification, unfortunately, does not distinguish between sedentary, light, medium, and heavy work, and the bulking in large groups makes a detailed analysis difficult, if not impossible. Still, some interesting facts may be deduced from a comparison of percentages in the different categories of the London census and of the 10,000 recruits examined.

With this end in view the figures for the occupations of the recruits have been rearranged, so far as possible, on the lines of the London census, so that they may be compared.

The annexed table gives this comparison with the numbers involved.

	London Census, 1911.		Recruits.	
	No. of Men.	Per Cent.	No. of Men.	Per Cent.
I. Professional ...	69,642	5	499	5
II. Domestic ...	58,257	4.2	167	1.7
III. Commercial ...	137,539	9.8	3,616	36.2
IV. Conveyance of men, goods, and messages	246,493	17.5	1,003	10
V. Metals, machines, implements, and conveyances	119,302	8	900	9
VI. Precious metals, jewels, watches, instruments, and games	27,205	1.9	210	2.1
VII. Wood, furniture, fittings, and decorations	60,765	4.3	542	5.4
VIII. Skins, leather, hair, and feathers	19,553	1.4	179	1.8
IX. Textile fabrics ...	22,829	1.6	19	0.2
X. Dress ...	81,730	5.8	355	3.8
XI. Food, tobacco, drink, and lodging	155,493	11	737	7.4
XII. Other occupations ...	412,719	29.5	1,743	17.4
	1,404,262		10,000	

The percentages in Groups I, V, VI, VII, and VIII are sufficiently the same to be regarded as practically identical. The most striking discrepancy occurs in Group III, that of the commercial classes. These constitute only 9.8 per cent. of the male workers of London, while no less than 36.2 per cent. of the 10,000 recruits examined belonged to this category. Groups II, IV, IX, X, XI and XII bulk larger in the census returns than they do among the recruits.

These discrepancies may be due to one or more of several causes. First, our classification may not be quite the same as that adopted by those who compiled the London statistics, but, as considerable care has been exercised in the classification, it is hardly likely that this can account for the great differences. Secondly, it is possible that all classes of the community have not been drawn upon equally for recruits; but an inspection of the list and a consideration of those classes which would be most likely to be exempted does not afford much support to this view, though it may be the reason for the transport workers furnishing fewer doubtful recruits than their proportion in the population would lead one to expect. Taking these facts into consideration, however, it seems legitimate to conclude that there is, on the whole, a greater proportion of doubtful heart cases in some employments than in others. This, however, still leaves it open to question whether this greater incidence is due to men with defective hearts naturally drifting into light

occupations, such as that of a clerk, or whether such occupations themselves lead to any particular form of heart weakness. This point can only be decided by a detailed examination of the incidence of the various forms of cardiac derangement in the various occupations. An attempt to do this will be made later.

EPIDEMIC POLIOENCEPHALITIS.

(SO-CALLED EPIDEMIC BOTULISM.)

BY

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PART I.

DURING the last five or six months I have seen a number of cases in which paralysis of some of the cranial nerves has been a prominent feature. The cases have been sufficiently numerous, indeed, to warrant the application of the term epidemic. It has been suggested by Professor Hall, of Sheffield, and others in the lay and medical press, that these are, or may be, cases of "botulism," a disease which has been attributed to the eating of food—particularly uncooked ham and sausage—infected with the *B. botulinus*. It is conceivable that the bacillus may effect a lodgement in the alimentary tract without producing any definite gastro-intestinal symptoms, and that the toxin there produced, circulating in the blood, might select for attack certain cranial nerves as does the toxin of diphtheria. But there is little, if any, evidence to connect the recently recorded attacks with any special articles of diet, and the epidemic, in its widespread character, does not resemble that usually associated with poisonous food, but rather suggests the type associated with symptom-free carriers, as is almost certainly the case in poliomyelitis, and in cerebro-spinal fever.

I had, indeed, concluded in my own mind that I had to deal with an epidemic of infective polioencephalitis, using that term to designate an affection of cranial motor centres produced by the same elusive organism that gives rise to epidemic poliomyelitis, and I have expressed that belief in the title of this communication. A weak spot in this suggestion is perhaps the fact that I have not met with an undue number of cases of poliomyelitis, such as one would expect to be associated with an epidemic of polioencephalitis, nor has such frequency of poliomyelitis, I believe, been recorded. Further, the possibility of an access of botulism associated with the considerably increased consumption of tinned meats during the period of restricted supply of fresh meat must be kept in mind.

The following are the only cases which I have kept any available notes. The first does not belong to the present series since it is one that came under my observation over four years ago, but it is obviously a sporadic case of the same nature as those now epidemic.

G. M. P., a girl aged 12, was seen in the out-patient department of the Royal Infirmary on August 29th, 1913. She had had pain in the head for four days and "turning of the eyes" for three days. She had been sick the day before. She was taken to the Royal Eye Hospital, where she saw Dr. Clegg, and by him was sent on to the infirmary. There was then paralysis of the left sixth nerve, which gave rise to convergent squint, and she had marked optic neuritis. She was constipated. During the next fortnight she continued much the same; she was sick once and had pain in the head and also in the arms and back, and then it was noticed (September 12th) that she had right facial paralysis, though not complete. By September 19th this facial paralysis was well again, but on October 3rd, though there had been no further sickness or headache, she had facial paralysis on the left side. After this date she steadily improved; the paralysis gradually passed off, though there was partial atrophy of the left optic nerve.

I showed this patient at the meeting of the Neurological Society held in Manchester in May, 1914, as probably a case of cerebral tumour that had made a good recovery, but the general view of those who discussed the case was that it was one of polioencephalitis, and that the time of year at which it occurred lent support to this view, since August and September are the months in which poliomyelitis and polioencephalitis are most frequent and occasionally assume an epidemic form.

Of the more recent cases which fall into the epidemic group the following are brief notes:

CASE I.

A. S., a boy aged 16, sent to my out-patient department on November 22nd, 1917, by Dr. Senior of Levenshulme. He had been suffering from left-sided facial paralysis for about a week; he had noticed it first on getting up in the morning, and had attributed it to draught from the window at night. He had slight pain in the left side of the face. All the branches of the nerve, both the upper as well as the lower, were involved. In addition, there was paralysis of certain branches of both third nerves on both sides, the right internal rectus and both internal and external recti of the left eye being involved; there was no optic neuritis. There was little, if any, general disturbance. The paralysis got well in about another week—so rapidly, indeed, that Dr. Senior, who had at first feared cerebral tumour, was inclined to regard the condition as hysterical. Some weeks later he had a slight transient recurrence.

CASE II.

B. J., a boy aged 13, an out-patient at the Royal Infirmary, had facial paralysis on the right side, starting about December 20th, 1917. There was but little local pain or discomfort, and no general symptoms. There was no clue as to the origin of the paralysis. He very rapidly improved under the potassium iodide and sodium salicylate, and was discharged cured by February 21st.

CASE III.

G. T., a girl aged 12, seen in my out-patient department on March 28th, 1918, was taken ill about January 14th, 1918, with drooping of both eyelids and pains in the head, particularly at the back of the eyes. She had no vomiting, but had pyrexia, with some delirium and clouded consciousness. She was an in-patient in a cession at the Eye Hospital, the Royal Infirmary, and the Convalescent Hospital. When she came under my care on March 28th there was still some drooping of the eyelids, though they were better than they had been, and there was divergent squint due to paralysis of the left internal rectus. There was no optic neuritis in this case.

CASE IV.

I. A., a girl aged 14, seen in consultation with Colonel Coates on March 25th, 1918. She had some headache about Christmas, 1917, which was put down as probably the result of a fall on the back of the head shortly before. The headache continued off and on for some weeks, but latterly she had had no trouble with it to speak of. Five weeks back, however, she had begun to see double, and Dr. McNabb found that she had optic neuritis and paresis of the right external rectus. During the whole period during which she had the headaches she had not seemed well of herself, but had not been in any way acutely ill, and when I saw her in March, except for some degree of anaemia she appeared in her normal health. The optic neuritis is now (May 11th) clearing up, and the diplopia and paresis of the left external rectus are now well.

CASE V.

W. B., aged 21, came as an out-patient to the Royal Infirmary on April 4th, 1918. He had had a left facial paralysis, coming on without ascertainable cause about ten days previously. He improved very satisfactorily under treatment, and was discharged cured on May 2nd. He never showed any other local or general symptoms beyond the facial paralysis.

CASE VI.

A. C. W., aged 33, a signalman, seen in the out-patient department of the Infirmary on the same date as the above. He had had right facial paralysis, coming on without ascertainable cause, about eight days previously. He has failed to respond to treatment, and up to date (May 2nd) has made practically no improvement.

CASE VII.

E. C., aged 42, seen in the out-patient department at the Infirmary on April 11th, 1918. She had had weakness of the left eyelid coming on gradually for three weeks. She had had headache, but not very severe. On examination, there was complete ptosis on the side, with no affection of any other eye muscles; the pupils reacted normally, and fundi and fields were normal (Dr. J. G. Clegg). She has improved slightly, the droop of the left upper lid being somewhat less than it was; no further paralysis has developed.

CASE VIII.

M. C., aged 41, insurance agent, was sent to my out-patient department at the Infirmary on May 2nd, 1918, by Dr. Blake-more of Tyldesley, with a note suggesting "commencing disseminated sclerosis." He started with right-sided facial paralysis six or eight weeks ago. He was unable to close his right eye and saw double. The facial paralysis has now practically recovered. He had also some slight drooping of the left eyelid, and this, after getting better for a while, had become worse. When seen there was well-marked ptosis. He still had double vision, and there was paresis of the right internal rectus and of both superior recti. There was no optic neuritis. He had had no general symptoms of illness, and, despite the difficulty of seeing clearly, he had continued at his work with assistance.

CASE IX.

M. M., aged 11, seen in consultation with Dr. Barnes of Fails-worth on April 28th, 1918. She had been ill for about fourteen days with pain in the head and mild pyrexia, about 100° F. The pain was mostly about the back of the head and neck, and there had been distinct stiffness of the muscles at the back of the neck. She had vomited once, and the tongue was dirty. There had been a good deal of general malaise, but when I saw her she was better and was sitting up in bed reading and anxious to be allowed up. There was no paralysis of any of the face muscles, nor any complaint of double vision, but she had well-marked double optic neuritis. On May 5th Dr. Barnes informed me that she had since complained of double vision, though there was no recognizable ocular paralysis. The optic neuritis is now beginning to clear up.

CASE X.

Mrs. W., aged 61, seen in consultation with Dr. McLean of Harpurhey on March 20th, 1918. She had had gradually progressive asthenia for two or three weeks with slow mentality and forgetfulness, and slight continued pyrexia. It was difficult to get her to answer any questions about herself, though after I had been with her for a time she roused up to a certain extent, and took some interest in my visit. There was no paralysis of cranial nerves then, and no optic neuritis, but she subsequently developed facial paralysis. She gradually got worse, and sank into a more and more confused and asthenic condition, and died about a fortnight later.

CASE XI.

Mrs. P., aged 62, also seen in consultation with Dr. McLean of Harpurhey on April 3rd, 1918. She had had symptoms of arterio-sclerosis—recurrent headache and dizzy attacks—for two or three years past. For some days before I saw her she had been suffering from headache, and had been dull and confused, and the day before sudden ptosis of the left eye had developed, and she had diplopia, due to fairly complete paralysis of all the straight muscles of the left eye. She complained of a good deal of pain and headache above the eye, made worse on examining for optic neuritis, which was absent. The urine was free from albumin. She had gradually improved, but on May 5th there was still some drooping of the left lid and diplopia.

With the exception of Mrs. W. (Case x) and of G. T. (Case III), the general symptoms have been comparatively slight, certainly not of the severity suggested by Professor Hall in his brief note of the cases he has seen in Sheffield. It would appear as if most of the cases I have seen were of a subacute type.

I have had some doubts as to whether the three cases of simple unilateral facial paralysis should be included, since they differed in no way from the sporadic cases with no ascertainable cause that are of fairly common occurrence. In view of their unusual frequency, however, and of the belief which I know is held by some physicians that facial paralysis is not uncommonly an expression of polio-encephalitis, I have thought well to retain them.

I have some doubts also of the exact nature of the two following fatal cases. In neither of them was there any cranial nerve paralysis, but the progressive asthenia and drowsiness, advancing to coma, without definite evidence of meningitis, have inclined me to believe that they fall into the same category. I may say that I have during the period come across (but not had under my own care) several cases of similar type, some of which have ended fatally, whilst others have got well after being in apparently a dying condition for some days.

CASE XII.

Mrs. N., aged 23, seen with Dr. Kenny of Pendleton on February 16th, 1918. She had started about February 12th with symptoms suggestive of a mild influenzal attack and a temperature of 100° F. On February 13th she was better, but on February 14th complained of headache and began to be drowsy, and when I saw her she was unconscious, though she showed that she could just feel firm nipping of the skin between one's finger nails. Her pulse was fast (120), breathing not faster than normal. There was nothing abnormal to be discovered in the heart, lungs, or elsewhere. The urine was normal. There was no paralysis, and no optic neuritis. Her state of coma steadily deepened, and she died a few days later.

CASE XIII.

L. W., aged 22, seen with Dr. Barnes of Failsworth on March 19th, 1918. She had been ill for about a week, having started with chest symptoms—cough, rapid breathing, and pyrexia. For two or three days before I saw her she had been getting progressively more drowsy and weaker, and finally could not be roused at all. The urine was normal. There was no paralysis, no convulsions or twitching, but as I suspected tuberculous meningitis I took her into the Royal Infirmary under my care. Lumbar puncture yielded clear fluid under moderate pressure, which did not yield any pathological organisms on culture, and did not show the presence of tubercle bacilli or *Diplococcus intracellularis*. Her temperature remained high and

her coma gradually deepened till she died, two days later. The autopsy revealed purulent bronchitis and acute pulmonary emphysema, but there was no meningitis nor any recognizable naked-eye abnormality of the brain or meninges.

NEPHELOMETRIC ESTIMATION OF QUININE
IN BLOOD AND URINE.

BY

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THE methods recorded below were devised, amongst others, in the course of work undertaken at the request of the Medical Research Committee. They are published at once in the hope that they will be useful to others who are investigating the treatment of malaria by quinine. A fuller account of these and other methods will appear in the *Annals of Tropical Medicine and Parasitology*.

By the following procedure estimates of small fractions of a milligram of quinine can be made with an error of less than 5 per cent. It has been found invaluable in dealing with such small amounts of the alkaloid as are contained in 5 c.cm. of human blood, when no other methods would have the necessary delicacy. It has also, by reason of its rapidity, proved very useful for approximate estimations of quinine in urine. Its success is due (1) to the great delicacy given to the Tanret turbidity test by using purified ether and by dissolving the quinine in saturated ammonium sulphate solution; (2) to the observation that comparisons of the opalescences of two suspensions can be made with greatly increased accuracy when the tubes are illuminated by a band of light admitted through a narrow adjustable slit.

Estimation of Quinine in Blood.

Five to ten cubic centimetres of blood are removed from the patient by a syringe, ejected at once into a weighed flask containing 2.5 to 5 grams of solid ammonium sulphate and 10 c.cm. of a saturated aqueous solution of this salt containing 0.6 per cent. H_2SO_4 , and the flask is re-weighed. Boil for two minutes, shaking all the time, and pour off the liquid portion while hot into a small Gooch crucible under suction. Catch the filtrate in a test tube and transfer it to a 50 c.cm. stoppered cylinder. Add 10 c.cm. more acidulated ammonium sulphate solution to the original flask, boil and filter as before. Wash the residue on the crucible twice with the hot filtrate before adding it to the original filtrate. Repeat the boilings with three further lots of acidulated ammonium sulphate solution, on each occasion washing the residue on the crucible two or three times. Cool the filtrate, alkalize it with strong ammonia and extract with four 7 c.cm. lots of purified ether (*v. infra*), removing each lot as it separates, and transferring it to one of a special series of test tubes gauged for nephelometry. Evaporate off the ether on a hot water bath, taking care to avoid loss by spurting—the tube now contains the whole of the quinine of the original blood. Control experiments with normal blood have shown that it contains no substance giving turbidity with Tanret's reagent. The test tubes are of thin-walled colourless glass, and have a diameter of about 13 mm. They are carefully selected so as to be equal in calibre in the lowest two centimetres of the cylindrical portion, this equality being ascertained by means of a suitably thick piece of glass tubing surrounded at its lower end by a half-centimetre length of thick black rubber tubing.

The nephelometer consists essentially of a well made dull-black parallel ruler, the lower bar of which is screwed horizontally to a wooden supporting open framework (for example, a photographic half-plate printing frame), which bears also a small shelf level with the lower edge of the ruler. By means of vertical cardboard screens light is blocked off from all but a middle portion of the slit two test tubes wide. The light should be strong. Between it and the slit is interposed a piece of opal glass or white semi-transparent paper. The ends of the test tubes rest on the transverse shelf referred to above, their sides are

kept in close contact with the face of the ruler by means of rubber bands or brass springs screwed to the ruler or the frame.

Observations should be made in a dark room, and the width of the slit giving optimum results should be chosen empirically. The light should be fixed in position relative to the slit.

The quinine obtained from the blood is dissolved in 10 c.cm. of saturated ammonium sulphate solution, and 5 c.cm. of the solution transferred to another of the gauged test tubes. Into five other test tubes of the series are introduced 5 c.cm. of various standard solutions of quinine in saturated solution of ammonium sulphate of strengths increasing from 1 mg. in 500 c.cm. to 1 in 100 c.cm. To each of the six test tubes is then added 0.05 c.cm. of Tanret's reagent and thoroughly mixed at once by shaking. After a quarter to half an hour the tube is "matched" with the standards in the nephelometer, and thereby an approximate idea of the strength of the quinine is acquired. If this is less than 1 mg. in 500 c.cm. the turbidity will be too slight for any but very rough estimation. If more than 1 mg. in 100 c.cm., dilute the remaining 5 c.cm. of quinine solution with 10 c.cm. of saturated ammonium sulphate solution, take 5 c.cm. of the diluted solution and add Tanret's reagent, mix thoroughly, and match with a series of fresh standards. The dilutions at which we find our judgement of turbidity most accurate, using 13 mm. test tubes, lie between 1 mg. in 200 and 1 in 300 c.cm. The final matchings are made with a series of standard quinine solutions of which the strengths decrease from 1 mg. in 200 c.cm. to 1 in 300 c.cm.

Results Obtained with Pure Quinine.

The alkaloid was given dissolved in a saturated watery solution of ammonium sulphate; 5 c.cm. of the solution was taken for each estimation.

Given Milligrams in 5 c.cm.	Found Milligrams in 5 c.cm.	Percentage Error.
0.0200	0.0192	- 3.9
0.0222	0.0217	- 2.2
0.0233	0.0227	- 2.5
0.0222	0.0217	- 2.2
0.0192	0.0189	- 1.7
0.0200	0.0200	Nil
0.0200	0.0202	+ 1.0
0.0250	0.0254	+ 4.2

The observer did not know the correct results beforehand. Those shown above were obtained in a preliminary trial with test tubes gauged only externally.

We have no doubt they can be improved on, and also that, with suitable flat-bottomed tubes 2.5 c.cm. of solution would suffice, in which case it would be possible to estimate $\frac{1}{10}$ mg. of quinine with the same degree of accuracy.

Results with Defibrinated Sheep's Blood to which Known Amounts of Quinine Solution had been added.

Five cubic centimetres of blood were used for each estimation.

Milligrams of Quinine given in 5 c.cm. of blood.	Milligrams Found.	Percentage Error.
0.0303	0.0312	+ 3.1
0.0200	0.0192	- 3.8
0.0200	0.0196	- 2.0
0.0178	0.0172	- 3.5

The amounts shown are such as do actually occur in the blood of patients taking large doses of quinine.

Nephelometric Estimation of Quinine in Urine.

To every 100 c.cm. of urine add 5 c.cm. of 25 per cent. solution of neutral acetate of lead, containing also $2\frac{1}{2}$ per cent. of acetic acid. Mix and then add 5 c.cm. of saturated watery solution of ammonium sulphate. Filter until a clear filtrate is obtained. Test it for absence of lead by receiving a drop on filter paper moistened with a sulphide solution. If lead is found (very exceptional), the above

defaecation process must be omitted, although troublesome emulsions with ether may then be expected. Reckon 100 c.cm. of filtrate as representing 92.3 c.cm. of the original urine.

Test the filtrate with Tanret's reagent; if it gives any turbidity, dilute it with known volumes of water until it just ceases to do so. This is necessary because the 10 c.cm. of saturated ammonium sulphate solution added to the quinine extracted will dissolve only about 1 mg.

Take 10 c.cm. of this "defaecated" (and, if necessary, diluted) urine in a small stoppered cylinder, and filter; dissolve in it 5 grams of ammonium sulphate. Extract with three successive 7 c.cm. lots of purified ether, and so get rid of any "oily matter." Alkalize it with strong ammonia solution, and extract the quinine with three successive lots of ether, transferring each lot as removed to one of the gauged test tubes. Then proceed as already described for blood estimation.

Estimation of Quinine in Urine.

Milligrams of Quinine given in 10 c.cm. Urine.	Milligrams of Quinine found in 10 c.cm. Urine.	Percentage Error.
0.1000	0.0995	- 0.5
0.058	0.0552	- 6.1
0.0833	0.0832	- 0.2
0.1205	0.1232	+ 2.2
0.0400	0.0401	+ 0.2

Tanret's Reagent.

Dissolve 1.35 grams of mercuric chloride in 70 c.cm. of water, and 5 grams of potassium iodide in 20 c.cm. of water in a 100 c.cm. measuring flask. Pour the mercuric solution into the iodide solution under agitation and fill up with water to the mark.

Purification of Ether.

One litre of methylated ether is shaken up thoroughly for five minutes with four successive 100 c.cm. lots of saturated aqueous solution of sodium bisulphite in a separating funnel, allowing half an hour for each separation before running out the watery solution. Wash with 50 c.cm. of half-saturated sodium chloride solution. The ether is then shaken with 50 c.cm. of water *plus* a little phenolphthalein and enough sodium hydrate solution to give a permanent alkaline reaction. The separated ether is further purified by distillation. It must give no reactions for aldehydes or ketones, as otherwise a Tanret turbidity with the residue of an ether extract would be inconclusive, and nephelometric estimations of quinine would be inaccurate.

As a supremely delicate test for ketones the mercuric cyanide reagent of Scott Wilson can be strongly recommended. As a test for aldehyde (probably much less sensitive) the well-known Schiff's sulphurous acid fuchsin solution may be used.

The ultimate criterion should be that no turbidity develops when the ether is shaken with *excess* of the Scott Wilson reagent.

Scott Wilson Reagent.

Mercuric cyanide	...	...	0.5 gram
Sodium hydrate	...	...	9.0 grams
Water	...	...	60 c.cm.
0.7268 per cent. silver nitrate solution	...	...	20 c.cm.

The mercuric cyanide and NaOH is dissolved in water, and the silver solution is run in under constant stirring.

THE American National Board for Vocational Education estimates that 100,000 of every 1,000,000 soldiers sent to Europe will return during the first years of the fighting, and that 20,000 of these will need some kind of vocational re-education. A comprehensive Federal scheme for training and placement in wage-earning occupations has been drawn up which includes a central administrative agency in Washington with similar public, semi-public, and private agencies, and the establishment of "curative workshops for the treatment of war cripples, together with a complete system providing for subsistence and pay during the period of re-education."

STERILIZATION OF THE SKIN AND OTHER SURFACES BY A MIXTURE OF CRYSTAL VIOLET AND BRILLIANT GREEN.

BY

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THE problem how to effect absolute sterilization of the skin is of the utmost importance in surgery, but it is difficult of solution because all the usually employed antiseptics are more or less strongly irritant, so that their prolonged application for the purpose of seeking out organisms lying beneath the superficial layer of epithelial squames, or sequestered in the sweat and sebaceous glands and the hair follicles, is impossible. Their action is thus limited to the surface of the skin only, and those organisms which lie deeper escape destruction. Moreover, they are rendered inactive by admixture with albuminous substances, so that the blood from the wound, on coming in contact with the prepared skin, immediately neutralizes the small amount of the antiseptic. For example, every trace of the iodine colour has disappeared from the neighbourhood of the wound long before the operation is finished.

It may be argued that the iodine has already sterilized the skin, but this would only be true if the sterilization extended throughout the bacteria-bearing regions of the skin, whereas it is limited to the surface. The result is that the rubbing of the soddened skin surrounding the wound, which is more or less inevitable as the operation proceeds, first removes the layer of superficial sterility and then begins to detach epithelial scales which the antiseptic has never reached. The conveyance of such unsterilized squames into the wound is a potential cause of sepsis.

To avoid such conveyance the modern surgeon attaches sterilized towels to the edges of the wound. Fixation of the towels so as absolutely to cut out the skin is simple in straightforward operations where little manipulation of the wound is needed, but quite the reverse in certain prolonged and difficult operations involving much manipulation, and it is in such that perfect aseptic technique is most particularly desirable. The use of sterile towels to cut out the skin has the further disadvantages that they add a complication to the general technique, tend to handicap the surgeon, and increase the expense—a matter of no small moment to hospitals nowadays.

One of us (V. B.) carried out a number of experiments aiming at cutting out the skin surface altogether by covering it with a layer of impermeable varnish; a number of varnishes were used, the basis of them all being asphalt dissolved in various volatile media, to which was added in different experiments mastic, collodion, and caoutchouc. The experiments failed; although the desired result was attained so long as the skin was smooth and dry, yet when it was sweaty or crinkled, as in the case of the abdomen of parous women, the varnish before the close of the operation began to peel off at the edges of the wound.

In consequence, one of us (C. H. B.) suggested the use of a strong solution of crystal violet and brilliant green to produce not only a sterile, but an actively antiseptic condition of the skin, since these substances are both extremely potent antiseptics,¹ and at the same time devoid of irritating effect on the skin when applied in high concentrations. The method which we have employed, and which has been used as a routine at the Middlesex Hospital by one of us (V. B.) for the last two and a half years, is as follows:

The solution contains 1 per cent. of a mixture of equal parts of crystal violet* and brilliant green† dissolved in equal parts of rectified spirit and water. (The powder is dissolved in the undiluted spirit first of all and the water

then added.) Six hours before the operation (except in certain cases) the solution is painted over the skin of the operation area; a compress of lint soaked in the same and covered by a sheet of waterproof batiste, is then applied and kept in position by a binder or bandage. This compress is removed on the operating table and no further painting done. The result is that the skin is stained an intense violet-black; the staining remains unchanged throughout the operation and indeed for a week or two afterwards.² This prolonged application of the antiseptic produces no irritation of the skin, nor of more sensitive surfaces such as the vulva and vagina.

The theoretical advantages of an antiseptic capable of being applied in such concentration and over such a period are obvious. The epithelial squames throughout the entire thickness of this layer become permeated with the dyes. Should a squame become detached and conveyed into the wound it carries with it a definite amount of a potent but practically non-irritating antiseptic, and the skin surface exposed is not merely initially sterilized, but remains antiseptic throughout the operation.

The clinical results accord with the theoretical. The advance made is chiefly apparent not in the average surgical case in which healing was rarely unsatisfactory with the older methods, but in certain operations in which infection of the wound is specially liable to occur. Thus the healing in cases of the radical extirpation of carcinoma of the cervix, an operation in which suppuration in the operation area has been a not uncommon complication, has immensely improved. In these patients not only is there a special liability to transference of skin organisms into the parietal wound on account of the prolonged operation and the amount of manipulation required, but there is a very definite risk of virulent organisms being transplanted from the divided vagina into the operation area. Various methods aiming at preliminary sterilization of the vagina have been employed in the past, but none of them has been so successful as that we now employ—namely, packing the vagina for six hours beforehand with gauze soaked in violet-green.

Further, a marked advance has been shown in the progress of cases of operations involving the perineal, perianal, vaginal and vulval regions, areas the sterilization of which has hitherto been impracticable. Owing to the absence of irritant effect violet-green can be applied to these parts by compress or pack for the same length of time as it can be applied to the abdomen, the leg, or the arm.

Bacteriological Tests.

In order to test bacteriologically the value of violet-green as a skin sterilizer we have made cultures from a series of patients prepared for operation with this antiseptic. The cultures were taken in the following manner: With a sharp needle the skin was deeply scratched, not merely stroked, and the surface of an agar plate inoculated; the needle was then re-sterilized, the skin again scratched, and the plate again inoculated, and so on up to four times for each case. The object of this procedure was to obtain cultures, not merely from the surface of the skin, but from the deeper epithelial layers, and, further, to make the inoculation from each separate scratch act as a control to the others on the same plate. In each patient two areas of skin were chosen, the abdominal skin and the perianal skin, and separate plates were used for each area. The perianal skin was specially selected as being the most bacteria-laden portion of the external surface of the body, and therefore as testing the efficacy of the sterilizing agent in the most rigorous manner.

The violet-green was applied to the abdominal skin for six hours in the manner already described, but only for three hours to the perianal and perineal regions, so as not to interfere with micturition. Our results are as follows:

Violet-green—abdominal skin ...	...	22 cases
Result: No growth at all in ...	...	22 "
Violet-green—perianal skin ...	...	20 "
Result:		
No growth at all in ...	...	17 "
Growth in two of the four streaks in ...	...	1 case
Growth in one of the four streaks in ...	...	2 cases

The growths that occurred in the last two cases were due to the needle being drawn absolutely through the

* The substance employed should be hexa- or penta-methyl violet or a mixture of these.

† Specified as brilliant green sulphate zinc-free.

² If desired the colour may be removed by rubbing the surface with hypochlorite solution, for example, "Eusol."

anus, a recess into which it is impossible to be sure the antiseptic has thoroughly reached. The streaks corresponding to such passage of the needle showed growth, whilst the others did not. This mistake was avoided in the control experiments.

The following control experiments were carried out:

The perianal skin was untreated in 6 cases. Result: Growth in all four streaks in all cases.

The perianal skin was treated with iodine in 10 cases. The skin was painted with 2 per cent. iodine solution in rectified spirit one hour beforehand and again painted immediately before making the cultures—three streaks only to each case.

Result:

No growth at all in	...	...	...	1 case
Growth in all three streaks in	...	...	...	3 cases
Growth in two streaks in	...	...	...	3 "
Growth in one streak in	...	...	...	3 "

The very marked superiority of violet-green over the commonly used iodine is strikingly demonstrated.

For further experimental proofs of the superiority of the violet-green mixture as a means of effecting both thorough and rapid sterilization of the skin we are indebted to the observations of Drs. J. Walter McLeod and R. E. Bevan Brown (unpublished).

The method which these workers adopted was to cut a portion of skin from an amputated limb into portions, which were then placed in sterile Petri capsules. A loopful of a dense emulsion of bacterial culture, faeces, etc., was smeared on the centre of each piece and the surface was allowed to dry. Then the antiseptic was applied either by dropping it on to the surface or by laying on the skin a small piece of lint soaked in the antiseptic solution. At the end of the period of application excess of antiseptic was washed off with spirit and the latter was allowed to evaporate; after the surface had dried, a loopful of sterile peptone water was vigorously rubbed over the treated surface, and the loop was then used to inoculate the test medium. By the application of violet-green, skin inoculated with emulsions of faeces or of soil was completely sterilized, as tested both in aerobic and anaerobic cultures, after twelve to fifteen minutes; *B. tetani* and two strains of *perfringens* type were also killed in fifteen minutes. A 2½ per cent. solution of iodine in spirit was equally effective under similar conditions; but when iodine in 1 per cent. strength was tested on *B. perfringens* it was found to be a less efficient antiseptic than violet-green. The superiority of violet-green was also strikingly apparent in the case of certain resistant organisms; thus, a sporing aerobic bacillus of a type akin to *B. subtilis*, which was very resistant to sterilization by heat, was not killed after ten minutes' application by such practically impossible antiseptics as a saturated solution of iodine in chloroform, 33 per cent. bromine in chloroform, formaldehyde (40 per cent.), liquefied carbolic acid, 5 per cent. hydrochloric acid in saturated watery solution of corrosive sublimate, or 10 per cent. nitrate of silver; 5 per cent. picric acid in spirit, 10 per cent. lysol, 2 per cent. hypochlorous acid, 15 per cent. nitric acid in spirit, also failed to effect sterilization in five to ten minutes; strong tincture of iodine applied for one hour had no obvious effect on this organism, but after twelve hours' application produced sterility. On the other hand, the violet-green solution sterilized the skin after acting for fifteen to thirty minutes.

Streptococci and staphylococci are among the most susceptible organisms to these dyes, hence the above results apply *a fortiori* to those organisms.

REFERENCE.

¹ Browning, *Applied Bacteriology*, London, 1913.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MYOPIA AND MYOPIC ASTIGMATISM IN RELATION TO THE GLARE OF MESOPOTAMIA.

DURING at least nine months of the year the glare experienced in Mesopotamia is a very real trouble. It is with a feeling of great relief that the first rain is greeted; it comes in December and reduces the glaring white of the soil to a muddy brown colour. The country round Basra consists of the river, the Shatt-al-Arab, with a belt of palm trees of varying depth, and then the desert. The date palm is practically the only tree in this part of the country, and its fruit is the principal wealth of the land, but it is an unsatisfactory tree for giving shade, and is usually so covered with dust as to have a greyish colour which gives no rest to the eyes.

The troops are supplied with glare protectors fitted with a green-tinted glass. There can be no question of the comfort that these afford and of the feeling of coolness

experienced on putting them on. Some medical men have asserted that the wearing of glare protectors is as important a prophylactic against heat-stroke as a sun helmet. This, I think, is far too positive a statement. It is generally accepted, after the experience of last summer, which was an unusually severe one, that when a man who has not unduly exposed himself to the sun is attacked by heat-stroke of the apoplectic form he is at the time suffering from some form of toxæmia. In this area the cause of the toxæmia was usually the early stages of sandfly fever or malaria, but alcoholism and even constipation were often the underlying factor.

The point which I wish to bring forward is that persons with myopia, and especially with myopic astigmatism, suffer to a very marked extent from the glare, often to such an extent as to render them useless for any outdoor employment. Men with high degrees of myopia in this country are of little use. Even with glare protectors over their correcting glasses or with tinted lenses, they cannot cope with the conditions.

I will report one case of rather exceptional severity, though cases of a similar nature but of less severity came to the eye department at Basra.

Pte. S. stated (May 21st, 1917) that on the previous day, when coming out from church into the sun, he suddenly saw colours and then became blind. He was taken indoors, and in a few minutes he recovered his vision. Shortly after this he went again to the parade ground, when his sight went in a similar manner and has not returned.

On examination, the vision of the right eye was only bare perception of light, and with the left he could count fingers at a few feet. There was some slight conjunctival injection and considerable photophobia. Both pupils were equal and reacted normally. The eyeballs were somewhat tender to pressure, but the tension was normal. He was wearing -7 D. spher. before both eyes. His refraction worked out at -6 D. spher. -2 D. cylinder axis horizontal for both eyes. The fundus of each eye showed a typical myopic appearance with large temporal crescents, but no active disease was seen. The media were clear.

He was admitted to hospital on the same day, put to bed in as dark a corner of the ward as possible, and given a strychnine mixture three times a day. By the end of a week the photophobia and conjunctival injection had disappeared, and the vision had returned completely. He was subsequently evacuated to India.

I am indebted to Lieut.-Colonel Gee, I.M.S., in whose hospital the ophthalmic department is situated, for permission to publish this case.

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PADDING THOMAS EXTENSION SPLINTS BY PARAFFIN WAX.

I WISH to bring under the notice of surgeons using the Thomas extension leg splint a rapid method of padding the groin ring. It consists in first padding the iron ring in the usual way by winding on to it strips of carpet felting about 1½ in. in width. Each layer as it is wound on is sewn with thin thread to prevent it unrolling or shifting its position, and each successive layer is sewn through to the preceding one. The last quarter of an inch of the padding should be flannel or flannelette sewn in the same manner, and continued until the padding is of the required size and shape.

The whole ring is now immersed in melted paraffin wax, or this is poured over it hot until it permeates the whole padding. When dry and hard all excrescences can be shaved off and the waxed surface rubbed smooth. No leather or other covering is used. It is greasy but clean and does not stick to the skin, and is impervious to moisture. The heat of the body keeps the padding in a soft resilient state, and it moulds itself slightly to the body. If soiled it can be washed, or scraped, or shaved to clean it.

Dublin,

R. LANE JOYNT,
Lieut.-Colonel R.A.M.C.

RECURRENCE OF BILIARY OBSTRUCTION BY GALL STONE AFTER REMOVAL BY OPERATION: ACUTE PANCREATITIS: DEATH.

A VERY stout man, aged 53, was admitted to the Royal Infirmary, Glasgow, under my care, on November 26th, with distension of the abdomen, which was tender all over; the bowels had not acted for six days. Tenderness to pressure was most marked over the right hypochondriac

region. The patient was slightly jaundiced, and the stools passed after admission were clay-coloured. He gave a history of having had a shock a year prior to admission, the whole right side being paralysed for a time. He recovered from this, but the action of the bowels was very irregular from that time onwards. A few days prior to admission he passed a large gall stone.

The ordinary cholecystostomy operation was performed, three large and rather soft stones being removed. Care was taken both by palpation and passing a long probe along the duct to ascertain that no stone or other obstruction was left behind. A large tube was left in the gall bladder, from which a copious flow of green bile was discharged; the jaundice disappeared, and the motions were now bright yellow in colour. The patient was thus very well for several days after the operation, and the flow of bile in both directions, was abundant.

Shortly after the administration of a liver pill containing acid sodium oleate, etc., he again complained of pain in the region of the liver—much more severe, on this occasion; he became markedly jaundiced, and the stools were clay-coloured once more. He died shortly after.

On *post-mortem* examination a stone was found impacted in the papilla of the common duct, which projected prominently into the duodenum. The liver was soft and fatty. There was marked acute pancreatitis, due probably to the blocking of the duct by the gall stone, and extensive fat necrosis.

It would appear almost certain, both from the results of the careful examination made at the operation, and the free flow of bile both into the bowel and through the tube after the operation, that the stone found *post-mortem* came down from one of the bile ducts of the liver, whence, probably, it had been dislodged by the action of the pill. The stone blocking the ampulla of Vater was responsible for the return of jaundice and clay-coloured stools, while it also probably caused a flow of bile along the pancreatic duct thereby setting up the pancreatitis from which the patient died.

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A CASE OF ADENOMA OF THE UMBILICUS.

A boy, aged 5, who had, since birth, in the lower half of the umbilicus, a red, raspberry-like tumour, which had persisted in spite of pad pressure and applications of ointments and powders, presented when first seen a red, smooth, oval tumour at the lower border of the umbilicus; its longest diameter was half an inch; it projected one-eighth of an inch above the level of the skin. Except for very slight moisture, there was no secretion from the tumour.

Operation.—The tumour was diagnosed to be an adenoma. The umbilical skin was everted with toothed forceps, and the growth, with a ring of surrounding skin one-eighth of an inch in width, was excised. A probe failed to demonstrate any sinus or canal, but at one spot passed through the thin connective tissue into the peritoneal cavity. A mattress suture approximated the sides of the everted umbilicus. Recovery was uneventful.

Pathological Report.—The following is Captain W. L. Pethybridge's report on his microscopical examination of the tumour:

On longitudinal section, the growth is seen to be an adenoma, attached to a fibrous stalk. At the point of junction of the two parts is a constriction the cavity of which is occupied by squamous epithelium, which also extends for a short distance over the free surface of both the adenoma and the stalk. The glands of the adenoma are tubular, are lined with columnar epithelium, and resemble the glands of the small intestine. They open on the free surface of the tumour. Beneath the glands are bands of unstriated muscle fibres. In places there is some round cell inflammatory exudation.

Remarks.—The condition is one of the abnormalities which result from incomplete obliteration of the vitelline duct, of which the best known is the Meckel diverticulum. In cases such as the above a short piece of the vitelline duct, where it passes through the umbilicus, fails to become obliterated. As the umbilicus closes in, the shallow funnel becomes everted and forms a red velvety tumour, the covering of which is practically intestinal mucosa.

C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P.

Plymouth.

Reports of Societies.

MOUTH INFECTIONS IN RELATION TO INTESTINAL INFECTIONS.

At a meeting of the Section of Odontology of the Royal Society of Medicine, on May 6th, the President, Mr. J. H. BADCOCK, being in the chair, Dr. NATHAN MUTCH read a paper on infections of the mouth in their relation to those of the gastro-intestinal tract. Almost every organism, he said, which had been identified in the bowel in health or disease had been found also in the mouth or in the food ingested through the mouth. At all times any factor such as alteration in diet, digestion, or motility which changed the conditions in the intestines modified also the bacterial balance. When acidity was excessive the duodenum and jejunum were sterile or contained small numbers of strongly acid-resisting yeasts. When gastric hydrochloric acid was very low the number and variety of jejunal organisms were greatly increased. At lower levels stagnation allowed the destruction of the majority of these bacteria by the minority, which found the environment fitted to their free multiplication. Parasitic strains of bacteria, arising from dental defects and swallowed, might infect the mucosa and prolong constitutional disease for years after the restoration of the mouth to health, as occurred in rheumatoid arthritis. The causal bacteria of chronic intestinal infection could live on living or dead tissue; when conditions in the tissues were adverse they continued as saprophytes on the surface; when the exudates and residues were unsuitable for growth, the race was continued amongst the tissues, so that infection continued until both environments became unsuitable at the same time. This rarely occurred spontaneously, and natural cure was uncommon. Infection, either in the mouth or intestine, depressed the general tone and favoured increased invasion at the other focus. Hence improvement was effected in buccal infections by treatment of the bowels, and vice versa. One of the commonest micro-organisms to establish chronic infective foci simultaneously in the mouth and intestines was *Streptococcus pyogenes longus*. In comparison with bacteria of the *B. coli* group the numbers of streptococci were small, but in disease they might increase greatly until they became the predominant colonic aerobes, in extreme cases replacing the colon bacillus almost completely.

Among the factors favouring streptococcal growth in the digestive tract local delay was the most important. With a delay of six hours, fast-growing cocci increased four-thousandfold. Considering the lower ileum and colon only, deficient assimilation of food in the upper parts of the digestive tract was the second essential factor. The more easily digestible the food and the greater the efficiency of mastication, the poorer were the residues upon which the ileo-colonic flora could rely. The products of meat proteolysis induced much more rapid growth than did the products of casein digestion. Although a rich nitrogenous basis was required for streptococcal growth, the presence of carbohydrate was needed for its dominance over members of the *B. coli* group.

The harmful influences determining the first departure from health were those which gave rise to chronic intestinal stasis, and thereby produced secondary foci of stagnation. The densest stream of harmful streptococcal strains flowed from the mouths of patients suffering from infections of the teeth, gums, tonsils, nose, and pharynx. From centres of saprophytic growth in the chyme of the ileo-caecal region long-chained cocci invaded the mucous membrane, and so opened up new channels for their dissemination in the tissues, where they continued life as parasites, exchanging their strife against rival bacteria for one against the defensive processes of the body. Mouth infection again aided them by inducing negative immunity phases from time to time, and thus allowing them greater opportunity of establishing themselves in the mucosa, and they then spread upwards and downwards. Organisms streamed from the infected mucosa along the lymphatics to the neighbouring glands. Alimentary and systemic infections with streptococci, often glycolytic in nature, were associated with a great variety of minor and major gastro-intestinal disturbances, muscular rheumatism,

rheumatoid arthritis, slight and severe anaemias, chronic ulcerative endocarditis, and chronic nephritis of mixed type, etc.

Treatment of the mouth could do much to benefit a great variety of morbid states, but derangements in the lower alimentary tract imposed strict limits to the degree of improvement which could be effected in this way.

The rational treatment of chronic infective conditions of the digestive tract, such as streptococcal disease, was to attack the mouth infection vigorously by local measures, but at the same time to employ every possible therapeutic measure, whether diet, drugs, operation, massage, or vaccines, for the correction of the lesions in the stomach and intestines.

DISCUSSION.

Major H. P. PICKERILL said that as the result of experiments on animals he had found that the prolonged elimination of the glosso-pharyngeal reflex had had the following effects:

1. The animals died within six months.
2. Their weight equalled one-quarter to one-half that of the controls.
3. Starch and calcium were excreted in excess.
4. The salivary glands were undeveloped (in ratio to body weight).
5. The animals developed a polyneuritis, from which they apparently died.
6. *Post mortem* there were gastric lesions. Ulcers were constant, and there was dilatation and pyloric stenosis.

He had injected endotoxins and exotoxins from the human mouth into the jugular veins of rabbits, and found that endotoxins produced a rise of blood pressure and exotoxins a fall of blood pressure. He had administered daily by the mouth 1 c.cm. of broth culture from carious teeth to rabbits. This was followed by malaise, anorexia, and diminished defaecation, as was shown by human beings with oral sepsis and stasis. He thought the explanation was something as follows: The ingestion of non-acid or alkali substances was followed by glosso-pharyngeal depression, and this in turn by diminished alimentary secretion, oral and intestinal stasis, toxic absorption, and sympathetic nerve stimulation, intestinal dilatation, and viscous, scanty saliva. In this way a vicious circle was formed which could start at any point. Mr. DOUBLEDAY also took part in the discussion, and Dr. MURCH replied.

BONE GRAFTING IN UNUNITED FRACTURES OF THE MANDIBLE.

At a meeting of the Clinical Section of the Royal Society of Medicine, held on May 10th, Surgeon-General H. D. ROLLESTON, the President, being in the chair, Mr. PERCIVAL P. COLE showed nine cases to illustrate the results of bone grafting in ununited fractures of the mandible. The cases included examples of free transplants from tibia and rib and several treated by the author's method of employing a pedicled graft derived from the lower jaw itself. The cases were inspected, and the results obtained were regarded as very satisfactory. Mr. Cole, in describing the operation devised and practised by him, said that a thick, well-nourished bone fragment could be detached from the basal margin of the body of the jaw. The blood supply of this fragment was maintained through a muscular pedicle consisting of platysma, deep cervical fascia, and the anterior belly of digastric. The longest fragment thus detached measured 4 cm. The great majority of ununited fractures exhibited a loss of bone that could be bridged easily by a graft of that length. Hence the operation had a wide range of applicability. Owing to the vitality of a graft of this nature results were obtained with more certainty and greater rapidity than by the use of a free bony transplant. Mr. Cole dissented from the view that free transplants failed so frequently that they should only be employed as a last resort. He had had no failure in cases where pedicled grafts had been employed, and was able to record 70 per cent. of successes in cases treated by free transplants.

At a recent meeting of the principal authorities and leading citizens of Naples a committee was formed for the establishment of a large children's hospital in that city. Professor Antonio Cardarelli, Senator of Italy, was elected honorary president.

Reviews.

TRANSFUSION OF BLOOD.

IN an interesting historical note in BERNHEIM's handbook on *Blood Transfusion*¹ the subject is divided into four periods: the first from 1492, when an attempt to save the life of Pope Innocent VIII was made, with the result that the three donors died, up to Carrel's work on the surgery of the blood vessels; the second period of direct transfusion rendered possible by Carrel's genius and developed by Crile's enthusiasm; the third period of indirect transfusion of whole blood by means of Lindemann's syringe and of the methodical determination of the haemolytic and agglutinative relations of the bloods of the donors and recipients; and, lastly, the recent epoch of indirect transfusion with the aid of anti-coagulants. In dealing with the control of haemorrhage the author states that rabbit and horse serum are generally of no value, dismisses calcium lactate as a doubtful prophylactic and of no use when bleeding has started, and points out that too much has been expected from saline solution, examples being given of its failure and of its inferiority to blood transfusion. In the section on the indications for transfusion the lines laid down by Libman and Otterberg are very closely followed, and reference is made to the suggestion that a systolic blood pressure of 70 mm. Hg is the danger limit which should call for immediate blood transfusion regardless of the other features of the case.

The chief dangers attending blood transfusion are haemolysis and agglutination, the former being by far the more serious; the precautionary tests to be carried out before transfusion so as to avoid these complications are detailed in the appendix, where Moss's classification of human beings into four groups according to their isoagglutinins is reproduced. Though *a priori* embolism should be common, in practice it is very seldom seen. Examples coming under the author's notice of the transmission of syphilis and of malaria—accidents very rarely reported—are mentioned, and the results of a collective investigation into 800 cases of transfusion are quoted. The details of the method are well illustrated by figures, and the author humorously mentions that he thought he had invented a method which he however found had been actually described two and a half centuries earlier. The sodium citrate method of indirect transfusion, which it is thought will probably supersede the others, is discussed and compared with the results of transfusion of untreated whole blood: paradoxical as it seems, the coagulation time of the patient's blood is shortened, not prolonged, after the transfusion of citrated blood, but a febrile reaction with a rigor follows transfusion of citrated blood much more often than one of untreated whole blood. The various conditions, such as acute haemorrhage and shock, anaemia, haemorrhagic diseases, and leukaemia, for which transfusion is indicated, receive individual attention.

The author had to leave so suddenly for foreign service with the Johns Hopkins Base Hospital unit that he was unable to give his treatise a final revision, and this probably accounts for some delay in its appearance, but he may be heartily congratulated on his useful and practical contribution.

HOSPITAL SHIPS.

IN the preface to his handbook on the *Fitting Out and Administration of a Naval Hospital Ship*,² Fleet Surgeon SUTTON, R.N., states that he is writing from an experience of three and a quarter years. The book contains four sections. In the first, allusion is made to hospital ships of the sailing ship era, and a summary is given of the stages by which the modern hospital ship has been evolved. The chief factors which have determined the direction of development in the past are traced, and a forecast made of the directions in which developments are likely to proceed in the future. There is a brief historical account of the

¹ *Blood Transfusion, Haemorrhage, and the Anaemias*. By Bertram M. Bernheim, A.B., M.D., F.A.C.G., Instructor in Clinical Surgery, the Johns Hopkins University, Philadelphia and London: J. B. Lippincott Company. (Pp 259; 18 figures. 18s.)

² *The Fitting Out and Administration of a Naval Hospital Ship*. By Edward Sutton, Fleet Surgeon R.N., S.M.O. R.N. Hospital Ship *Passy*, etc. Bristol: John Wright and Sons; London: Simpkin, Marshall and Co.; Toronto: The Macmillan Co. of Canada, 1918. (Demy 8vo, pp. 110; 28 figures.)

origin of the Red Cross organization, and the rules by which the employment of hospital ships ought to be governed are given *in extenso*. The uses to which hospital ships may be put in war are stated and possible irregularities discussed, as also the question of confiscation.

The principles which should guide the selection of a mercantile marine vessel for conversion into a hospital ship are discussed under two headings: the choice of a suitable vessel, and the location of specific hospital requirements. To write a useful description of the converted hospital ship is far from easy, but the author's scheme is good. He first devotes a chapter to the steamship *Drina* prior to conversion, and in the succeeding chapter describes the same vessel after conversion. This will be a valuable guide to any one who may have to carry out such a conversion. Every measurement likely to be wanted in the construction of the wards and different special departments—the operating theatres, store rooms, etc.—with all their fittings, seems to be given.

The next section deals entirely with the working organization of a hospital ship. The method of embarking patients is described under four headings: (1) Means of getting the patient (a cot case) inboard; (2) allocation of his bed; (3) registering the occupation of that bed; and (4) stowage of the man's effects. A new and admirable modification of the "service" cot carrier is described; the innovation is that both ends are detachable, and there are wooden rollers on its floor; photographs and a drawing to scale are given. The organization for evacuation is simple and original. By means of a system of labels and discs, which is described in detail, the considerable amount of clerical work necessary for papers which must be sent with patients can be quickly compiled. In any service institution the stores department is very important, and here a novel system is described whereby the fluctuation in the stock of each article is automatically recorded: the same scheme also enables the person responsible for ordering the fresh stores to see at a glance how much of each article is required.

The author has had experience of three separate hospital ships, and this alone entitles him to speak with authority on his subject. His book contains a great deal that is new, and he has displayed considerable genius in evolving a remarkable organization for the working of a hospital ship. The value of the book is enhanced by helpful diagrams and illustrations. It will meet a real want, for we are unaware of any similar publication; we congratulate the author, and confidently recommend his work to the notice of all medical officers—naval or military—who are in any way concerned with hospital ships.

THE GROWTH OF MEDICINE.

THE study of the history of medicine has received a great stimulus in this country by the establishment of a separate section of the Royal Society of Medicine, and there has been a remarkable growth of interest in the subject in America. Recent evidence of this is afforded by a large work compiled by Dr. ALBERT H. BUCK, of the Columbia University, New York, dealing with *The Growth of Medicine*³ from the earliest times to about 1800. The volume, finely printed and illustrated, is the first of a series to be published at the Yale University Press on the foundation established in 1916 as a memorial to three generations of a family of doctors educated at Yale, the Williams Memorial Publication Fund.

Dr. Buck has succeeded in weaving a valuable account from the many sources of information open to him. His history carries the reader through each period of medical progress or recession with equal interest. From its origin in the East when anatomy was unknown and treatment for most part mystic and in the hands of the priesthood, he traces the dawn of clinical observation and illustration in Greece, and incidentally refers to the practice of offering votive tablets to Aesculapius, some of which have been found to portray the morbid conditions of the petitioner. A most admirable model of a face distorted by paralysis, discovered some years ago and now in a German collection, is given as an illustration. With the era of Hippocrates a

great stride forward was made, and all readers of his aphorisms must recognize that many of the rules of conduct laid down for physicians are as applicable at the present day as they were in 400 B.C.

Athens in time gave place to Alexandria as a seat of learning and a great clinical teacher arose in the person of Herophilus; many of the subjects discussed under his auspices have remained undecided to the present day. The varying experience of a vast number of writers has tended to prevent any common agreement. Specialism began to be practised just before the beginning of the Christian era, and once again the chief seat of learning migrated and settled itself in Rome. The most prominent figure of that period was Aesclepiades, whose teaching, entirely founded on observation and without means of verification by *post-mortem* examination, contained much that survived through succeeding centuries. In the second century the advent of Galen exercised a great influence upon medical thought and practice. His voluminous writings, which have been so often translated, have been perhaps more highly appreciated by later generations than by the readers and pupils of his own day. Like many other pioneers, he was far in advance of his period, and obviously had that strong belief in himself which has proved essential to great teachers in all times.

To follow Dr. Buck through each successive wave of advancement and recession, to Constantinople, to Persia, and to the final settlement in Northern Italy and Western Europe generally, would call for more space than is available. It must suffice to record that every step forward, or backward, is traced with the same thoroughness, apt quotations being inserted and well-executed illustrations being supplied of many of the epoch-making events, or of the great leaders in many lands. Some medical historical treasures will probably have been destroyed in the library of Louvain, and notably a finely illuminated edition of Vesalius's works, but its fate is at present unknown. Medical literature has suffered much from the incendiary zeal of invaders at many previous periods of history, but although originals have been lost, the copies laboriously executed by monastic and other hands have remained, and Dr. Buck has done a great service in so classifying and bringing together the scattered records as to form a most interesting and valuable history.

NOTES ON BOOKS.

THE Central Council for District Nursing in London has issued a *Directory of District Nursing*⁴ in London which will undoubtedly be of service to social workers, medical practitioners, and others engaged in the health service of the metropolis. The directory gives the name of practically every street in the administrative county, together with the borough and Poor Law union in which it is situated. For each entry there is a reference number to the index of district nursing associations.

Mr. HAMILTON WHITEFORD has brought together in a small book some practical notes on the diagnosis and treatment of *Acute Appendicitis*,⁵ based on his own experience. After dealing with points in the diagnosis, he passes on to discuss questions of treatment, dealing with them under the heads of general principles—pre-operative, operative, and post-operative. This is followed by a note on some post operative complications. The author is inclined to be didactic on matters which have been much debated in recent years. His general conclusion is that in advanced cases the operator's temptation is to do too much.

⁴ *Directory of District Nursing and Streets List for London*. London: The Botolph Printing Works, 8, Gate street, Kingsway, W.C.2. (2s. 6d.)

⁵ *Acute Appendicitis: Practical Points from a Twenty-five Years' Experience*. By C. Hamilton Whiteford, M.R.O.S., L.R.C.P. London: Harrison and Sons. 1917. (Cr. 8vo, pp. 72. 4s. net.)

THE review which is the organ of the Russian Association for the protection of mothers and infants entered on its third year of life at the beginning of 1918. It is published at Petrograd (Nicolaiievskaja, 49) in two-monthly fasciculi, which form at the end of the year a goodly volume of six hundred pages. The editor is Dr. P. Medowikoff.

³ *The Growth of Medicine from the Earliest Times to about 1800*. By Albert H. Buck, B.A., M.D., Columbia University, New York. Newhaven: Yale University Press; London: Humphrey Milford; Oxford: University Press. 1917. (Med. 8vo, pp. 582. 21s.)

British Medical Journal.

SATURDAY, MAY 18TH, 1918.

MODERN LANGUAGES AND "MODERN STUDIES."

THE report of the Committee appointed by the Prime Minister in August, 1916, to inquire into the position of modern languages in the educational system of Great Britain is remarkable for the definite recommendation that Latin should not be compulsory, even for an arts course, at any university, and that for the Civil Service (Class I) modern languages, with their history and literature, should be placed on an equality with the similar learning of Greece and Rome. The report should be read in connexion with the report of the Committee appointed by the Prime Minister at the same time to inquire into the position of natural science in the educational system of Great Britain, of which we gave some account on April 20th, p. 459. It also arrived at the specific conclusion that Latin should not be retained as an obligatory subject in the examination for entrance to the medical profession. The report of the Modern Languages Committee is all the more likely to have a profound influence on secondary and university education in Great Britain in that its recommendations seem to be in line with the policy set forth in 1913 by the Board of Education for England and Wales in its scheme of modern studies in the higher parts of secondary schools and the corresponding examination for the higher school certificates. The regulations giving effect to the scheme as a definite plan for the curricula in secondary schools were issued in 1917, and some progress had been made by the end of that year.

How far opinion has moved since the middle of last century is strikingly exemplified in a quotation unearthed by the Committee from a solemn admonition addressed by Mr. Gladstone to the Public School Commission appointed by his Government in 1861. He warned the Commissioners against the "organic rashness" of putting forth a sacrilegious hand to touch the ark of the covenant. Speaking of the relation of pure science, natural science, modern languages, modern history, and the rest, to the old classical learning, he emphatically denied their right to a parallel or equal position. He regarded the position of modern studies as ancillary, and therefore "to be limited and restrained without scruple." He did not rest his case upon the doctrine that classical training should be paramount because it improved memory or taste, or gave precision, or developed faculties of speech; all these he regarded as "but partial and fragmentary statements, so many narrow glimpses of a great and comprehensive truth," which was that "the materials of what we call classical training were prepared, and we have a right to say were advisedly and providentially prepared, in order that it might become, not a mere adjunct, but (in mathematical phrase) the complement of Christianity in its application to the culture of the human being, as a being formed both for this world and for the world to come." As the Committee says, it seems to-day wellnigh incredible that the view that Latin and Greek should have such a monopoly was once held with so much passionate earnestness.

The Committee gives so excellent a definition of the term "modern studies" that it may well be quoted. It understands it to signify "all those studies (historical, economic, literary, critical, philological, and other) which are directly approached through modern foreign languages"; and it adds, what we think has often been forgotten by schoolmasters, that "the study of languages is, except for the philologist, always a means and never an end in itself." Though by this definition English is excluded, the Committee has had to consider English as a rival subject of study, and finds it to be entitled to paramount rights and necessary as a preparation for the study of foreign languages. At the same time, the Committee fully recognizes that language teaching in schools should have a disciplinary and educative aim, and should train the mind, the taste, and the character. Language is a means of expressing thought, and the study of a foreign language, it says, reveals the anatomy of thought. "Each language has its own mode of expression, and the contrast of and comparison of different modes of expression lead to a more accurate sense of logical processes and a closer observation of the finer shades of meaning." We venture to think that this is a most important observation, and that it affords an explanation of the fact that persons who have had a thorough classical education often write excellent English. The reason is not that the languages were Latin and Greek, but that the study was thorough. Nowadays many a boy leaves school to enter on a career in medicine or science without knowledge of the structure of any language, even his own, with which he has only a colloquial acquaintance. The resulting evil amounts to very much more than the loss of aesthetic value; it causes a good many medical and scientific papers actually published to be defective in expression and in logical arrangement. The directors of laboratories could tell some queer stories of the state in which the first draft of a paper for publication is sometimes presented to them. But the aesthetic part of the matter is not lightly to be set aside. "The laws of language," the Committee says in an eloquent passage, "are sure and valid, but they are revealed in speech and writing as the laws of nature are revealed in living beings—in a delicate harmony of balanced forces and blended qualities"; so that language has not only a logical and intellectual value, but has also an aesthetic and artistic value.

The Committee is by no means blind to the utilitarian value of even a reading knowledge of a foreign language. No country, it truly says, can afford to rely on its domestic stores of knowledge. The whole civilized world is a co-operative manufactory of knowledge. "In science, technical and pure . . . new researches are constantly leading to new discoveries, new and fruitful ideas are giving new pointers to thought, new applications of old principles are being made, old stores are being rearranged, classified, and made available for new purposes. In this work all the civilized countries of the world collaborate, and in no branch of knowledge, abstract or concrete, disinterested or applied to the uses of man, can the specialist neglect the work of foreign students." In the paragraph from which we have quoted the Committee makes an appeal to the universities to put the study of foreign languages in its rightful place. At present, the Committee says, "one way and another it is certain that modern studies do not at the universities get anything like their fair proportion of the best brains." This is due partly to the defects in the methods of secondary schools, but in large part also to the fact that at the universities few distinctions and prizes are to be won in modern studies during or

at the end of the academic course. Fellowships at Cambridge, and still more at Oxford, are rarely given for modern subjects; and, again, in the highest public competition of the kingdom, that for Class I of the Home Civil Service and the Indian Civil Service, modern studies have hitherto had an entirely subordinate position. The Science Committee held that the state should provide funds for scholarships for boys in the higher classes of secondary schools to encourage them to devote themselves to science. With this the Language Committee agrees, apparently in despair of the universities making use of any of their existing endowments for this purpose, but applies it to modern studies generally. Entrance scholarships would not be sufficient; assistance must be given throughout the course, and there must be prizes at the end equal in value and importance to those offered for classical subjects.

INTRAVENOUS INJECTION IN WOUND SHOCK.

By a curious but happy accident two works on transfusion come almost simultaneously before us. Bernheim's book on blood transfusion, reviewed on page 565, gives an up-to-date account of the practice, while Professor W. M. Bayliss's Oliver-Sharpey lectures are concerned with the contemporary researches carried out by the Special Investigation Committee of the Medical Research Committee, in which he took such an important part. By this coincidence a survey of the subject from the stand-points of practical surgery and of applied physiology is presented. Captain Bernheim, M.O.R.C., U.S.A., author also of *The Surgery of the Vascular System*, summarizes the experience of the past, while the lectures of the distinguished professor of physiology in the University of London point the way to future advances, and are particularly appropriate both as showing the application of physiology to the relief of the emergencies of war and in dealing with arterial blood pressure, a subject to which the late Dr. George Oliver, the founder of these lectures, rendered yeoman service.

Professor Bayliss prefers the term wound shock, introduced by Captain E. M. Cowell, R.A.M.C.(S.R.), in a recent report to the Medical Research Committee, to traumatic or surgical shock, and, after mentioning the primary shock which serves a useful purpose in diminishing the liability to haemorrhage, devotes his attention to the secondary stage of shock. The immediate cause of the low blood pressure is still obscure, but several conditions can be excluded—namely, Yandell Henderson's acapnia; Crile's adrenal exhaustion, because adrenalin is present in excess at the onset of shock; exhaustion of the nerve centres, inasmuch as the reflexes are not diminished to any important degree except when the blood pressure has been low so long that the centres are paralysed from oxygen want; cardiac failure; and paralysis of the arterioles or veins, especially of the abdomen, because direct observation during laparotomies fails to show any abnormal vascular distension. The explanation most in favour is an accumulation and stasis of blood in the capillaries so that it is as effectively removed from currency as it would be by bleeding—Cannon's exaemia. With this deficiency of the circulating blood the blood pressure naturally is low, and as a result the tissues suffer from oxygen starvation, the vasomotor and respiratory centres begin to fail, and being directly dependent on the blood pressure, the excretion of urine and of acid and toxic products falls.

After some discussion Professor Bayliss decides that acidosis, which some observers have regarded as the essential cause of shock, is not a serious factor. This point is important as regards the treatment, for transfusion with sodium bicarbonate has been advocated; but in experimental shock the beneficial results of this remedy have been transient and slight, and this effect may quite well have been due to the volume of fluid introduced. The best means of counteracting the production of acid in the tissues is to increase their supply of oxygen from the blood, and if for other reasons it is necessary to give alkalis the oral route should be adopted.

The light thrown on the treatment of shock is the important feature in these lectures. The true objects in the successful combating of shock—namely, an increased supply of blood and oxygen to the tissues—can be obtained by raising the blood pressure, but vaso-constrictor drugs cut off the access of blood to the tissues, and are therefore inadvisable. The proper course is to raise the volume of circulating blood and thereby increase the blood pressure without diminishing the peripheral flow, and for this purpose it has naturally been assumed that transfusion of blood would be the best means. It is therefore surprising to find that experimentally blood is not so superior to a solution of gum arabic as might be anticipated; thus, if a given case fails to respond to gum solution, transfusion of blood is also ineffective. One explanation appears to be that in ordinary conditions there is a sufficient reserve of haemoglobin to keep the tissues provided with oxygen, even with a diluted blood, provided the blood pressure is not too low and the patient is kept at rest.

The nature and composition of the substitute for blood are important factors; Ringer's solution leaves the vessels in half an hour or so, and as the blood pressure then falls to its former level or even lower it is useless; hypertonic solutions of salt also prove valueless, and the addition of calcium salts to Ringer's solution has not improved matters. A colloid with an osmotic pressure is required, and this is provided by a 6 per cent. solution of gum arabic with 0.9 per cent. of common salt: it does not leave the blood vessels or produce any bad effects, such as haemolysis, agglutination, thrombosis, or anaphylaxis; it maintains the blood pressure indefinitely, and has the great advantage of easy preparation. That physiology applied practically has thus scored a triumph is shown by the report on 250 cases of shock by Captains Hamilton Drummond and E. S. Taylor. In conclusion, Professor Bayliss points out that after very grave haemorrhage transfusion of blood would be preferable; and probably this would also apply in cases in which from repeated small bleedings the reserve of haemoglobin has been brought to a low ebb.

WORK OF THE ARMY MEDICAL ADVISORY BOARD.

THE reconstituted Army Medical Advisory Board, appointed about a month ago, has since met frequently for prolonged sittings, and has had a number of important matters under consideration. Among the subjects on which it has been able to formulate its opinion is that of the arrangements which should be made to enable A.M.D. 1—the department concerned with personnel and the allocation of officers to appointments for which they are best qualified by experience and inclination—to work more surely and rapidly. One piece of machinery which was already in existence, and had proved its usefulness, but is now being extended and completed, is a card index of all officers R.A.M.C., whether regular, retired

pay, Special Reserve, Territorial, or holding temporary commissions. The card index is founded upon a form which medical officers have recently been asked to fill up. In addition to particulars as to name and age, medical school, and qualifications, the officer is asked to state any hospital appointments he may have held, and also any other appointments such as that of medical officer of health, and to give information as to any special training he may have had, research work he may have conducted, or publications he may have made. He is also asked to set out how he has been employed during the war, showing the units to which he may have been attached, the expeditionary force or home command in which he has served, and the nature of the duties performed. These particulars are transferred to an index card. The cards are arranged under names in alphabetical order, the index thus formed being retained in the Director-General's office in London. When an officer is posted to an expeditionary force or command a duplicate is forwarded to the head quarters of the force, where it may be added to, or form the basis of, what may be called a local card index. There is one fairly obvious lacuna in the plan, for an officer suddenly transferred, perhaps in an emergency, from one command to another—say, from a base hospital to some post in an advanced area—will arrive in his new command before the information filed at Adastral House or the head quarters of the command to which he formerly belonged reaches that to which he has now been transferred. We understand, however, that a kind of personal diary or identity book has been prepared and will shortly be issued to every officer in the army, and that in the case of officers R.A.M.C. information as to special experience corresponding to that in the card index will be inserted in it. In addition to the primary card index arranged in alphabetical order of names a second card index will be formed in London in the following way: the forms filled up by an officer will contain, as has been stated, information as to any special work he may have done, whether in one of the clinical specialties, or in bacteriology, or hygiene. The forms, after being used for the purposes of the card index, will be passed on, after a primary classification according to the special experience and attainments stated therein, to a series of specialist committees appointed by the Director-General to advise him on the matter. It will be the duty of the committee to grade the officers having this special knowledge, in accordance with the extent and nature of their experience. Taking bacteriology as an instance, an officer who has been holding an independent position and has shown himself capable of undertaking and directing independent researches will be put in Grade 1; from Grade 1 a selection will be made for higher appointments, such as that of director of a military laboratory. An officer with less experience who has shown himself capable of carrying out investigations and researches under the general supervision of the director of a laboratory will be placed in Grade 2, and will be eligible for employment in a similar capacity in military laboratories. Officers who have gone through a course of training in, say, bacteriology, but have not yet won their spurs in research, will be placed in Grade 3, and will be employed as opportunity may arise as assistants in military laboratories and will be given facilities for undertaking investigations under supervision. The same principle will apply to other specialties. Other matters which have been engaging the earnest attention of the Army Medical Advisory Board are the organization of officers' hospitals in adequate numbers and suitable localities and under efficient supervision; and the establishment of hospitals for dealing with cases of disordered action of the heart or valvular disease, so that men who can be rendered fit may be sent into the combatant ranks or returned to them, or discharged if not likely to become fit. This will probably involve the allotment of beds in selected hospitals and the

establishment of convalescent institutions for each command. A matter which is being taken up immediately by the Board is the treatment and general disposal of gassed cases. The work already done by the Army Medical Advisory Board has justified its reappointment, and it will, we have no doubt, be able in the future to render very valuable assistance to the Director-General and his staff.

MEDICAL NEEDS OF THE U.S. ARMY.

THE Surgeon-General of the United States Army, on April 3rd, made a formal request to the American Medical Association to co-operate, through its central and local machinery, in the work of securing additions to the Medical Reserve Corps, and of keeping the numerical strength of the corps up to the requirements of the service whilst safeguarding the interests of the civil community. On that date the personnel of the Medical Department of the army included 838 officers of the regular Medical Corps, 18,279 officers of the Medical Reserve Corps; together with some 1,300 officers of the Medical Corps of the National Guard and National Army; a Dental and a Dental Reserve Corps, numbering about 5,400; and a Sanitary Corps and Ambulance Service with some 1,200 officers. All officers of the Medical Reserve Corps who have received their commissions and are ready for active service will be required for present needs, while the additions to the United States army during the next few months will necessitate the service of 5,000 medical men who have not yet applied for commissions. It is estimated that the Medical Reserve Corps will need a steady increase of 2,500 applicants a year during the continuance of the war, to replace wastage and provide medical personnel for organizations not yet authorized. The surgeon-general is at present authorized to maintain a strength of 3,600 medical officers in instructional training camps. The War Department desires that the interests of the civil population should be conserved as far as possible and that no enlistments should be made in the Medical Reserve Corps that would "work serious hardship upon any community, manufacturing concern, or other civil activity." In asking the American Medical Association to assist in this double task, Surgeon-General Gorgas records his appreciation of the valuable help which it has already rendered to the War Department. The association has prepared a survey of the response already made by the medical profession of the United States to the call for volunteers for military service. It is interesting in this connexion to note the present position in Germany. According to a recent statement made in the Reichstag, more than two-thirds of the German medical profession are now serving in the army, with the natural result that many civilian districts in Germany are suffering from a serious shortage of doctors.

THE CAUSATION OF INDUSTRIAL ACCIDENTS.

A VALUABLE report¹ by Dr. H. M. Vernon to the Health of Munition Workers Committee on the factors concerned in the causation of industrial accidents is based upon his analysis of some 50,000 accidents which occurred at four large munition factories. At one factory the data were tabulated for 25½ consecutive months, at the other three factories the data were tabulated for 9½ to 13 months. At each munition works both men and women were employed. The special feature of this investigation, wherein it differs from previous inquiries, is that the accident data are correlated with the corresponding output data. Of the factors concerned in accident causation Dr. Vernon regards speed of production as by far the most important. The main personal factors are fatigue, psychological influences, nutrition, and alcohol consumption. Factors depending upon external conditions not directly under the worker's control include

¹Health of Munition Workers Committee, Memorandum No. 21. H.M. Stationery Office. Price 6d. net.

lighting, temperature, humidity and ventilation, defects of machinery, and absence of guards. Comparison of the hourly variations of accidents and output shows that during the day shift the accident curve corresponds qualitatively with the output curve; but the night-shift accidents attain their maximum at the beginning of the shift, and dwindle more or less steadily the whole night through, although the night-shift output curves for all but the last quarter closely resemble the day-shift output curves. The causes of this discrepancy between the accident and output curves of the night shift are mainly psychological. It appears that both men and women are much more prone to attend at the dressing station in the first part of the night shift than in the last part, but beyond this there is the more important factor of mental equilibrium. The day workers come to the factory in a sleepy state, but brighten up as the day goes on and the prospect of rest and enjoyment grows nearer. The night workers, on the other hand, have had their fun before coming to work, and so they start work in an excited state, which tends to produce carelessness and lack of attention, but calm down as the night wears on, since they have nothing but breakfast and bed to look forward to. The increase of accidents observed during the course of the morning spell is due partly to increasing speed of production, partly to increasing inattention arising from thoughts of pleasure to come, and partly, in women, to fatigue. Dr. Vernon explains how in lathe work a speeding up of 10 per cent. may well induce an increase of 50 or 100 per cent. in the number of accidents; a given speeding up of output means a relatively much greater speeding up of the movements made at moments when the workers are specially liable to knock their hands against cutting tools. The women were very much more fatigued by long hours than the men, and this fatigue predisposed to accident; in one factory a twelve-hour day increased the accidents among women two and a half fold, whilst it had little or no effect on the men. Dr. Vernon believes that if the factors of speed of production, alcohol consumption, illumination, and temperature could be equalized in the day and night shifts, the night accidents would be even fewer than those recorded—probably not more than two-thirds to three-quarters as numerous as the day accidents; and he is satisfied that this great difference is due to the psychological factor, the mind of the day worker being much more occupied with thoughts of matters unconnected with the work in hand. Cold tends to numb the fingers and blunt manual dexterity, and so increases the frequency of accidents. In one factory the women suffered nearly two and a half times as many accidents on the coldest days as on the warmest; the men were slightly less susceptible, but even they had more than twice as many accidents. At another factory which was better warmed there was no detectable seasonal change in the number of accidents. In order to reduce accidents to a minimum the temperature should be kept between 65° and 69° F.; as the thermometer falls below 50° accidents increase very rapidly. The problem of the causation of industrial accidents is extremely complicated, and Dr. Vernon points out that it can never be solved completely, since it is impossible to obtain data controlled by only one of the numerous factors; all are exerting their influence in greater or less degree, and it is only by a differential method that useful conclusions can be reached. Many industrial accidents—probably most—are unavoidable, and at best one can only hope to reduce their number. Moreover, any improvement of factory conditions which increases speed of production tends to an even greater increase of accidents. But if in all workers throughout their hours of labour the same mental outlook could be induced as is present in the night-shift workers during the early morning hours, the proportion of accidents due to carelessness and inattention would be greatly reduced. As a step in this direction Dr. Vernon recommends that all conversation should be

stopped, except that relating to the work in hand. Plugging the ears, if the workers would consent to do it, would shut out the distracting din of machinery, and, where practicable, lathes or other machines might well be separated by partitions. Excessive fatigue can be avoided by choosing suitable hours of labour.

AUTO-AGGLUTINATION OF RED BLOOD CORPUSCLES.

A DETAILED investigation of a case in which the blood serum contained an auto-agglutinin for the red blood corpuscles has been made by Clough and Richter¹ at the Johns Hopkins Hospital. Agglutination of a human being's red blood corpuscles by his own serum is so rare that some authors deny its occurrence. It has been described in hypertrophic cirrhosis of the liver by A. Klein and Reitmann, and by Landsteiner in horses and other animals. The auto-agglutination was probably independent of the disease (bronchopneumonia and auricular fibrillation) for which the patient came under observation, as it was present in a slighter degree in her daughter, and therefore may be regarded as a hereditary phenomenon. As the red blood cells when washed free from serum did not tend to agglutinate, the serum was solely responsible for the process, which occurred only at temperatures below 22° C.; the agglutination broke up at the body temperature. This auto-agglutinin was quite distinct from the ordinary iso-agglutinins, which act at the normal body temperature, since either could be adsorbed from the blood serum, leaving the other intact. An attempt to determine the chemical nature of the auto-agglutinin was inconclusive; by liberating the agglutinin from the washed red agglutinated red cell stroma a solution of agglutinin was obtained which gave a negative result with Heller's test and no precipitate with ammonium sulphate, thus showing that the solution contained less protein than in a 1 in 2,000 dilution of horse serum. The blood serum of the patient did not show any auto-haemolysin. Ascoli, who reported several cases of auto-agglutination, appears to have confused this phenomenon with rouleaux formation, and, in order to distinguish the two conditions more clearly, Clough and Richter made a similar study, not yet complete, of rouleaux formation. They found that the substance causing rouleaux formation resembled the auto-agglutinin in that it also was active on cells from other individuals, was precipitated from the serum with englobulin, and was not dialyzable; but differed in being active in concentrated serum only, in the rapid disappearance of its activity on standing, in causing rouleaux formation both at high and at low temperatures—its activity being increased by heating the serum to 65° C., and in not being adsorbed from the cells in the process of rouleaux formation.

CUTANEOUS AND FAUCIAL MANIFESTATIONS IN ACUTE POLIOMYELITIS.

As the onset and systemic stage of acute poliomyelitis may suggest the diagnosis of one of the exanthemata, such as scarlet fever or measles, attention should be paid to Dr. J. C. Regan's report² on the tongue, mouth, throat, and skin manifestations, about which comparatively little has appeared in the recent literature on the disease. His conclusions are based on observation of over 800 cases during the acute stage. The pharyngeal and faucial mucous membrane is almost constantly congested in the early stages, the soft palate being diffusely dark red in colour, while the hard palate is unchanged. Anaemia of the throat in the acute stage is very rare, and is almost confined to bulbar cases with a hopeless prognosis. The punctiform rash common on the soft palate in scarlet fever is not present in acute poliomyelitis, and the throat of

¹ *Bull. Johns Hopkins Hosp.*, Baltimore, 1918, xxix, 86-93.

² Reprint Series, No. 69. Department of Health of the City of New York, February, 1918, pp. 17. Reprinted from *Arch. Pediatrics*, December, 1917.

measles and of diphtheria after the membrane has disappeared is much more like that of poliomyelitis than is the throat of scarlet fever. Mild inflammation with some enlargement of the tonsils is very common, but follicular exudation and true membrane do not occur. In five cases the oral mucous membrane showed appearances like Koplik's spots. In bulbar cases there may be conjunctivitis. In the early stages the tongue almost always shows a moist greyish or yellowish-white coating, the tip and edges being free and redder than normal; after removal of the fur the papillae are not prominent as in scarlet fever. The coating is often "geographical" in its distribution. The lingual appearances in acute poliomyelitis and cerebrospinal fever are much alike as regards the thick yellowish-white covering over the anterior and middle parts of the dorsum. Gingivitis occurs in 10 per cent. of the cases, and is not so common or so well marked as in measles. Rashes are so frequent that they should be regarded as among the possible signs rather than as accidents, and among 1,017 cases were noted in 114, or 10 per cent. The same patient may have two rashes, one during the first or second week and the other during convalescence; 80 per cent. of the rashes occur in children under 3 years of age, and over 80 per cent. were observed during the first week. The mortality appeared to be lower in the cases with rashes than in those without. The average duration of the rashes, which may appear as early as the second day or as late as the sixth week, is about four days. In 90 per cent. the neck and chest were the site of the rash, and the extremities, especially the lower, were the parts least often affected; this distribution is obviously of value in the diagnosis of a scarlatiniform eruption from true scarlet fever. Bulbar cases rarely had an eruption, whereas meningitic cases very frequently presented this sign. The commonest rash is a pin-head papular eruption, which is generally preceded by a scarlatiniform eruption lasting from twelve to twenty-four hours. When occurring during convalescence a scarlatiniform rash, especially if the throat remains congested, is often difficult to diagnose from true scarlet fever, but the other symptoms are negative, and desquamation does not occur on the palms and soles. Many of these rashes are ascribed to intestinal toxæmia or to sweating, and the pin-head papular rash closely resembles, if it is not identical with, miliaria papulosa. Though herpes does not occur, large blebs may form on the skin. Desquamation, though rarely described in connexion with poliomyelitis, may be very frequent and profuse, usually furfuraceous and resembling that of measles, but sometimes suggesting scarlet fever; its distribution corresponds to that of the rash.

SERUM DISEASE.

THERE is a striking difference between the way in which animals and human beings react to a first injection of a foreign protein; in experimental animals the primary sensitizing injection is not followed by the train of symptoms so frequently seen in the serum disease of man. Anaphylaxis in man has naturally not been investigated to the same extent as in animals, and hence a recent research by Longcope and Rackemann¹ into the relation of the circulating antibodies to serum disease in twenty-five individuals who had received various quantities of antitoxic or antibactericidal horse serum is of interest. In order to determine the time of appearance and relation to serum disease of the circulating antibodies to horse serum observations were made at short intervals before, during, and after serum disease in the twenty-five cases by three methods—the precipitin test for horse serum, the demonstration of anaphylactin by the passive transmission of anaphylaxis to guinea-pigs by the injection of the patient's serum, and the production of a specific skin reaction by the intradermal injection of a minute dose of horse serum.

The conclusions from these observations are to the effect that serum disease is due to a reaction taking place in the cells of the body, and probably depends on the formation of a poison in the cells; that antibodies appear in the blood at first slowly and later rapidly after the occurrence of serum disease, their extrusion into the circulation being probably the result and not the cause of the serum disease; and that their presence in the blood serves to neutralize or destroy the antigen, and is a purely protective mechanism determining recovery from these manifestations. During the incubation period of serum disease there are no antibodies in the blood which contains a constant amount of the antigen (horse serum); but antibodies are forming in the cells, and when an explosive union between them and the antigen in the blood serum occurs the manifestations of serum disease appear, and their course depends on the amounts of antibody and antigen; thus, if the amount of horse serum originally injected is large and the antibodies slowly formed and deficient in amount, the antigen will persist and the manifestations of serum disease will be severe, prolonged, and relapsing. Whereas when the amount of horse serum originally injected is small and the antibodies formed in large amount it is probable that the antigen in the circulation will be soon removed and the serum disease mild and short. This reasoning corresponds with the general clinical experience that the severity of the serum rashes and other manifestations is in relation to the amount of serum injected. As regards the specific skin reaction it was shown that sooner or later this always follows injections of horse serum, whether in small or large doses, and that, unlike the presence of precipitin and anaphylactin in the blood, it is not dependent on the occurrence of serum disease.

THE LISTER INSTITUTE.

THE twenty-fourth annual report of the governing body of the Lister Institute shows that, as in previous years, energies have been almost entirely devoted to investigations bearing on problems arising out of the war and to routine war work. As we announced some time ago, experiments made by the Trench Fever Committee have shown that the accusation against the body louse that it is the agent guilty of transmission was well founded; the infection would appear to be derived not from the bite but from the excreta or crushed body of the louse, which becomes capable of conveying infection only about twelve days after being itself infected. Trench fever is, from the man power point of view, an important disease, and the discovery that the louse is one, if not the main, means of its spread, may lead to its eradication. This lends additional importance to the inquiries now being made on the best method of ridding soldiers of lice in the field, which are being carried on by Mr. Bacot in the Entomological Department of the Institute. The committee consists of Major-General Sir David Bruce (chairman), Dr. J. A. Arkwright, Mr. A. W. Bacot, Major W. Byam, R.A.M.C., Sir Walter Fletcher, K.B.E., F.R.S., Lieut.-Colonel H. French, M.D., R.A.M.C., and Lieut.-Colonel D. Harvey, C.M.G., R.A.M.C. The expenses of the inquiry have been borne by the Lister Institute. In its Bacteriological Department investigations have been continued into the prophylactic uses of dysentery vaccines and the serological classification of organisms of the supestifer group. In the Biochemical Department an investigation has been carried out for the Food Production Committee on the use of yeast foods in baking. Experiments on scurvy and beri-beri have been continued in this department, and in the director's department, under the direction of Miss Chick. The War Office committee on the study of tetanus, under the chairmanship of Sir David Bruce, has continued its work and Professor Sherrington, at Oxford, has made further investigations on the action of antitetanic serum in arresting tetanus in experimental monkeys. One result of Captain Tulloch's

¹ W. T. Longcope and F. M. Rackemann, *Journ. Exper. Med.*, Baltimore, 1918, xxvii, 341-358.

work at the Institute has been to show that at least three groups of organisms, differing from each other in their serological reactions, are included in the general designation *B. tetani*. The bearing of these observations upon the prophylaxis and therapeutics of the disease is at present a matter of inquiry, and the same worker has recently made observations on the part played by concomitant infection with anaërobic organisms other than *B. tetani* in the causation of tetanus, which it is hoped shortly to publish. Miss Robertson, as a result of the examination of 272 septic wounds, has shown the presence in many of a non-pathogenic organism morphologically indistinguishable from *B. tetani*, but differing in cultural and serological reactions. The routine work of the institution has been chiefly concerned with the preparation of vaccines and serums. The quantity produced at Elstree under the direction of Dr. MacConkey, assisted by Miss Houser, was prodigious, and included over 86,000 doses of tetanus antitoxin, nearly 58,000 doses of antidysentery serum, and over 150,000 of bacterial vaccines. At the request of the War Office, antimeningococcus serum has been put up in separate phials containing serums prepared from Types I, II, III, and IV of the meningococcus, and a large quantity of the various types have been supplied, as also of the four types mixed, for use where diagnosis is not clear. During the year the biochemical staff and the applied physiology staff of the Medical Research Committee have occupied several laboratories in the Institute, and accommodation has also been placed at the disposal of the Canadian and Australian Army Medical Corps, and of the cerebro-spinal meningitis laboratory of the War Office. As in the previous year, many members of the staff have been engaged in special war work either at the front or in military hospitals at home, but the large volume of work accomplished shows the zeal of the workers who remain and the excellence of the general arrangements carried out by Professor A. Harden, who is acting as director in the absence of Lieut.-Colonel C. J. Martin, and the stimulus of the influence of Major-General Sir David Bruce, who has acted as chairman in the absence of Major-General Sir John Rose Bradford.

MORBIDITY IN ART.

DR. T. B. HYSLOP'S oration before the Medical Society of London, on May 13th, dealt with some of the medico-psychological aspects of modern art, medicine, literature, and science. In the absence of the orator through illness, the president, Sir StClair Thomson, spoke the lines with becoming point and humour. In explanation of the vogue of morbidity in pictorial art as displayed by certain modern schools of painting, Dr. Hyslop quoted the opinion of Heine, that however mad a man may be he will always find somebody madder to admire him. From his study of the artistic efforts of the mentally unsound at Bethlem and elsewhere he concluded that art in asylums is just as honest and may be as pleasing as that exhibited for public gain. But he appeared to draw a necessary distinction between insane art and works of art which are not insane though produced by insane artists. We must not forget that while there are medico-legal tests for determining whether an individual—artist or artisan—is or is not of unsound mind, there are no fixed standards wherewith to estimate the sanity or otherwise of a work of art. The two things are in quite different planes. The physician is a good judge of sanity in an artist, but he is out of his depth when he presumes to appraise the sanity of a nocturne by Whistler, a statue by Rodin, or even of a neocubistic sunset. It is said that many great painters, sculptors, and engravers have suffered from nervous or mental disorders, or have shown distinct signs of degeneracy, though little trace can be found of this in their work. Great musicians, too, in common with other geniuses, seem to have been prone to madness, but here also it is well to bear in mind the

difference between degeneracy in the artist and degeneracy in art: one is a question of fact, the other a question of taste. Dr. Hyslop's discourse bore witness throughout to his many-sided tastes and accomplishments, and was followed with keen interest by a large audience.

MIDWIVES BOARD FOR IRELAND.

IN view of the fact that the profession in Ireland will shortly be asked to elect four representatives on the Central Midwives Board for Ireland, which is about to be formed, the Irish Midwives Act Committee held a meeting on May 14th at the Royal College of Surgeons, Dublin, and decided to put before the profession the names of the following four gentlemen as candidates for election: Sir Andrew Horne (chairman of the Committee), Dublin; Sir William Smyly, Dublin; Sir John Byers, Belfast; Professor Corby, Cork. The recommendation of this committee will undoubtedly have great weight with the electors when they are called upon to exercise their choice.

As will be seen from a detailed note in the course of a report of the last meeting of the Council of the Royal College of Surgeons of England, published elsewhere, it is proposed to place on a separate list the names of all Members admitted before the year 1870 whose addresses cannot be ascertained. This separate list will not be published in the *Calendar* for next year, 1918-19. At present the number on this separate list is a little over 1,000. Any Member who thinks he may fall within this category—that is to say, who obtained the diploma before 1870 and has not recently communicated his address—and wishes his name to be retained in the *Calendar*, should at once communicate with the Secretary of the College.

Medical Notes in Parliament.

Seniority Roster for Territorial Medical Officers.—Mr. Macpherson informed Sir Francis Blake, on May 15th, that a general seniority list of officers of the Royal Army Medical Corps (Territorial Force) is now in existence, but its publication was dependent upon certain alterations in establishment which had not yet been finally approved. Promotion would be by selection from among senior officers who had been recommended by general officers commanding in chief and approved by the Army Council. There were, of course, separate lists for the several ranks. Sir F. Blake asked if Mr. Macpherson was aware that some of the officers had twenty to thirty years to their credit, and that some of them had been upwards of ten years in their present rank. Mr. Macpherson said he was aware of that, and he hoped that the answer he had given would remedy these hard cases.

Medical Students in the Royal Navy.—Mr. Watt inquired, on May 9th, as to the arrangements being made by the Admiralty for the return of medical students from active service to continue their studies, and whether communications had been received from the Scottish universities pointing out the urgency of speedy relief in view of the fact that the summer medical session began on April 24th. Mr. Pretymann replied that an order was issued in January last calling for report of the names of all officers and men (other than surgeon probationers) who had, as medical students, passed the first professional examination in chemistry, physics, and biology. On receipt of these reports the lists were scrutinized, and where such a course appeared desirable the officer or man was allowed to return to continue his studies. Certain probationers were allowed to be demobilized at the end of six months' service at home or twelve months abroad in order to complete their studies and qualify. Mr. Pretymann could not trace any communication from the Scottish university authorities with regard to speedy release. A number of officers and men had already been conditionally released, but some time must elapse before the replies from distant stations were received and dealt with.

Treatment of Shell Shock Cases.—Mr. Hodge announced, on May 13th, in reply to Sir Montague Barlow, that he had decided, upon the recommendation of his medical advisers, to discontinue the use of the institution at Golders Green, which was within the zone of anti-aircraft gun fire, as a home for the treatment of shell shock and neurasthenia. Accommodation in a rural district, admirably suited for the treatment of these cases, had been procured at some distance from London. On

another question, by Sir William Collins, Mr. Hodge said that the reports received of the treatment of neurasthenic patients at this institution were satisfactory; but he had decided, on the recommendation of his medical advisers, that patients suffering from these diseases should be removed as far as possible from anti-aircraft gun fire. Fifty per cent. of the cases that were offered accommodation at Golders Green had declined to enter the institution. Many of the reasons alleged were on account of the fear of air raids, and a large number of the beds available were not in use.

Ozone Treatment of "Gassed" Soldiers.—In reply to Sir George Greenwood, who asked a question as to ozone treatment for "gassed" patients, Mr. Macpherson said that he assumed the inquiry had reference to the "Quain" ozone producer. He was informed that a description of this was forwarded to the Chemical Warfare Medical Committee in February last. The committee duly considered the matter, and reported that they were of opinion that it would be highly injurious to employ ozone in the treatment of "gassed" cases. The committee felt justified in forming this opinion without any further investigation.

Inoculation against Typhoid.—Sir A. Black asked, on May 14th, whether soldiers were now inoculated with a vaccine to protect against typhoid fever and paratyphoid A and paratyphoid B; how many doses were administered; and how often it was repeated. Mr. Macpherson replied that two doses of the vaccine were administered, the second being given after an interval of ten days. Soldiers were reinoculated yearly.

Pension Rights of Reinstated Officers.—Sir William Collins asked whether an officer who was reinstated after relinquishing a commission owing to wounds thereby permanently voided any accrued pension rights. Mr. Hodge said the matter was under consideration, and he hoped shortly to announce the decision.

Disablement Benefit.—Mr. Denniss asked, on May 14th, what arrangements had been made for the discontinuance of disablement benefit when a person reached 70 years of age and the full old age pension could be substituted in accordance with the original intention. Sir Edwin Cornwall replied that the administration of old age pensions did not fall within the province of the Insurance Commissioners, but it did not necessarily follow that a person in receipt of disablement benefit under the Insurance Acts was entitled at the age of 70 to a full old age pension. The usual statutory condition applied in each case.

Joint Insurance Committee.—Sir Edwin Cornwall stated, in reply to Mr. Booth on May 14th, that the Insurance Joint Committee meets as frequently as the business to be dealt with by it required. Mrs. Creighton was the only woman appointed. She resigned in November, 1913, and no other woman member had been appointed. The representatives of Scotland, Ireland, and Wales, who were the chairmen of the respective Commissions, were invited to attend all meetings of the committee, and were almost invariably present.

THE RECENT EPIDEMIC OF OBSCURE ORIGIN.

The following notes on cases of an obscure disease with cerebral symptoms recently prevalent have been prepared by the Medical Department of the Local Government Board (May 15th, 1918).

During the last three months a number of cases have been recorded in the medical press, and have been notified informally to medical officers of health, the symptoms of which have been described as bearing some resemblance to those of botulism. These and other cases are being investigated by medical inspectors of the Local Government Board and medical officers of health in collaboration with medical practitioners, but it seems advisable at this stage of the inquiry to summarize such records as are at present available.

Incidence.

The earliest case is reported to have had its onset on January 26th, and there were two having onset in the week beginning February 10th, and two in the last week of that month. In consecutive weeks in March, 7, 3, 10, and 14 cases came to notice, and in April and the first week of May the corresponding numbers were 11, 19, 14, 16, and 6.

The largest number of cases have been recorded in London, but groups of cases have occurred also in Sheffield and Birmingham, and single cases (and in one town 3 cases) have been notified from many other parts of England and Wales. The cases occurred among persons having the most varied occupations. No group of cases was associated with a single occupation. In only one instance were there two cases in the same household, and in this instance the second case was very mild and not admitted to hospital. The cases reported occurred about equally in the two sexes.

Although it is assumed that all the reported cases are

of the same disease, this cannot be regarded as certain. Already there is evidence from the *post-mortem* room that some of the cases are more ordinary disease.

The case mortality among cases regarded as belonging to the outbreak has approached 20 per cent. It is probable that slight cases have been overlooked.

The following table gives the approximate age incidence of 105 cases as compared with that of 2,559 cases of poliomyelitis notified in recent years in England and Wales.

Age.	Poliomyelitis.	Present Outbreak.
Under 10	88.2	14.3
10-20	8.3	24.8
20-30	2.0	15.2
Over 30	1.5	45.7
	100.0	100.0

Three cases occurred in infants in the first year of life, one of them (reported by Drs. Batten and Still in the *Lancet* of May 4th) being in a breast-fed infant aged 3½ months. Five were in children aged 1 to 5, and seven in children aged 5 to 10. Of 105 cases of which partial reports are available, 64 occurred in persons over 20 years of age.

Symptoms and Signs.

The clinical records at present available relate to 87 cases, but many of them are incomplete, and it is not certain that in all cases there was paralysis of cranial nerves. Using the terminology adopted by the different observers, the chief symptoms and signs recorded may be summarized as follows:

Among general symptoms pyrexia was recorded as being present in 41 of the 87 cases, usually in the early stage of the illness. It may have been present in some other cases which were not reported on while in that stage. In 8 cases it was stated that there was no fever. Of other general symptoms headache, or localized occipital, temporal, or frontal pain, was recorded in 31 cases. Profuse sweating was noted in 7 cases, and the presence of erythematous or other rash in 6.

Various mental symptoms come next to pyrexia in order of frequency—namely, drowsiness in 29 cases, lethargy in 18, stupor in 13, asthenia in 12, coma in 9; also vertigo in 17 and delirium in 20. Absence of lethargy was recorded in 3 cases and the presence of restlessness, or, irritability, or sleeplessness in 5.

Of symptoms referable to partial or complete paralysis of certain cranial nerves there were recorded bilateral facial paralysis in 9, unilateral in 11; bilateral ptosis in 32 cases, unilateral in 2; ophthalmoplegia in 18, diplopia in 18, strabismus in 10, nystagmus in 9, double third nerve palsy in 6, pupillary dilatation with failure of accommodation in 2, paralysis of the tongue in 2; affections of speech were noted in 5 cases. Rigidity of the muscles was recorded in 10 cases, muscular tremors in 9, and twitching or jerking of certain muscles of the face or limbs in 6.

Among symptoms referable to the gastro-intestinal system obstinate constipation was recorded in 35 cases, vomiting in 10 cases, difficulty of swallowing in 9, and dryness or soreness of the throat in 3. The parotid glands were swollen in 2 cases. Retention of urine was recorded in 15 cases, incontinence in 3. The records relating to the circulatory and respiratory systems are not sufficiently complete for useful summary at present.

Relationship to Food.

Although in a considerable proportion of the reported cases there was a history of the recent consumption of such foods as sausages, sardines, shrimps, lobster, tinned salmon, cheese, bacon, and ham, these and other exceptional foods had not been consumed in the majority of reported cases; and no particular food has been found to be related to the outbreak.

The pathological investigation of the outbreak is being undertaken by the Medical Research Committee. The results so far obtained show no bacteriological evidence of botulism, and give no support to the association of the outbreak with infection from food. Further investigations are in progress.

THE WAR.

MILITARY CONVALESCENT HOSPITALS.

WE are indebted to Major George Lane, R.A.M.C., S.R., for the following extracts from an article on the organization and general working of convalescent camp hospitals:

In July, 1916, I was appointed Commandant of the convalescent camp hospitals at —. I soon arrived at the conclusion that thorough drainage would make the site all that could be desired even in the wettest seasons. The whole system of drainage, road-making, bridging, and levelling of this camp (of over 5,000) was done by the convalescents themselves, under the direction of myself and my officers. The work took nearly twelve months to complete.

Site.

The site of a convalescent camp should be naturally well drained, or admitting, without great labour, of an easy drainage system. It should also be fairly sheltered. For troops recovering from wounds and debilitating illnesses a dry camp is essential. In laying out the camp the possibility of expansion up to six or even ten thousand should be borne in mind.

The position of the camp with regard to railway facilities is very important, as the means of receiving and evacuating the convalescents, and of transport generally, must be considered. There are evident advantages in selecting a site, otherwise suitable, near a great town. There should be ample ground, if possible, for cultivation. In the hospital I commanded I had a vegetable garden for each camp, and planted besides some ten acres of potatoes.

Water, Kitchens, and Stores.

The water supply is of great importance, especially abroad. This must be plentiful and of good quality. There ought to be abundant water for baths, hot and cold, at all times. In addition to the sprays there should be a certain number of fixed immersion baths.

In consultation with the engineer officer and the sanitary adviser proper sites should be chosen for the mess tents (or huts), cookhouses, stores, latrines, etc., for each camp or division, the endeavour being to make each camp a self-contained unit and, as far as means admit, self-supporting. The cookhouses would consist of the usual wooden structures, with cement floors, and fitted with large stoves, supplemented by Soyer's stoves outside.

In consultation with the quartermaster special accommodation should be chosen in a central position for all the stores and equipment of the camp. There should be one quartermaster to each camp or division of 1,000.

Cot Hospital.

The cot hospital should consist of three or four special huts with accommodation for 100 cases. This building requires a small dispensary, kitchen, pantry, pack store, and bathroom, and proper means of heating in winter. The personnel is drawn from the R.A.M.C. Cases of slight relapse or minor illness are quite justifiably treated here, but if the patient's illness is obviously serious or likely to be prolonged, he should be sent to a hospital.

Accommodation on a fairly liberal scale is required for the dental department, which should be near the cot hospital. In my camp there were four dentists, with many mechanics and assistants.

Canteens and Messes.

Dry and wet canteens should be provided in a fairly central position. Convalescent officers, if the camp accommodates them, should, I think, mess separately in their own mess. Sergeants' messes should be arranged for.

Staff.

The staff at head quarters will consist of the commandant, two adjutants, paymaster, camp quartermaster, sanitary officer, and a camp sergeant-major, chief clerk, and other clerks drawn from the convalescents.

Each camp should have a somewhat similar staff on a smaller scale. As these are hospitals, the officer in charge of a camp or division should be a medical man with a bent for administrative work. Dealing with convalescents requires technical knowledge not possessed by, nor to be acquired by, combatant officers. For a thousand men an assistant M.O. is desirable, as classifying men into their proper categories requires great care. The officer in charge of each camp should have detailed for duty under him a combatant officer of some experience. Convalescent officers

are usually very glad of interesting light work, which, by the way, is beneficial for them.

In the camps commanded by me all our work was done by convalescents—cooks, nursing orderlies, mess orderlies, and so forth. By this means the men were kept employed and happy, and great economy was effected. As they became fit they were sent off, and their places were filled by succeeding convalescents. But a skeleton permanent staff is essential for the efficient management of a large camp.

Workshops.

My first duty being to get the men fit, I carefully supervised the kitchens and the feeding of the men. Suppers were contrived out of the dinner savings and were greatly appreciated. The food was good and was not spoilt by bad cooks. The men were, by graduated steps, brought to a high state of physical efficiency, and were then passed on. I had a register kept by each medical officer in charge of a camp, wherein was recorded on admission every man's vocation in private life, so that the mistake was not made of putting a carpenter to do a blacksmith's job. Thus the men exercised themselves during convalescence at congenial work of a practical nature and of monetary value. This led me to establish workshops, at first in a small way. Later on, skilled masons and carpenters built, under the supervision of a convalescent engineer officer, a large stone-made workshop containing carpenter's shop, blacksmith's shop, painter's shop, tinsmith's shop, bootmaker and repairer's shop, tent repairer's shop, watchmaker and engraver's shop, tailor's shop, and piano-tuner's room. The materials used by the carpenters and tinsmiths were discarded packing cases and empty paraffin and petrol tins. When completed, the articles were sold at a nominal price. Books were kept showing the materials used and their ultimate disposal. The money received went for the benefit of the funds for the men. Much of the success that attended this venture was due to the help given me by the A.D.O.S., without whose aid I could not have got tools. No men were taught trades.

Each camp had its own barber's saloon, with a tent attached where the men could obtain the services of a skilled chiropodist and masseur. Shortly after my arrival I found difficulty in procuring fresh eggs and chickens, and decided to have my own poultry yard. Later I prevailed on the mess president of the officers' mess to do the same, with good results on strictly business lines.

Recreations.

If the men have plenty of healthy sports and amusements they will regard the camp as their temporary home. The first thing to provide is a good brass band, and if possible a bugle and fife band for route marches. There should be cricket and football clubs, a gymnasium, tennis courts, and, if near the sea coast, boating and swimming clubs. At Christmas in our camp some of the officers and men produced a pantomime, which afforded amusement to thousands of wounded and sick. All the scenery was painted in our workshops, and the costumes, etc., made by our own tailors.

Through the kindness of the British Red Cross Commissioner a motor lorry was available for the use of officers and men proceeding to football matches, etc. The Red Cross had tea and recreation rooms in the camp, and the Commissioner saw that the men were plentifully supplied with games, newspapers, reading and writing materials. The Y.M.C.A. representatives also were very keen in affording the men amusements and in supplying their wants. A cinema show is a great asset to a camp. For the officers I converted an old ordnance hut into a club. It was painted and done up by the men in the shops. I borrowed three full-sized billiard tables, and made the place very comfortable, with seats and card tables.

ARTERIAL CONTRACTILITY IN WOUNDS.

F. KROH and M. KRABBEL¹ have contributed papers on the general pathology of recent gunshot injuries of the circulatory organs. In illustration of the defensive value of the elasticity of the vessel walls a case is mentioned of clean perforation of the femoral artery by a grenade fragment having a diameter two and a half times greater than that of the vessel itself. That severe contusive effects could occur in the absence of any visible macroscopical lesion of the vessel walls was shown by such cases as the following: A bullet wound of the groin was followed by venous haemorrhage and loss of pulsation

¹ *Brunn's Kriegschirurg. Hefte*, 1917, Ixv, pp. 61 and 76.

in the femoral artery. The vein was found to be completely severed and the artery spasmodically contracted to the size of a knitting needle. While under observation the artery gradually resumed its normal dimensions, pulsation returned, and the limb became hyperaemic. As an example of thrombosis resulting from the pressure of a haematoma the case is cited of wound of a perforating artery of the thigh followed by extensive extravasation. The great vessels were found to be uninjured, but those portions of the femoral artery and vein which lay within the haematoma were thrombosed. Several examples were mentioned of wounds involving the two outer coats only of the artery, the intima being intact and forming a sacular bulging through the rent. Comment was made on the apparent relative infrequency of injury of the large vessels (apart from those leading to traumatic aneurysm) from bullets and shrapnel as compared with grenade wounds. It was suggested that many cases might escape detection where the wound healed without operation, since the haemorrhage might be insignificant in these cases. In examining a recent bullet wound of the arm in which haemorrhage had been slight, the brachial artery was found to be completely severed, and its wounded extremities were occluded by firm thrombi, which must have formed with extreme rapidity. Other similar cases are mentioned, and Kroh described a case of penetrating shrapnel wound of the right ventricle, where the wound was found to be perfectly occluded by a clot.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Prisoner of War.

Surgeon W. A. McKerrow, R.N.

ARMY.

Killed in Action.

MAJOR R. G. GORDON, D.S.O., R.G.A.

Major Reginald Glegg Gordon, D.S.O., R.G.A., killed on March 26th, during the recent retreat, whilst riding at the head of his battery, was born at Valparaiso on September 26th, 1878, the only son of Mr. D. S. R. Gordon. He was educated at the Edinburgh Academy and University, and graduated M.B., Ch.B., in 1903. He was a keen volunteer, footballer, and cricketer, and everything he took up he did thoroughly. After leaving the university he was appointed an assistant medical officer at the Crichton Institution, Dumfries, and later studied insanity in the asylums of Italy, but on the death of his father he gave up the practice of medicine and took to farming. When war broke out he lost no time in joining the colours, and was mentioned in dispatches last year, and received the D.S.O. in January, 1913. His colonel, in a tribute to Major Gordon's qualities as a soldier, writes: "He was a man we all liked and respected. During the trying time of the last few days he carried out his duties in an exemplary manner, with perfect courage, and was a standing example to all others." He leaves a widow and four young daughters.

CAPTAIN P. G. MILNE, R.A.M.C.

Captain Patrick George Milne, R.A.M.C., was reported as killed in action, in the casualty list published on May 10th. He was educated at Aberdeen University, where he graduated M.B. and Ch.B. in 1912, after which he took a temporary commission as lieutenant in the R.A.M.C., and was promoted to captain after a year's service.

CAPTAIN T. WHITELAW, R.A.M.C.(T.F.).

Captain Thomas Whitelaw, R.A.M.C.(T.F.), was reported as killed in action, in the casualty list published on May 13th. He was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1912, and took a commission as lieutenant in the 1st Northern (Newcastle) General Hospital on April 20th, 1915. He was attached to the Duke of Wellington's Regiment when killed.

Died of Wounds.

CAPTAIN J. F. MATHESON, M.C., R.A.M.C.

Captain James Frederick Matheson, M.C., R.A.M.C., was reported as having died of wounds, in the casualty list

published on May 9th. He held a temporary commission in the R.A.M.C., and received the Military Cross on January 1st, 1918.

CAPTAIN J. B. METCALFE, A.A.M.C.

Major J. B. Metcalfe, Australian Army Medical Corps, was reported as having died of wounds, in the casualty list published on May 10th.

CAPTAIN H. G. MASSY-MILES, R.A.M.C.

Captain H. G. Massy-Miles, R.A.M.C. (temporary), who was stated to have died on service, in the BRITISH MEDICAL JOURNAL (p. 545), was reported to have died of wounds, in the casualty list published on May 11th.

Died on Service.

MAJOR J. W. LITTLE, I.M.S.

Major John Wishart Little, I.M.S., died at Karachi on May 7th, aged 41. He was born on March 27th, 1877, the youngest son of the late Dr. Robert Little of Singapore, and was educated at St. Thomas's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1900, and graduating M.B.Lond., with honours in forensic medicine, the same year. Entering the I.M.S. as lieutenant on June 27th, 1901, he became captain on June 27th, 1904, and major on December 27th, 1912. He served on the North-West Frontier of India in the Waziristan campaign of 1901-2 (medal with clasp); and in East Africa, in Somaliland, in 1903-4 (medal with clasp). Before the war he was agency surgeon at Gilgit.

CAPTAIN MCQUIBAN, R.A.M.C.

Captain William McQuiban, R.A.M.C., died on service in Egypt on May 2nd. He was educated at Aberdeen University, where he graduated M.B. and Ch.B. in 1901. He was in practice at Lordship Park, Stoke Newington, till he took a temporary commission in the R.A.M.C.

Wounded.

Colonel J. W. H. Houghton, D.S.O., A.M.S.

Lieut.-Colonel W. R. Gardner, D.S.O., R.A.M.C.(T.F.).

Lieut.-Colonel J. la F. Lander, D.S.O., M.C., R.A.M.C. (temporary).

Lieut.-Colonel C. A. Stidston, D.S.O., R.A.M.C.(T.F.).

Major W. McM. Chesney, M.C., R.A.M.C.(S.R.).

Major L. S. C. Roche, M.C., R.A.M.C. (temporary).

Captain D. W. Anderson, R.A.M.C. (temporary).

Captain G. F. Carr, R.A.M.C.(T.F.).

Captain A. Fordyce, R.A.M.C.(T.F.).

Captain S. G. Gibson, M.C., Australian A.M.C.

Captain H. M. Godfrey, R.A.M.C. (temporary).

Captain W. S. Hawthorne, Australian A.M.C.

Captain J. I. Lawson, R.A.M.C.(S.R.).

Captain J. M. Mackay, M.C., R.A.M.C. (temporary).

Captain M. H. Muller, M.C., Australian A.M.C.

Captain R. W. Pearson, R.A.M.C. (temporary).

Captain J. McG. H. Reid, R.A.M.C. (temporary).

Captain A. B. Simes, Canadian A.M.C.

Captain J. M. Smith, R.A.M.C.(T.F.).

Captain J. Stevenson, R.A.M.C.(S.R.).

Captain J. E. G. Thomson, R.A.M.C. (temporary).

Captain T. D. C. Watt, M.C., R.A.M.C. (temporary).

Captain H. E. Williams, R.A.M.C. (temporary).

Captain H. Wilson, R.A.M.C.(T.F.).

Captain and Quartermaster J. T. Starkie, M.C., R.A.M.C.

Lieutenant J. B. Taylor, R.A.M.C. (temporary).

Missing.

Captain S. S. Meighan, M.C., R.A.M.C.(T.F.).

Captain J. F. Natrass, R.A.M.C.(T.F.).

Captain F. C. Nichols, M.C., R.A.M.C.(T.F.).

Captain S. V. P. Pill, R.A.M.C. (temporary).

Lieutenant D. Robertson, R.A.M.C. (temporary).

Prisoners of War.

Captain D. F. Debson, R.A.M.C. (temporary).

Captain R. R. Duncan, R.A.M.C. (temporary).

Captain J. G. Elder, R.A.M.C. (temporary).

Captain L. S. H. Glanville, R.A.M.C. (temporary).

Captain D. C. Hanson, M.C., R.A.M.C. (temporary).

Captain H. B. Jones, R.A.M.C. (temporary).

Captain C. E. Redman, R.A.M.C. (temporary).
 Captain F. P. Smith, R.A.M.C. (temporary).
 Captain J. P. Thierens, R.A.M.C. (temporary).
 Captain F. R. Tickle, R.A.M.C. (temporary).
 Lieutenant G. B. Berkley, M.C., R.A.M.C. (temporary).
 Lieutenant F. J. Power, M.C., R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

McBride, Andrew Best, Captain Bedfordshire Regiment, elder son of Major John Best McBride, R.A.M.C. (T.F.), of Berkhamsted, died of wounds on April 24th, aged 22. He was born on June 16th, 1895, and educated at Berkhamsted School and at King's College Hospital, London, where he had passed the first professional examination in medicine of London University. He got his commission in the Bedfordshire Regiment as lieutenant on September 28th, 1914, and was promoted to captain on June 1st, 1916.

Rice, Edmund Gabriel, Lieutenant R.A.F., killed in a flying accident at Redcar, Yorks. on May 3rd. He was the only son of Dr. C. E. Rice of Coventry, and was just under 19 years of age. He was educated at Wolverhampton Grammar School and at Bedale School. He became a probationary flight officer in the R.N.A.S. in June, 1917, and was sent to the front in France in December, where he was on active service as an aerial scout until the end of March, when he was invalided home after fainting at a height of 18,000 ft., fortunately recovering at a height of 4,000 ft. in time to avert disaster. He was subsequently appointed instructor. The funeral took place at Coventry on May 8th with full military honours.

Ruxton, William Stewart Mitchell, M.C., Lieutenant Border Regiment, only son of Dr. Ruxton of Newcastle-on-Tyne, killed April 12th, aged 20. He was educated at Shrewsbury, where he was a sergeant in the O.T.C., entered Sandhurst in September, 1915, got his commission in January, 1916, went to the front in July, 1916, was wounded in September, returned to the front in January, 1917, got the Military Cross in September, 1917, and became acting captain in January, 1918.

St. Leger, Wm. Brett, M.C., Lieutenant Coldstream Guards, killed in action April 27th, aged 23, elder son of Major R. A. St. Leger, S.A.M.C., of George, South Africa, and grandson of the late Dr. Brett of Watford, Herts. He was educated at the South African College, Cape Town, and was a corporal in the Cape Town Highlanders when war broke out. He served with that regiment in German South-West Africa, and afterwards came to England and joined the O.T.C., eventually obtaining a commission in the Coldstream Guards. He proceeded to France in July, 1916, and was wounded in July, 1917. He was awarded the M.C. for conspicuous gallantry on that and former occasions.

Stone, Noel Herbert, M.C., Captain Worcestershire Regiment, eldest son of Dr. H. S. Stone of Reigate, killed April 27th, aged 22. He got his first commission on December 16th, 1914.

Tate, Alan C. R., Lieutenant Royal Air Force, eldest son of Colonel Alan Tate, C.M.G., A.M.S., of Quetta, killed while flying on patrol on May 2nd. He was educated at Charterhouse and Stonyhurst, and had served for a year as an orderly under the French Ronge Croix before he entered the Royal Flying Corps as a cadet in June, 1917, passed as a pilot early in 1918, and went to the front in March.

Trevor-Jones, John Eric, M.C., Captain Rifle Brigade, second surviving son of Major E. J. Trevor-Cory, R.A.M.C., killed April 22nd. He was born in 1893, educated at Clare College, Cambridge, and got his commission on January 22nd, 1916. He went to France in July, 1916, and got the Military Cross in March, 1917.

Walker, John Binning, Canadian Reserve, only son of the late John Walker of Kingussie, died of pneumonia in No. 14 Canadian General Hospital, Eastbourne, on May 3rd.

Williams, R. M., Captain Royal Welsh Fusiliers, attached to the Royal Flying Corps, son of Dr. Richard Williams, formerly of Liverpool and now of Lleniog Castle, Anglesey, reported missing on August 12th, 1917, was, according to news received through the German Red Cross, killed on that date.

MEDICAL STUDENT.

Kennedy, Alexander, M.C., Captain Royal Scots, third son of Mr. Alexander Kennedy of Barnton, killed April 26th. He had completed his third year as a medical student when, at the beginning of the war, he enlisted in the Royal Scots. He was wounded while a sergeant, got a commission in 1917, and had rapidly risen to captain.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

The following awards in recognition of "conspicuous gallantry and devotion to duty" in the field are announced in a Supplement to the *London Gazette* of May 13th:

Military Cross.

Temporary Captain Henry Drummond Robb, R.A.M.C.

On his camp and its vicinity being heavily shelled he was compelled to conduct his sick parade along roads which were at the time under heavy shell fire. He succeeded in leading his wounded cases safely under cover, and later remained behind to attend to

the men of a neighbouring unit, which had also suffered some casualties as a result of the intense shelling. His courage and devotion to duty were of the highest order.

Temporary Captain Samuel Rutherford, R.A.M.C.

During a period of sixteen hours he tended the wounded in the front trenches without ceasing. Throughout this period he was exposed to heavy shell fire, and for some considerable time the enemy were within a short distance of the aid post. His coolness and presence of mind inspired all ranks with the utmost confidence.

Temporary Quartermaster and Honorary Lieutenant Robert Leslie Masters, R.A.M.C.

When a camp and some billets were heavily shelled by the enemy he at once went to the rescue of some men who had been buried in the ruins of a house, and rendered first aid. He then organized bearer parties from among his men, and brought in four severely wounded men from the camp. By his disregard of danger, quick decision, and good leadership he set a splendid example to his men, and rendered valuable assistance to the wounded in the absence of a medical officer.

In the *London Gazette* of May 11th, 1918, the names of Captain A. J. Evans, R.A.M.C. (T.F.) and temporary Captain A. T. Gibb, R.A.M.C., are added to the list of officers whose services have been brought to notice as deserving of special mention by the late Lieut.-General Sir Stanley Maude, K.C.B., Commander-in-Chief, Mesopotamian Expeditionary Force (*BRITISH MEDICAL JOURNAL*, August 25th, 1917, p. 268).

NOTES.

THE Inter-Allied Congress on the after-care of discharged sailors and soldiers, which is to be opened at the Central Hall, Westminster, on Whit Monday, May 20th, at 11.30 a.m., by the Duke of Connaught, will meet in four sections. The first—on pensions and allowances—will have Sir Arthur Griffith-Boscawen, M.P., Parliamentary Secretary to the Ministry of Pensions, as chairman, and he will open its proceedings by reading a paper on pensions and allowances. He will be followed by speakers on the same subject from France, Italy, and Belgium, and a general discussion will ensue. The second section—on training—to be presided over by Sir Charles Nicholson, Bt., M.P., will hear papers on the subject from representatives of Great Britain, France, United States of America, Italy, Canada, and South Africa, and after they have been debated a discussion on agricultural re-education will be introduced by a series of papers. The third section—concerned with the treatment of men suffering from nervous injuries or disorders, including blindness and deafness—will be presided over by Lord Charnwood. Papers on neurasthenia will be contributed by representatives of Great Britain, Italy, and Australia. A discussion on the care of the tuberculous soldier will be introduced by Major P. H. S. Hartley, C.V.O., R.A.M.C.; on the blind, by Sir Arthur Pearson, G.B.E.; and on the deaf by Dr. Dundas Grant. The fourth section—on surgical treatment—will discuss the treatment of limbless men, orthopaedics, and functional restoration and re-education of the wounded, the speakers including Sir Wm. Macewen, Sir Robert Jones, Majors Turner and Boyer, C.A.M.C., and Major Sandes, S.A.M.C.

Correspondence.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

SIR,—I am not concerning myself with the political views of either Sir M. Abbot Anderson or Dr. Rowland Fothergill, but when the former states that all the graduates resident in London whose names and addresses could be found were invited to attend a meeting, I at least have my doubts as to the accuracy of that statement, or, to put it in another way, that any great pains were taken to find them.

Certainly at the present moment I am not actually resident in London, as in more peaceful times, but I am on the Council of the Graduates' Association of my university, and joint-secretary of the Metropolitan Counties Branch of the British Medical Association, and one would think, therefore, that both my name and an address could have been obtained fairly easily—even without reference to such a handy aid as the current edition of the *Medical Directory*—but I never received any invitation to the meeting, or even intimation that such was to take place.

I do not know on what date it was held, but it is probable that I was in England at the time, and if so it is certain that I should have endeavoured to be present—if only to hear what was going on.—I am, etc.,

B.E.F., France, May 10th.

WILFRED KINGDON.

SIR,—Captain Fothergill, in his letter on the above subject in your last week's issue, stated that "Belfast University is finding a medical candidate without looking to a party in politics for any assistance."

I regret to say that Captain Fothergill's facts are more misleading than fiction. Doubtless Sir W. Whitla's Parliamentary committee were able to find him without the aid of any political party organization, but they are looking to the party politics of the graduates to get him elected as their member. In the official appeal for support the secretaries of his committee begin by saying, "Sir William is a staunch Unionist and a trusted representative of Ulster on the Irish Convention, where during nine months of strenuous labour he has enjoyed the fullest confidence of his colleagues. He is, moreover, a brilliant member of his profession, . . ."—that is, party politics first, medical claims a poor second; unless, indeed, his services at the Convention during its labour, prolonged for a period equal to that of a normal gestation, were of a professional character! (The dismembered condition of the fetus on delivery is notorious, and reflects little credit on the accoucheur!)

The philosophic doubt of Mr. Balfour finds no place in the psychology of present-day Ulster, and should my old teacher be returned as member for the Belfast University, and should the supposed interests of the medical profession ever clash with the supposed interests of the North-East of Ireland, there is no uncertainty as to the lobby into which his political tail will waggle the professional trunk of Sir William Whitla.

Captain Fothergill's idea of non-political representation for our universities is, I fear, Utopian.—I am, etc.,

Old Basford, Notts, May 14th.

ADAM FULTON.

THE VALUE OF AMYL NITRITE INHALATIONS IN THE DIAGNOSIS OF MITRAL STENOSIS.

SIR,—The suggestion made by Dr. Morison (p. 452) that the murmur indicative of the presence of mitral stenosis can be made more evident by causing the patient to inhale amyl nitrite is open to more than one fallacy.

The abnormal sound which is very commonly mistaken for the presystolic murmur of mitral stenosis is the diastolic sound, sometimes called part of a reduplicated first sound, sometimes part of a reduplicated second sound audible at the apex, sometimes a mid-diastolic sound, or even the third sound of the heart, and it is probable that this sound, when present, would be made more distinct by the inhalation of amyl nitrite.

It is strange how very few even of well-qualified medical men of considerable experience are aware of the danger of mistaking the sound in question for a true presystolic murmur, in other words, of the danger of considering it to indicate the presence of mitral stenosis.

Although a sound of this character may be heard over a healthy heart in a healthy person, it is more likely to occur in a person with a low vasomotor tone—that is, one in whom the neuro-muscular system of the circulation does not react quickly to the various demands which the movements of the body make upon it. A similar low vasomotor tone is produced by the inhalation of amyl nitrite, and it appears probable that the drug would accentuate a sound which is no indication of disease.

I do not suggest that amyl nitrite may not also render more distinct the true murmur of mitral stenosis. The murmur present in mitral stenosis is, however, one the method of production of which is not evident. Its causation is not, I believe, so simple as Dr. Morison seems to think. The morbid anatomy of mitral stenosis presents other serious changes besides mere narrowing of the mitral orifice. For example, the chordae tendineae may be so shortened that they have disappeared and the large flap of the mitral valve is in contact with the apices of the muscular pillars. The action of the left ventricle must thus be hampered and great muscular strain must be brought to bear upon the thickened and shortened mitral flap. What effect has amyl nitrite upon the hampered ventricle, and how is that effect, whatever it may be, to influence the sound which occurs during the ventricle's contraction? I cannot make any suggestion. The trial of amyl nitrite may prove to be interesting, but it does not seem to me that it is likely to give reliable indications as to whether organic disease is present

or not. If it does, I should favour the view that amyl nitrite will influence the diastolic sound of a normal heart but not the presystolic murmur of mitral stenosis.—I am, etc.,

Norwich, April 25th.

THEODORE FISHER.

TONSILLECTOMY IN DIPHTHERIA CARRIERS.

SIR,—It seems to me that Captain Ballantyne and Lieutenant Cornell, C.A.M.C., in their paper on the report on tonsillectomy in diphtheria carriers (*BRITISH MEDICAL JOURNAL*, 1917, ii, p. 686), start with false premisses. One only of the six cases quoted—namely, the second—ought to be regarded as a carrier. The fifth case might also be admitted by some into this category. Cases 1, 3, and 4 were positive as to swabs for three weeks, nine days, and twelve days respectively before the operation. To classify a patient as a carrier of diphtheria bacilli because he has positive swabs for nine or twelve days is not justified, as it is a common experience in fever hospitals to find this and then to get negative cultures without gargles or throat applications of any kind whatever. Details of the dates of onset of the disease in the various cases cited are lacking, except in Case 6, a man admitted with diphtheria on June 5th; on June 29th (the twenty-fourth day after admission) a tonsillectomy was performed on him, on the ground that he was a diphtheria carrier. This does not seem to me to be sound, and if it is taken as a standard and acted upon, then there will be several hundreds in London alone every year who will have tonsillectomy performed on them as diphtheria carriers, while now, as a result of a little patience, they are discharged from hospital free from any infection.

There is another point to which I would like to draw attention. In these cases the authors were evidently satisfied that the patients were not harbouring the organism after the operation after swabs from the throat only. No mention is made of cultures from the nose. Now, before a diphtheria patient can be said to be free completely from the disease, separate cultures ought to be made from the throat and the nose. It is not uncommon after faucial diphtheria to get persistent negative cultures from the throat, and at the same time to get positive cultures from the nose. I am not confusing purely faucial diphtheria with purely nasal diphtheria when I say this. No mention is made either of a further course of diphtheria antitoxin for carriers. In practice the risk of anaphylaxis in diphtheria is almost negligible.

I was pleased to notice that 12,000 units of antitoxin were given in Case 6, "mild diphtheria," as there still seems to be some diffidence in giving comparatively large doses of antitoxin in diphtheria. In the North-Eastern Hospital it was our practice to give 12,000 to 16,000 units in a mild case, and up to 32,000 or 36,000 (rarely 40,000) units in very severe cases, with a repeated dose in twelve hours if the exudate was still spreading.—I am, etc.,

P. FIGDOR,

Captain R.A.M.C.

March 9th.

The Services.

INDIAN MEDICAL SERVICE.

AT a meeting of the Imperial Legislative Council of India on February 28th Mr. Sastri moved a resolution proposing that the technical and scientific services should be recruited entirely in India, and that an effort should be made to provide the requisite educational facilities in that country. After an assurance from the Government spokesman that the Viceroy and Secretary of State were endeavouring to give effect to the progressive realization of responsible government in India the resolution was withdrawn.

At the meeting on March 5th Mr. Sastri brought forward a resolution recommending:

- That a civil medical service should be constituted which should be wholly independent of the medical organization of the Indian army, that the higher medical posts which are at present filled by officers of the Indian Medical Service should be transferred to the civil medical service, and that the civil medical service should be recruited from the civil medical officers and the independent medical profession; (b) that the salaries of Indian Medical Service officers employed on civil duty should not be enhanced as recommended by the Public Services Commission; and (c) that military assistant surgeons should not be given preference over civil assistant surgeons, and that not more than one-sixth of the higher posts reserved for subordinate medical officers should be given to them.

He protested against the proposal of the Public Services Commission for an advance in the pay of the I.M.S., considering that the number of its members in civil employ shut out native talent and made the civil population dependent on a service which might be called upon to do military duty at any time. He did not share the apprehension that all the services in India would suffer in popularity if British officers and their wives had to resort to Indian doctors. As to the necessity of maintaining a war reserve, he said that he had ascertained from young Indians in the medical colleges that they would be quite willing to support any proposal the Government might make to impose on all officers in civil employ the obligation to undergo military training and to be liable for military service. The private medical profession in India had readily responded to the calls made upon it during the present war. The I.M.S. had done wonders for India, but should not be allowed to dominate the civil population and to keep the children of the soil out of what was rightly theirs.

Surgeon-General Edwards, who has succeeded the late Sir Pardey Lukis as Director-General I.M.S., in his reply, said that acceptance of the resolution would be tantamount to the abolition of the service, which had done work of the greatest value, not only to India, but to the world at large. He spoke of the work done with regard to the malaria parasite, to cholera, amoebic dysentery, prostatic surgery, and eye surgery; with regard to kala-azar and ankylostomiasis, to snake venom, and as to goitre. He then referred to the magnificent educational work done by the I.M.S., and added that if expert professors were to be specially engaged they must be offered much higher salaries and would not have the intimate knowledge of Eastern diseases which officers of the I.M.S. possessed. It must be remembered that very few I.M.S. officers made from £1,000 to £2,000 a year by private practice. Some 400 I.M.S. men held civil posts in India in peace, but a distinguished Indian medical man had informed the Bengal Legislative Council that over 30,000 doctors were required there. At present there were only 2,000 on the medical register, and of these some 40 were I.M.S. men. Could this small band be said to be standing in the way of the aspirations of Bengal practitioners? To cut India adrift from intimate medical contact with progressive Western countries, which would be the outcome of the resolution, would be a short-sighted policy. On the other hand, he was strongly in favour of a Provincial Civil Medical Service; such services existed, but they ought to be greatly enlarged, especially in their public health departments, and the old-fashioned name of "assistant surgeon" dispensed with and the hideous name "subassistant surgeon" forgotten. As the Indian Medical Service was the war reserve, appointments must be reserved for its members in the provincial medical services. That was practically what was now being done. If military medical officers were to be kept fully employed in peace, less than half their number would be amply sufficient to carry on routine military duties. It was asked why this was not done in the R.A.M.C. The answer was that it would be done if the British army in peace were stationed in England and if there existed a civil medical service into which its surplus officers could be drafted. But the British army was scattered all over the world; most of the R.A.M.C. officers would prefer to have more professional work in peace time. The Indian Medical Service had lately ceased to attract medical men of the highest attainments, either British or Indian; it must therefore be mended or euded, and he unhesitatingly maintained that in the interests of India it ought to be mended. If first-class men were required they must be sought in the open market and paid their market value, and he trusted that none but the best would be considered good enough for India. With regard to the third part of the resolution, military assistant surgeons would in future be required to take a qualification recognized in Great Britain. In conclusion, he said that the Government of India had under consideration the complete reorganization of both these services and was not prepared to make any definite pronouncement of policy at the present moment.

Sir William Vincent, speaking on behalf of the Government, paid a high tribute to the work done by the I.M.S., not only for India, but for the peoples of other parts of the world. Mr. Sastri was anxious that a larger number of Indians should enter the service; 40 per cent. of the candidates who passed at the 1914 examination were Indians. Referring to Mr. Sastri's statement as to the willingness of Indian medical men to act as a war reserve, he said that many subassistant surgeons who by the terms of their engagement were liable for military service,

had resigned when called upon to fulfil their obligation. Dealing with the proposal to reject the recommendation of the Public Services Commission to improve the pay of the I.M.S., Sir William Vincent said that the difficulties which existed before the war in obtaining recruits would be enhanced after it, and he declared that the Government of India declined to bar itself from maintaining the high qualifications for a medical service which had conferred almost inestimable benefits on the country. At the conclusion of the discussion the resolution was rejected by 38 votes to 15.

The Indian Budget for 1918-19 was presented at a meeting of the council on March 1st; the main features were a surplus of nearly six million pounds sterling and the announcement that there would be no alteration in taxation. There had been an increase in revenue under nearly every principal head, the only marked exception being opium, which showed a decline of £320,000.

Surgeon-General W. R. Edwards, C.B., C.M.G., has been appointed an additional member of the Legislative Council, the Governor-General, and has been awarded a good service pension of £100 per annum, with effect from April 1st, 1915.

Universities and Colleges.

UNIVERSITY OF GLASGOW.

At a meeting of the General Council last week the Rev. Dr. John Smith, convener of the Business Committee, said that it recommended the council to approve the desire of the university lecturers and assistants for improvement in representation, status, and remuneration, and to ask the University Court to take the request into early and favourable consideration. This proposal was unanimously accepted. Speaking on the minute dealing with the Carnegie Trust, the convener drew attention to the fact that the percentages of leaving certificates gained by new applicants during the last six years were as follows: 74.5, 87.1, 87.6, 91.2, 91.3, and 92.4. The increase, he said, showed the real need for the new university ordinance governing the admission to universities; it would, he hoped, soon receive approval. Finally, he observed that of the 192 names in the obituary list for 1917, 100 were of men who had given their lives in the service of the country.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

At an extraordinary comitia on May 9th, the President, Dr. Norman Moore, occupying the chair, the following gentlemen, elected to the Fellowship at the last comitia, were admitted:

Walter Broadbent, M.D.Camb., Hugh James Moore Playfair, M.D.Lond., Frederick Lucien Golla, M.D.Oxf., Archibald Montague Henry Gray, M.D.Lond., Alfred Ellington Stansfeld, M.D.Camb., William Whiteman Carlton Topley, M.B.Camb., Charles Hubert Boud, M.D.Edin., Percy William Bassett-Smith, C.B., Sir Walter Morley Fletcher, M.D.Camb., F.R.S., Sir George Newnam, K.C.B., M.D.Edin.

It was resolved, on the recommendation of the Censors Board, that the licence to practise physic be restored to Mr. Edmund Lyall Haynes.

The President announced that the "Twilight Sleep" Committee had been constituted as follows: Dr. H. R. Spencer, Dr. G. Blacker, Dr. J. S. Fairbairn, Dr. H. Williamson, and Dr. H. R. Andrews.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

An ordinary council was held on May 9th, when Major-General Sir George Makins, G.C.M.G., A.M.S., President, was in the chair.

Bradshaw Lecture.—Mr. D'Arcy Power was appointed Bradshaw lecturer for the ensuing year.

Issue of Diplomas.—Diplomas of membership were granted to 102 candidates found qualified at the recent examinations.

Presentation of Bust of John Scott.—This bust, by Chantrey, of John Scott, F.R.C.S., a member of the Council of the College from 1844 to 1846, was presented by Sir L. A. Selby-Bigge, K.C.B.

List of Members.—The Secretary reported that the list of members published in the *College Calendar* contained the names of some 2,224 members who were not registered under the Medical Acts of the United Kingdom, and that, while some could be traced as resident in the colonies and abroad, there were many whose addresses were not, and for some years had not been, known. The names of all members admitted before 1870 whose addresses cannot be ascertained (in number about 1,033), will be placed in a separate list, and such list will be omitted from the *Calendar* for 1918-19.

At the annual meeting of the Rockefeller Foundation additional gifts for war work to the amount of £37,470 were announced. Of this sum, £25,000 is to be applied to continue the war demonstration hospital of the Rockefeller Institute and £10,000 is allotted to the National Research Council of the Council of National Defence.

Obituary.

MAJOR T. HAROLD HUNT, R.A.M.C. (T.F.), died at Halifax on April 29th, aged 48. He was the son of the Rev. T. H. Hunt of Southport, and was educated at Owens College, Manchester, and the Yorkshire College, Leeds. He graduated M.B.Lond., with honours in 1895, B.S. in 1896, and M.D. in 1898. After serving as house-surgeon to the Leeds General Infirmary and at the Royal Halifax Infirmary he started practice in Halifax. In 1904 he was appointed to the staff of the Royal Halifax Infirmary and medical officer to the Halifax School Board. Later he was appointed medical officer in charge of the Barmerside Open-air School and Convalescent Home. He took a great interest in the School for Defectives at Halifax, one of the first three established in England. In 1915 he was appointed to the staff of the St. Luke's War Hospital, Halifax, with the rank of major, and the strain of this arduous work made great demands on a not very strong constitution. A colleague writes that there can be little doubt that Major Hunt died as the result of his military service. He was at the Royal Infirmary and the military hospital on April 28th but was compelled to return home, and within a few hours an acute attack of pneumonia developed which proved fatal early on April 29th. He was a member of the Halifax Division of the British Medical Association. He was buried with full military honours.

LIEUT. COLONEL THOMAS WILLIAM O'HARA HAMILTON, C.M.G., R.A.M.C. (ret.), died at Colchester on April 22nd, aged 57. He was the son of Colonel T. Hamilton of Malden, Surrey, and was educated at Trinity College, Dublin, where he graduated B.A. in 1880, and M.B. and B.Ch. in 1881. Entering the army as surgeon on February 3rd, 1883, he became surgeon-major on February 3rd, 1895, and lieutenant-colonel on February 3rd, 1903, retiring on November 4th, 1911. He served throughout the South African war from 1899 to 1902, was present in the advance on Kimberley, including the actions at the Modder River and at Magersfontein, in operations in the Orange River Free State, including the actions of Paardeberg and Wittebergen, and in the operations in Cape Colony, and received the Queen's medal with three clasps, the King's medal with two clasps, and the C.M.G.

DEPUTY SURGEON-GENERAL JAMES HENRY LOCH, Bengal Medical Service (retired), died at Guildford on April 9th, aged 85. He was the son of Rear-Admiral Loch, was born on September 21st, 1832, and educated at Edinburgh University, where he graduated M.D. in 1853. Entering the I.M.S. as assistant surgeon on December 20th, 1854, he became surgeon in 1866, surgeon-major in 1873, brigade surgeon, when that rank was first instituted, on November 27th, 1879, and D.S.G. in 1881. He retired on January 1st, 1889. He served in the Indian Mutiny in 1857-58; in the operations of the Oudh Field Force from January to June, 1858, taking part in the relief of Azimgarh and in the pursuit of Koer Singh, and received the Mutiny medal.

Medical News.

A NUMBER of Italian professors are about to pay a visit to the universities of Great Britain.

LORD LEVERHULME has been elected president of the Royal Institute of Public Health.

A NEW electro-therapeutic and massage department at the Great Northern Central Hospital, Holloway Road, has been completed, and is prepared to deal with 10,000 attendances a year.

THE library of the Royal Society of Medicine will be closed on Saturday, May 18th, and Monday, May 20th, but members of the R.A.M.C. and other medical services will be admitted.

AN American Congress on Infancy will be held at Monte Video under the patronage of the Republic of Uruguay in December, 1918 (19th to 22nd). Representatives of all the countries of America will take part in the proceedings. The president is Dr. L. Morquio.

DR. G. J. MURIEL, who has resided in Whitehaven for fifty years and is consulting surgeon to the Whitehaven and West Cumberland Infirmary, has been appointed to the Commission of the Peace for the county of Cumberland. He was president of the Border Counties Branch of the British Medical Association in 1898-99.

THE first number of a *Review of War Surgery and Medicine* was issued from the office of the Surgeon-General of the United States Army in March, 1918. It is to appear monthly, and to be devoted to abstracts of medical literature relating to the war.

AN appeal, signed by the Rev. W. J. Barton and Mr. Edred M. Corner, M.S., F.R.C.S., honorary secretary of the Old Epsomian Club, is made for funds to rebuild the nave of the chapel of Epsom College in harmony with the chancel, and to place in it a suitable memorial bearing the names of the old boys and masters who have sacrificed their lives in the war.

THE *American Journal of Ophthalmology* has been amalgamated with the *Annals of Ophthalmology*, the *Ophthalmic Record*, *Ophthalmology*, the *Ophthalmic Year Book*, *Ophthalmic Literature*, and the *Annales de Ophthalmologie*. The new publication, which will appear monthly, owes its existence largely to the efforts of Dr. Edward Jackson, of Denver, Colorado, who is its editor. The first number appeared in January, 1918.

IN the Probate Court on May 13th leave was given to presume the death of Sir Marc Armand Ruffer, M.D., C.M.G., who, while engaged in Red Cross work, was on board H.M. transport *Arcadian* when she was torpedoed and sunk by a U-boat near the Island of Milos on April 15th, 1917. An obituary notice appeared in the *JOURNAL* of May 5th, 1917, p. 602.

THE Medical Committee of the Royal Hampshire County Hospital, Winchester, after full consideration, have come to the conclusion that the grant of 5s. 6d. per man per diem offered by the Ministry of Pensions to the hospital for the maintenance of war pensioners will only just cover such maintenance. They feel that the medical treatment of these patients, which is a matter of great national importance, should be paid for by an adequate and direct remuneration of the staff, and that this should be on an entirely separate basis from that of maintenance.

MM. CHABONIER and BLETON communicated to a recent meeting of the Société de Biologie in Paris certain observations they had made of the frequent occurrence of polyarthritis in the course of the treatment of patients with arsenobenzol (especially 914). The joints remained painful for three or four weeks. A similar condition of polyarthritis was observed to occur in a certain number of non-syphilitic cases treated with arsenobenzol; the condition would therefore seem to be attributable to the drug.

Letters, Notes, and Answers.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology*, Westrand, London; telephone, 2631, Gerrard.
 2. FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.
 3. MEDICAL SECRETARY, *Mediscera*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.
- The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Referees Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

AN OLD MEMBER writes: I have just read in the *JOURNAL* of May 11th, p. 538, the report of the annual meeting of the above society, and I consider a great injustice was done to old members by the passing of a resolution (at the instigation of the committee) stopping the payment of the usual bonus, after 1918, to those members who attain 65 in the sickness branch—the mainstay of the society—whilst it was agreed to pay a bonus to the life assurance branch. Considering the fact that the committee, in their printed rules, objects, and special reasons for joining the society, have made special stress on the payment of a bonus, I think it is "unjust," to say the least, to suddenly stop it, and it is especially unfair to those who have been members for over twenty-five or thirty years, and naturally have looked forward to receive their well-earned bonus. According to the opinions of the late secretary Mr. Addiscott, and Mr. Cresford, the actuary, in their report for 1903, they considered it to be "inequitable" to those members shortly reaching the age limit not to receive some benefit of the existing surplus. In these days of war stress it is doubly hard to act in this unfair manner, especially when the society is in a good financial position. I am glad there were present some members who disagreed with the recommendation of the committee, and who voiced their opinions, but who were outvoted.

BABY WEEK.

IN connexion with Baby Week celebrations the National Association for the Prevention of Infant Mortality is organizing a conference to be held at the Central Hall, Westminster, on July 2nd and 3rd. Dr. J. W. Ballantyne will open a discussion on antenatal and neonatal factors in infant mortality, under the chairmanship of Sir Arthur Newsholme; Lady Barrett will open a discussion on institutional *versus* domiciliary treatment of the lying-in mother, under the chairmanship of Sir Francis Champneys; and a discussion on mothers' pensions will be opened by Dr. Harold Scurfield, M.O.H. Sheffield. Lectures on infant care will be given by Dr. Eric Pritchard, Dr. Maurice Craig, Dr. H. C. Cameron, and Dr. C. W. Saleeby, mainly for elementary school teachers. There will also be a practical demonstration on the teaching of mothercraft to schoolgirls, and a lecture on the hygiene of infancy.

TUBERCULIN TREATMENT OF PULMONARY TUBERCULOSIS.

DR. EDWARD E. PREST (Ayrshire Sanatorium, new Cumnock) writes, in reply to Dr. Adam Moss (p. 497), that though tuberculin treatment has been largely used during the last ten years, he supposes that there is not at the present time any one who regards it as satisfactory. Dr. Prest thinks that the cause of most chronic disease is allowing patients to walk about, in the early active stage with a temperature such as 101°. While a chronic case such as Dr. Moss describes is occasionally benefited by tuberculin, the majority of such cases are not. Isolated cases are, Dr. Prest considers, of no value in estimating the results of treatment.

THE CASES ATTRIBUTED TO BOTULISM.

DR. E. H. M. MILLIGAN, D.P.H. (Bath), writes to suggest that in investigating the cause of the obscure cases of nervous disease which have been described as perhaps due to botulism, attention should be given to the possibility of the presence of the *Diplococcus intracellularis*, the cause of cerebro-spinal fever, for in many cases the cerebro-spinal symptoms are absent and gastro-intestinal or other symptoms predominate.

PENETRATING WOUND OF HEART (CIVILIAN PRACTICE).

DR. S. D. CLIPPINGDALE (London, W.) writes: Mr. Wightman's interesting case of a child who lived five days after receiving a penetrating wound of the heart is not without precedent. Dr. Thomas Davies, in his *Diseases of the Heart and Lungs* (London, 1835), mentions the case of a patient, also a child, who lived thirty-seven days with his heart transfixed by a splinter of wood three inches long. As in Mr. Wightman's case, a *post-mortem* examination was made.

TRIVIAL WOUNDS OF THE FINGERS.

DR. J. A. ROOTH (Brighton) writes that he has been struck by the fact that trivial pricks and cuts of the fingers frequently suppurate. Remembering the frequency of pyorrhoea and carious teeth he attributes this to the sucking of such wounds and suggests that lecturers on first aid should point out that the habit is dangerous.

A SOCRATIC DIALOGUE.

A. The matter as regards the Athenian physicians and the new laws of military service seems to me to stand thus: In the first place, we admit or we do not admit that it is the paramount duty of every citizen of whatsoever age and condition to do all that lies in his power to aid the state in its endeavour to overthrow our potent enemy, the Lacedaemonians, who seek to destroy us and our allies and to impose their will upon the world.

S. That is well said. We will agree that this obligation is recognized by every good Athenian.

A. It follows, then, that my brother physicians—who are by no means behind their fellow citizens in patriotism—are ready to do all that is asked of them in furtherance of this good cause.

S. Here, as it seems to me, you fall into some confusion of thought.

A. How so? Do you deny the public spirit of our physicians?

S. It is far from my wish to deny this, and indeed it would be foolish to do so, for the contrary is well known to me and to all sensible Athenians.

A. Where, then, has my reasoning led me astray?

S. I will try to answer that by putting one or two simple questions to you. Is it not the fact that physicians are members of a learned profession?

A. I should be sorry to deny it.

S. And are they not by their training and through the exercise of their art better able than most men to judge their fellow citizens both in health and in sickness?

A. That assuredly is my belief.

S. Then we are agreed, I take it, that the physician wishes to do his utmost for the state in this crisis, and that he is less likely than others to be deceived by those who would point out his duty to him? Is that not so?

A. I see what you are leading up to; but the physician no less than any other citizen must submit himself to the authority of those who are entrusted with the conduct of affairs, otherwise there would be an end to government, and we should be delivered into the hands of the Lacedaemonians.

S. It is clear to me that no sophistry can prevail against your sturdy patriotism. Let us therefore abandon all dispute as to the right of private judgement when the state is in danger.

A. I acknowledge your concession. To proceed: it is beyond question that physicians, whose obligation to serve the state is not a whit less than that of any other man, have had and still have under the new laws special treatment. As heretofore they are to be taken for service with the army or left to minister to the needs of the civil population at the discretion of their peers—a thing conceded to no other section of the community. Furthermore, when they join the armed forces they are allowed to exercise their own calling almost by right, and they receive higher pay than those who have no choice as to how they shall serve their country when called upon to do so. Such privileges being ours, my blood boils when I hear it argued by factious persons that physicians, in virtue of their calling, or by reason of anything else whatsoever, have a claim to be treated yet more tenderly than other citizens.

S. I hope I should be the last to deny the force of much that you have said. Nevertheless, there are certain remarks which occur to me. First, I would ask you whether this differential treatment has been accorded to the physicians by reason of some special feeling of tenderness towards them as a body or as individuals?

A. I cannot read the minds of other men, least of all those of our rulers.

S. Next I think you should explain why it is that the new laws raising the age of military service have added five years to the obligation of the physician as apart from other men.

A. It may be in order to balance the five years at the other end of the scale, during which the student of our art is exempt from the heat of battle.

S. You argue, then, that it is an ingenious measure of justice?

A. Perhaps I should withdraw that. On second thoughts I perceive the reason to be that physicians above all men deal in an indispensable commodity, for which the demand has grown greater through the operations of war.

S. That is a more likely explanation. And may not that be also the answer to my previous question as to the special consideration shown by our rulers towards your calling?

A. It may be.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the week ending May 11th:

	£ s. d.		£ s. d.
Dr. Alfred Cox ...	1 1 0	Dr. Norah Kemp ...	2 2 0
Dr. J. Cryer ...	3 3 0	Dr. H. Creemer Cooper ...	5 5 0
Capt. J. Rutter William- son ...	1 1 0	Dr. Helen Ingleby ...	1 0 0
Dr. S. Moore ...	1 1 0	Dr. F. Claude Evill ...	2 2 0
Dr. E. Eyre Lloyd ...	2 2 0	Dr. Jas. Middemass ...	1 1 0
Dr. J. R. Preston ...	1 1 0	Mr. P. A. Ross ...	1 1 0
Brigade-Surgeon, Lieut.- Col. Salaman, I.M.S. ...	1 0 0	Col. Charles E. Harrison	3 3 0
Dr. J. M. Callender ...	1 1 0	South-Eastern Counties Division, B.M.A. (per Dr. Oliver):	
Dr. Marguerite Wilson ...	1 1 0	Dr. J. W. Somerville ...	3 3 0
British Medical Assoc. ...	105 0 0	Dr. S. Davidson ...	2 2 0
Dr. Mary Carew Huot ...	2 2 0	Dr. R. Evans ...	1 1 0
Dr. D. N. Seth-Smith ...	1 1 0	Dr. N. P. Fairfax ...	0 10 6
Dr. I. B. Muirhead ...	3 3 0	Dr. W. L. Colten ...	0 10 0
Dr. J. F. Blanton ...	1 1 0	Dr. M. J. Oliver ...	1 1 0

Monthly Subscriptions.

Captain Henry L. P. Hulbert, M.D., R.A.M.C. ... £1 0 0

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

APPEAL FOR THE FAMILY OF THE LATE DR. KITE.

THE REV. P. M. WATHEN (Welwyn) and Dr. A. E. GILES (10, Upper Wimpole Street, W.1) write to acknowledge with many thanks the following further contributions to this fund:

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THE BACTERIAL FLORA OF WAR WOUNDS: INFLUENCE OF TREATMENT.

BY

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(Report to Medical Research Committee.)

The wounds of war differ from the majority of wounds in civil life in that they contain a very large number of bacteria, resulting in prolonged suppuration, slow healing, and deforming cicatrization. In no industrial wounds, except a limited number occurring in agriculturists, does soil contamination play such an important part as in the wounds of war, and as the bacteria of the soil figure largely in the flora of war wounds, a comparative study of the bacterial flora of the wounds extending over long periods may throw some light on the benefit of one or other method of wound treatment, and suggest a direction in which effort should be concentrated.

From the commencement of the war I have made routine bacteriological examinations of the convey cases arriving in certain home hospitals; these examinations have been conducted in a uniform manner throughout. The routine adopted has been (a) the examination of film preparations

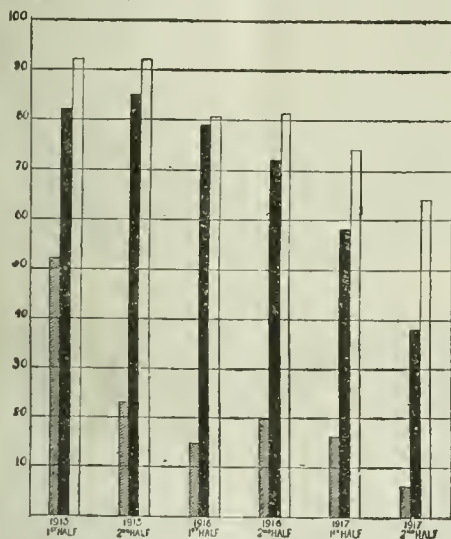


DIAGRAM I.—Percentage incidence of spores (shaded), bacilli (black), and cocci (white), in Gram-stained films. Periods of six months, 1915-17.

(b) the discharge material stained by the Gram method, (c) the cultivation of the discharge material on (1) glucose broth, (2) sterilized milk, (3) minced autoclaved meat. The cultures were examined in the ordinary routine manner and where necessary plated out, or the cultures carried far enough to determine the various groups in which the organisms are scheduled. A considerable amount of effort was expended to commence with in perfecting anaërobic apparatus, and the results and methods have been published elsewhere. Certain general conclusions regarding the bacteriological flora of wounds have been reached. In the early part of the war, especially in the winter of 1914-15, many wounds arriving in home hospitals were extremely septic, sloughing, and emitted an offensive putrid odour. At intervals during the succeeding years a slight return to this condition has occurred from time to time, during periods of stress, but the general physiological character of the wounds has undergone a steady and progressive improvement. In the early period the number of spore-bearing organisms found in films made from the wound discharges was large. Three types of sporing organisms were observed: (1) Bacilli with a central spore, staining deeply by Gram's method; (2) bacilli containing a sub-terminal spore; (3) bacilli with a rounded or oval end-spore. In the more putrid wounds all three classes were represented, but mainly the third, whereas in the cases of acute localized oedema with bubbles of gas in the discharge and, in a few cases, acute gas gangrene spreading from the

wound, the main class of organism present was the central spored bacillus. During 1916 and the first half of 1917 these organisms were less often met with; during the last half of 1917 a limited number only were observed.

Diagram 1 shows the relative percentage incidence of the various classes of organism met with in the pus films. The cases are collected into periods of six months, commencing with 1915, and the number of cases with spore-bearing organisms shows an extraordinary and progressive diminution, except for a slight rise during the second half of 1916. These relative proportional diagrams do not convey the intensity of the infection in any given wound, but merely the percentage of cases in which spore-forming bacteria were found in the pus films. The other two columns represent—the white column cocci, both streptococci and staphylococci, and the black column bacilli, both Gram-positive and Gram-negative. During the first two years Gram-negative bacilli belonging to the *coli* and *proteus* groups were frequently met with, but the incidence of these organisms, especially the *proteus* group, has diminished during the last nine months. The cases from which these examinations are made were all examined within twenty days of wounding. About 33 per cent. were examined within the first week; this proportion has been maintained throughout, so that the groups of cases remain fairly comparable. The results of treatment appear, therefore, to have progressively diminished wound infection, but it by no means follows that the absence of bacteria in the films of the discharge is indicative of the freedom of such wounds from bacterial infection.

Diagram II shows how far this divergence exists; in this diagram the proportional incidence of bacteria in the

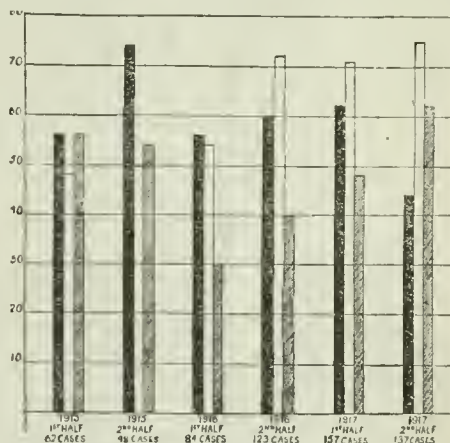


DIAGRAM II.—Percentage incidence of anaerobic bacilli in wounds 1 to 20 days old. First examination on admission in home hospitals. Black = Saccharolytic group, type *B. perfringens* (*welchii*) (cultivation). White = Proteolytic group, type *B. sporogenes* (cultivation). Shaded = End-spore group, type *B. tetani* (cultivation).

wounds obtained by cultural methods is given in percentage proportions. The columns relate to three types of anaerobic bacteria: the black, the saccharolytic group, of which *B. perfringens* or *B. welchii* may be taken as the type. The white column, bacilli of the proteolytic group, of which *B. sporogenes* or the bacillus of malignant oedema may be taken as the type; whilst the shaded column indicates the number of organisms forming end spores of the tetanus and other allied groups. It must not be supposed that this class represents tetanus bacilli; it merely indicates the large class of end-sporing bacilli to which the tetanus bacillus belongs.

During the first half of 1916 there was an apparent diminution in the number of sporing anaerobes isolated from the wounds, but from this period forward to the end of 1917 the incidence again rises steeply. From 1915 to June, 1916, the number of proteolytic and saccharolytic organisms remains about the same. A considerable rise occurs in the second half of 1916, and the wounds from this period remain at a higher level of infection, the only diminution being a decrease in the number of proteolytic organisms in the second half of 1917. It is freely admitted that the number of cases examined is extremely small in relation to the total number of wounded. On the other hand, the series has been entirely performed by one observer and according to a constant routine. A possible

explanation of the smaller number of infected wounds culturally up to June, 1916, may perhaps bear some relation to the larger number of bullet wounds, and there is a possibility that from 1916 onwards shell wounds have figured more largely, causing a deeper infection of the tissues.

A comparison of Diagrams I and II points very strongly to the inadequacy of simple film examination in determining the bacterial content of any given wound. It must be pointed out in relation to Diagram II, as to Diagram I, that the percentage occurrence of the groups indicated in the table is no criterion of the mass extent of the infection, as the cultivations were always re-examined at intervals for fourteen days to allow of the growth of any organisms that were present. The diminution in the flora of the wounds, as estimated by film preparations given in Diagram I, together with the apparent increase in the numbers of cultivable bacteria given in Diagram II, suggested some influence which, at any rate, was diminishing the mass infection of the wound. Unfortunately, it is only since June, 1917, that the medical field cards have been available; before this date no information was forthcoming as to the earlier treatment of the wound except by hearsay. From June, 1916, the field cards give a record of the number of wound excisions performed in the casualty clearing stations, as a rule within twelve hours of wounding; it was thought, therefore, that a comparison of the percentage flora in excised wounds and non-excised wounds might give some information as to the possible cause of the diminution.

In Diagram III I have therefore collected the percentage incidence of anaerobic flora from 100 excised wounds examined from June to December, 1917, and of 100 non-

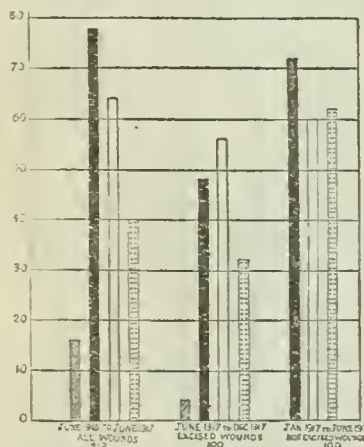


DIAGRAM III.—Percentage incidence of anaerobic flora in excised wounds compared with non-excised wounds. Shaded = Percentage of wounds with sporing bacilli in the pus films (films from pus). Black = Percentage of wounds with saccharolytic group (cultivation). White = Percentage of wounds with proteolytic group (cultivation). Dotted = Percentage of wounds with end-sporing bacilli (cultivation).

determined by cultivation; white, proteolytic group, determined by cultivation; dotted, end-sporing bacilli. It will be seen at once that in the 100 excised wounds all four classes are greatly diminished. Not only have the spore-bearing organisms in direct films diminished, but the spore-bearing bacilli obtained by cultivation also show a considerable diminution, whilst both proteolytic and saccharolytic groups are diminished, the proteolytic to the greatest extent. It may therefore be fairly inferred that the immediate excision of wounds performed at the casualty clearing stations has a very great influence in diminishing the number of bacteria cultivable from the wounds five to twenty days afterwards.

Influence of Antiseptics on the Bacterial Flora of Excised Wounds.

The possible influence of the antiseptic used on the diminution of bacterial flora naturally arises in connexion with these wounds. The 100 excised wounds were therefore examined carefully to determine if any influence

could be traced to the antiseptic used. Fifty of the wounds had been treated with hypochlorite, with or without Carrel tubes; forty had been treated by bipp. The remaining ten had various forms of antiseptics, including flavine and brilliant green. The two chief antiseptics in use were hypochlorite and bipp. On examining the percentage of the flora in each case there was no difference whatever attributable to either antiseptic. In each class—hypochlorite and bipp—the incidence of sporing bacteria and *Bacillus welchii* was 30 per cent.; for the proteolytic type 29 and 31 per cent. respectively. If either of these two antiseptics had any specific action in reducing one or other variety of bacterial infection, one would have expected it to show in a series of wounds treated in the same manner. So far, no sufficient number of cases treated with no antiseptic from the moment of excision is available.

Certain practical disadvantages are associated with both these antiseptics.

1. Hypochlorite: Cases treated with Carrel tubes rarely arrive in home hospitals with the tubes in the position in which they were originally placed, and on the rare occasions on which they are still in the wound the tubes are generally so blocked as to render them entirely useless. On the other hand, as the Carrel tubes are passed through the bandages and fresh hypochlorite is passed down the tube, some of it finding its way into the wound or into the dressing, the chief advantage appears to be that the bandages are not removed in the ambulance train and the case submitted to the chance of fresh infection.

2. Bipp: A certain number of wounds arrive with so much bismuth inserted that it partially obscures the finer structure in fractured bones. A certain number of cases—10 per cent. of 100 cases treated with bipp—have shown symptoms of poisoning due to bismuth—blue line of the gums, blue tongue, and blue patches on the buccal surface of the cheeks, gastritis, diarrhoea and vomiting. Three instances have been seen of iodine poisoning with mental symptoms. In cases of poisoning attributable to the bipp very large quantities had been made use of.

Latent Infection.

This has proved a very common sequela, and has been observed principally in certain classes of wounds.

1. *Flesh wounds*, especially penetrating, lacerated wounds. In these wounds histological examination of the tissue in the immediate neighbourhood of the wound shows changes similar to those associated with gas gangrene, and described in my previous papers,¹ and also the type of muscle degeneration described by McNee in acute gas gangrene. Reference to Diagram III demonstrates that organisms belonging to the saccharolytic gas-forming group are extremely common. There is overwhelming evidence that a large proportion of wounds suffer from incipient gas gangrene, but that the process is arrested by the action of the tissues. I have already published photographs of tissues showing active phagocytosis in incipient gas gangrene.²

2. *Bone injuries*.—Latent infection, as distinct from persistent local sepsis, is more common in bone injuries than in flesh wounds. Comminuted fragments have rarely been found united, even after long intervals, and comprise by far the greater number of sequestra removed at subsequent operations. The sequestra removed from such cases—six, nine, twelve, and eighteen months after the original injury—often show the sharp edge of the original fracture. Radiographical examination and histological examination, together with bacteriological observations, show two main forms of sequestra—(a) hard, (b) soft. The softening sequestra appear to be bacteriologically related to *B. welchii* and the streptococcal groups, the hard sequestra more often to the proteolytic groups, *B. sporogenes*. General local loss of opacity to the x rays is associated with loss of lime salt in the bone, and is apparently associated with the saccharolytic group, though no definite acid reaction occurs in the tissues owing to the action of the buffer substances. Histological examination in latent infection, persistent infection, and closed cavities containing metal fragments or fragments of bone, show scattered organisms in small clusters enclosed in a wall of fibrous tissue. The tissue in the immediate neighbourhood of such bacterial nests is often normal in structure. In ankylosed joints which have been excised after complete healing of the external wounds bacteria have invariably

been found sequestered in the partially destroyed cartilages. Infected areas are met with here in close proximity to normal tissue, and more organisms have been found at the extreme limits of the affected and damaged areas than in the centre of fibrous degenerated tissue. One of the difficulties attendant on subsequent operations on joints, especially excision, is the secondary suppurations which undoubtedly arise from these loculi containing remnants of the original infection.

*Wounds Entirely Healed but Breaking Down after
a Long or Short Interval.*

Many wounds have been examined belonging to this class; they are frequently wounds involving bone, often with very slight bone involvement and no fracture. Histological and bacteriological examination give the same findings, whilst the penetration of the bacteria into the bone extends a considerable distance either side of the original lesion. These wounds break down again after trivial injury or over-exercise. A histological examination of tissue excised near such wounds shows the infection mainly at the junction of the normal and fibrous tissue. The outcome of bacteriological observations on a large series of wounds of latent infection, together with histological examination of excised tissue, points to the physiological action of anaërobic bacteria rather than to general systemic toxæmia as the underlying cause of the persistent infection. The most persistent organism is the *B. sporogenes*, which is in itself of low pathogenic power. It can, however, survive for a long time and in culture tubes, when associated with streptococci or organisms of the *coli* group, and undergoes cyclic development, spores forming and germinating slowly but persistently, with the result that the material becomes ultimately entirely digested. In cases heavily infected with the *B. sporogenes* persistent local oedema has been observed. Histologically, minute general thrombosis of vessels in the immediate vicinity of the wound is common; the thrombus may even spread up through the smaller vessels and project into the larger. Histological examinations of these cases show that the "splash" effect produced in the soft tissues by the velocity of the projectile extends over a considerable distance, that numerous radiating cracks in the tissue occur which become the seat of hæmorrhage. The blood clot formed contracts, associated with the discharge of serum from the wound, coincidentally the bacteria make their way into the cracks, doubtless by capillarity, and subsequently become shut off from the main wound cavity by fibrous tissue and remain latent. There is some indication that this fact has an important bearing on the practical question of the movement of wounded men. It certainly has a very practical bearing on the deep infection of the wounds.

Summary.

In summarizing my observations on wounds in home hospitals from 1915 to the present time it appears—

1. That the mass infection has diminished progressively, but that
2. The persistence of anaërobic bacteria has not undergone similar qualitative reduction.
3. That by the use of the two antiseptics of which statistics have been available (bipp and hypochlorite) no great diminution in anaërobic flora has been effected.
4. That latent infection as opposed to persistent infection is of great importance in "subsequent operations," and that latent infection is determined by the treatment of the case in the first week of the injury, possibly in the first three days.
5. That in latent infection organisms are found in close proximity to healthy tissue and therefore in a region likely to become the site of an incision in a subsequent operation.
6. That bone fragments split off at the original injury invariably become sequestra, probably due to the proteolytic action of the bacteria rather than to destruction of blood supply.
7. That of the various methods which have so far been made use of in the immediate treatment of wounds, immediate excision of the lacerated tissues is apparently the only one that has produced a marked diminution in the anaërobic flora of the wounds.

REFERENCES.

¹ *Lancet*, July, September, December, 1916. ² *Ibid.*, September, 1916.

NOTES ON VIBRION SEPTIQUE.

BY

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THE following is a brief account of the anaërobic organism known variously as the *Vibron septique* and the bacillus of Gohn and Sachs; the name *B. oedematis maligni* has also been used for it.

The conflicting accounts of early writers and the very real difficulty due to the close symbiotic association of widely differing species of anaërobes has obscured our knowledge of this type. *Vibron septique* is very easily passed over in mixed culture, so that its presence has often escaped the notice of workers dealing with wound infections. I propose to use the name *Vibron septique*, under which I include the bacillus of Gohn and Sachs; *B. chauvei* is an allied type, but is a different organism.

The name *Vibron septique* is here applied to a group of strains which are in complete agreement with each other in (a) morphology; (b) cultural characters, including the reactions upon various sugar media; (c) pathogenicity and reaction in the animal body. They do not, however, fall into one group upon the agglutination reaction.

From the trend of modern research it is becoming clear that in many cases the organisms responsible for any given pathological condition must be looked upon as a series of very closely allied types, which can in certain instances be separated from each other by various slight *differentia* and notably by the agglutination reaction. It may eventually be useful to subdivide the group into subgroups, possibly with specific names. It is proposed to deal with the agglutination reactions of *Vibron septique* in another publication. In general, it may be said that in working with anaërobes it is premature to conclude that a strain represents a separate species because it produces specific agglutinins.

The following is a list of the strains studied:

1. *Vibron septique*, Pasteur Institute strain.
2. B. R., Pasteur Institute strain.
3. *V. septique*, strain "Amatzi"; derived from blood culture; from Dr. Weinberg.
4. *V. septique*, strain "Cairny"; from fatal case of gas gangrene.
5. *V. septique*, strain "Summers"; blood culture from case of gas gangrene.
6. *V. septique*, strain "Dynes"; from fatal case of gas gangrene.
7. *V. septique*, strain "Prior"; from case of gas gangrene.
8. *V. septique*, strain "Alexander"; from hæmorrhagic blister fluid in a case of gas gangrene.
(Strains 4 to 8 were supplied by Captain Stokes.)
9. *V. septique*, strain "J. L."; from case of gas gangrene isolated by Miss Hempl.
10. *V. septique*, strain "James"; from case of gas gangrene.
11. *V. septique*, strain "Erissons"; from case of gas gangrene.
12. *V. septique*, strain 141; from case of gas gangrene.
13. *V. septique*, strain 133; from case of gas gangrene.
(Strains 10 to 13 were supplied by Captain Henry.)
14. *V. septique*, strain 227; from wound of patient forty-nine days after wounding; no symptoms of gas gangrene.
15. *V. septique*, strain 145; from wound of patient seven days after wounding; no symptoms of gas gangrene.
16. *V. septique*, strain "Jerral"; from wound of patient without symptoms.
17. *V. septique*, strain "Bedford"; amoebic abscess of brain; material from Captain Armitage.
18. *V. septique*, "Milk" strain, isolated from milk.
19. *V. septique*, "Milk Con." strain, isolated from milk.
20. *V. septique*, strain "George A."; from case of gas gangrene developing upon operative treatment of a healed wound.
21. N. L. *V. septique*; strain isolated by Miss Hempl from wound of patient without symptoms of gas gangrene.

The following were studied for comparison:

22. *B. chauvei*; from case of black quarter; from Sir John McFadyean.
23. *B. chauvei*, culture isolated by Dr. MacIntosh from Rauschbrand muscle from Denmark.
24. *B. oedematis*, strain "Jolly"; from Dr. Weinberg, from case of Dr. Dalyell.
25. *B. oedematis*, strain "Delombre"; from Dr. Weinberg.

I have much pleasure in expressing my cordial thanks to the many colleagues to whom I am indebted for material from cases in their charge, or who have most generously placed their cultures at my disposal. My thanks are due to Dr. Roux, Dr. Weinberg, Dr. MacIntosh, Miss Hempl, Captain Armitage, N.Z.M.C., and Sir John McFadyean. I am quite especially indebted to Captain A. Stokes, D.S.O., R.A.M.C., and to Captain Henry, R.A.M.C., for much valuable material and for kind co-operation during the course of the work.

Morphology.

The *Vibron septique*, like many anaërobes, has a rather wide range of variation in morphology according to the circumstances in which it develops.

Typically, in a young culture in meat medium it appears as a Gram-positive rod of varying length considerably thinner than

B. welchii and in size closely resembling *B. sporogenes*; spores are formed with great freedom, and may be found at any stage of development. They may be centrally placed, and in short rods; they may occupy practically the whole extent of the organism, producing barrel-shaped or clostridial forms. The spores are, however, very frequently subterminal or even terminal; the shape of the fully developed spore is often oblong rather than oval, the ends being slightly flattened.

When grown on inspissated serum the appearance may be extremely varied—club-shaped individuals, bulbous, deeply staining types, filaments and the "navicular" or "citron" forms described later may all be present as well as the rods and spores already mentioned. In Noguchi tubes containing fresh tissue these "citron" and club-shaped individuals may also appear.

Apart from these forms just mentioned there is nothing very characteristic in the morphology of *Vibrio septique* in culture which would distinguish it from other anaerobes.

Motility.

In young (twenty-four hour) cultures and in the freshly taken oedema fluid of recently dead animals the organism is motile.

Cultural Reactions.

The cultural reactions are as follows:

Colony.—Surface colonies are semitransparent and rather delicate; the edges may be crenated, and there may sometimes be a tendency to form flat or branching outgrowths; woolly filaments of the tangled thread type are not formed, and the colonies do not grow down into the medium. Surface colonies

Broth.—In plain nutrient broth the growth is rather feeble; the medium becomes turbid in twenty-four to forty-eight hours and, later, the growth sinks to the bottom of the tube. In glucose broth the growth is very vigorous, and the sinking of the organisms is very striking; this occurs after about thirty-six to forty-eight hours of incubation. There is often a lag of about twelve to eighteen hours during which growth may fail to appear, even when a very vigorous proliferation is about to occur within the next twelve hours.

Meat.—In this medium there is vigorous growth and considerable formation of gas. A vivid pink colour is produced which varies in exact hue according to the constituents of the medium (the colour is darker in heart muscle and brighter in skeletal muscle, etc.); after a time the bacteria sink down so that the fluid above the meat becomes as clear as before inoculation. The colour may gradually fade from the meat on exposure to air. There is no blackening and no putrefactive odour, and the meat does not become soft and friable. Meat covered with paraffin is a very good medium for the cultivation of this organism.

Inspissated Serum.—*Vibrio septique* grows freely on this medium in an anaerobic jar; there is no liquefaction, not even the faintest pitting of the surface after weeks of incubation. The morphological range of the bacillus on inspissated serum is very great—club-shaped individuals, deeply staining oval or bulb-shaped types, "citrons," and filaments may all occur. Spores are formed very readily on this medium, and a sealed culture may be left on one side for more than a year without any apparent loss of vitality. The subcultures then made show no abatement of vigour and retain their pathogenicity for laboratory animals.

Alkaline Egg Fluid.—The medium becomes uniformly opaque without the formation of a clot.

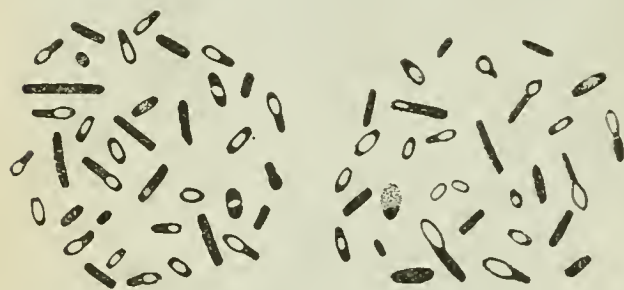


FIG. 1.—*Vibrio septique*, twenty-four to forty-eight hour meat culture. Mag. 1,500.



FIG. 2.—*Vibrio septique*, Noguchi tube culture, showing rods, spores, and a "citron" type. Mag. 1,500.



FIG. 3.—*Vibrio septique*, from muscle of guinea-pig. Post-mortem specimen; "citrons" and club-shaped type are shown. Mag. 1,500.



FIG. 4.—*Vibrio septique*, from liver of guinea-pig, showing "citrons," oval and bulb forms. Mag. 1,500.

require good conditions of anaerobiosis; a serum agar or glucose serum agar medium is favourable to growth. On salicin agar with or without serum the colony is larger, and while it retains its rather translucent character the whole appearance is more robust. Plates should be dried before spreading, as there is a certain tendency for *Vibrio septique* to grow in a uniform surface film instead of in discrete colonies. Good surface colonies can be obtained by stroking a loop dipped in the inoculum over three or four serum agar slopes in succession; one of the slopes generally yields clean discrete colonies which can be picked off.

Deep Colonies.—These have a transparent or semi-transparent appearance; the centre is not very compact, and the edges show coral-like branchings.

Characters in Milk.—When grown in milk, either in an anaerobic jar or in paraffin-covered media in an ordinary incubator, acid is produced, and, finally, after three to seven days, there is clotting, with or without the production of gas. If the sowing has been large and the culture is growing very vigorously the acid and clot reaction may be more rapid and the production of gas more obvious, but the delayed reaction is the more frequent, especially in recently isolated strains.

Noguchi Tubes.—A broth or glucose broth tube into which a piece of fresh liver or kidney, taken under sterile precautions from a rabbit or guinea-pig, has been dropped forms a most excellent medium for the growth of *Vibrio septique*. The citron forms occur in this medium and they afford a useful diagnostic feature.

Sugar Reactions.—These are quite definite, and are set out in the accompanying table; *B. welchii* (one type only), *B. oedematiens*, and *B. chauvei* are also shown for comparison. The medium for these tests may be casein digest broth, to which is added the requisite sugars in concentrations of 1 to 1.5 per cent.; litmus or the alkaline egg fluid, as described by Henry, may be used as indicators. The readings should be made at forty-eight to seventy-two hours. This medium can be used sealed with liquid paraffin. Serum litmus agar slopes made up with the desired sugars can also be used with success but require a good anaerobic apparatus.

Pathogenicity and Animal Reactions.

Vibrio septique is pathogenic for guinea-pigs, pigeons, rabbits, and mice; all the strains dealt with have retained

Table of Cultural Reactions.

Name.	Meat.	Milk.	Inspissated Serum.	Glucose.	Levulose.	Galactose.	Saccharose.	Maltose.	Lactose.	Inulin.	Salicin.	Mannite.	Dulcitol.
<i>Vibrio septique</i> ...	Gas: pink colour; no blackening	Acid: clot after 3 to 6 days	No liquefaction	+	+	+	-	+	+	-	+	-	-
<i>B. welchii</i> ...	Gas: pink colour; no blackening	Acid: rapid clotting with evolution of gas	No liquefaction	+	+	+	+	+	+	+	-	-	-
<i>B. oedematiens</i> ...	Gas: pink colour at first, then bleached	Acid after 4 to 6 days; very slow clotting	No liquefaction	+	+	-	-	+	-	-	-	-	-
<i>B. chauvei</i> ...	Gas: no blackening	Acid: clot after 3 to 6 days	No liquefaction	+	+	+	+	+	+	-	-	-	-

* Variable according to type.

their pathogenicity for these animals, some of them during years of culture under laboratory conditions. There is a certain variability in virulence, due in part to the conditions of growth. The most virulent cultures are twenty-four hour growths in glucose Nognchi tubes, glucose broth cultures of the same period come next, and ordinary broth is the least favourable medium for inoculation into animals.

The infecting dose for the particular type of laboratory animal used must be ascertained.

In some cases 0.1 c.cm. of a twenty-four hour glucose broth culture, or even less, will kill a 300 gram guinea-pig in twelve to eighteen hours; 0.5 c.cm. to 1 c.cm. is generally a lethal dose for a 300 gram guinea-pig, and the minimal lethal dose can be ascertained if desired. A sublethal dose of a virulent culture may be withstood by a guinea-pig without any symptoms, whereas a very slightly higher dose or even the same dose in another animal of corresponding weight will produce death with the typical lesions. Sublethal doses in guinea-pigs do not appear to produce any reaction. I have in no instance observed the recovery of an animal that had shown any symptoms of infection as a result of the injection of this organism. The occurrence of extensive oedema with subsequent recovery, which is so striking a feature of the reaction of guinea-pigs to sublethal doses of *B. welchii*, is absent when *Vibrio septique* cultures are used.

Post-mortem Appearances.

These are as follows:

There is an extensive blood-stained oedema, and a considerable amount of gas is developed in all the muscle tissue involved. The muscles affected have a characteristic deep red colour. There may be a collection of fluid in the peritoneal cavity and in the pericardium; this is not as a rule very evident in guinea-pigs which have died in twelve to twenty-four hours, but is a very well-marked appearance in rabbits which have succumbed to the infection after twenty-four to forty-eight hours. The suprarenal bodies may show a variable amount of redness, but this is not so regular nor so marked as in guinea-pigs which have died from infection with *B. welchii*.

There is no putrid odour. The pale digested appearance of the infected muscles so frequently seen in *B. welchii* infections is not seen with *Vibrio septique*.

B. oedematis in guinea-pigs produces a gelatinous oedema quite colourless, with little or no gas; the muscles involved are pale pink in colour.

Microscopical Appearances.

The microscopical appearances are as follows:

Film preparations stained by Gram's method, made from the muscle of an animal which has died of infection by *Vibrio septique*, show rods and the characteristic citron or navicular forms. They are of very varying length; they have a pale granular appearance, and generally contain a deeply staining portion at one end of the body or at both. Sometimes the granular part may take up the stain with somewhat greater intensity, but there is always a differentiation between the granular part and the deeply staining points. These "citrons" are stages in a type of spore formation that takes place only in the animal host or in the presence of live tissue or in serum. This is not the only type of spore formation which takes place in the host, the ordinary method whereby the spore arises in the rod also occurs. In addition to the "citrons" large club-shaped types which appear to be swollen rods occur—these are not very frequent in muscle; oval or bulb shaped, deeply staining forms, often in short chains, may also be present. It should be noted that if the infection has run a very rapid course and if the post-mortem examination has followed immediately upon the death of the animal the "citrons" and spores may not have been formed at all or may be present only in small numbers. "Citrons" also occur in infections with *B. chauveii*, but are not known in any other type of anaerobic infection. It should be noted that *B. chauveii* has not so far been recorded as infecting man.

Films made from the peritoneal surfaces of the liver show a greater or less number of long snaky chains and filaments. These long filaments are characteristic of a *Vibrio septique* infection; they are not found in infections with *B. welchii* nor with *B. oedematis*. Mice and rabbits show the filaments quite as clearly as guinea-pigs. The citron, club, and bulb forms can be found in the liver as well as in the infected muscle.

Vibrio septique produces septicaemia, and the heart blood taken with aseptic precautions and inoculated into paraffin covered meat medium yields good cultures.

"Vibrio Septique" in Mixed Culture.

Vibrio septique growing with *B. sporogenes* or in mixed culture derived from wounds is extremely difficult to recognize, and even when its presence is suspected it may be a very tedious and lengthy process to unravel it from the other anaerobes present by growing on selective media and plating, etc. The injection of such a mixed culture, either grown in glucose broth for twenty-four hours or from a meat culture, into a guinea-pig or mouse will afford the post-mortem picture described above, and moreover the cultivation of the heart blood in meat medium will often give a pure culture of *Vibrio septique*. Should this heart blood culture not be pure at the first passage the predominant organism will certainly be *Vibrio septique*, and plating or a second animal passage will then purify the strain.

Vibrio septique in these mixed injections into guinea-pigs will outrun both *B. sporogenes* and *B. welchii*, and the animal usually dies of a *Vibrio septique* septicaemia, even when both the above mentioned anaerobes are present in the culture inoculated.

Such a mixed culture destined for injection into an animal should, however, always be freed from *B. welchii* by growing for two or three days in milk and then heating to 80° for ten to fifteen minutes; the heated material should be inoculated into meat medium and (after subculture into glucose broth if desired) then injected into the animal. In mixed culture the dose should be 1 to 1.5 c.cm. for a 300 to 400 gram guinea-pig and 0.25 to 0.5 c.cm. for mice.

Vibrio Septique in Wounds.

Vibrio septique, like other pathogenic anaerobes, may be present in wounds both of recent date and of long standing without causing any symptoms in the patient. It may, on the other hand, be responsible for a serious or even fatal case of gas gangrene. These acute infections usually occur within a few days of wounding, but may arise at any time, especially after operation. One of the strains here studied was obtained from a gas gangrene condition arising from the operative treatment of a wound healed for over two years, but which still contained a very small pocket of pus in the scar tissue.

In an active infection with *Vibrio septique* the organism may be present in the discharge from the wound, in muscle, in the fluid from haemorrhagic blisters, in the skin near the wound, and possibly in the blood stream. A careful examination of films from the muscle, or from the blister fluid, should any have been formed, or from the discharge, may show among other organisms the characteristic "citrons" and deeply staining oval or bulb types; rods with or without spores, will also be present, but cannot be distinguished from other bacilli. The worker should familiarize himself with the *Vibrio septique* types as they appear in guinea-pigs, as the recognition of "citrons," etc., in the films direct from the patient affords a valuable and very rapid diagnosis. The injection of the fluid from haemorrhagic blisters or other exudate into a mouse or guinea-pig will produce the characteristic appearances if *Vibrio septique* is present, and cultures should be made at the same time in meat.

If the animal test is not available more time should be spent upon the examination of films, as that may afford an immediate indication of the presence of the organism; demonstration of the organism in culture even under favourable conditions would not provide a definite diagnosis



FIG. 5.—*Vibrio septique*, from liver of guinea-pig, showing long filaments, etc. Mag. 1,000.

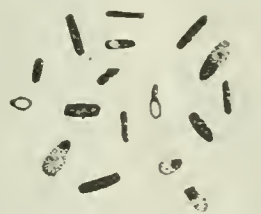


FIG. 6.—*Vibrio septique*: "citrons" from haemorrhagic blister fluid of patient suffering from gas gangrene. Mag. 1,500.

for some days. The absence of citron forms, etc., must not be regarded as evidence that *Vibrio septique* is not present in the wound. *Vibrio septique* appearing in a wound showing an active condition of gas gangrene should be considered as a serious finding, whether accompanied by *B. welchii* or alone.

SUMMARY.

1. *Vibrio septique* is a saccharolytic organism clotting milk in three to seven days, without putrefactive or digestive reaction on meat or inspissated serum. It is a strict anaërobe.

2. Spores are readily formed upon all media. They are oval in shape, and central or subterminal in position.

3. The organism is pathogenic for man. It is also pathogenic for laboratory animals (rabbits, mice, pigeons, and guinea-pigs) both in pure culture and when mixed with other anaërobics.

4. In the animal body the lesions are a blood-stained oedema and deep red colour of the infected muscles. The organism also infects the blood stream.

5. Characteristic morphological types of the organism are found in the muscles; these are "citrons," club and bulb-shaped forms, as depicted in Figs. 2-4, and 6. On the peritoneal surface of the liver long snake-like filaments and chains are formed; these are specific to the *Vibrio septique* type among the pathogenic anaërobics at present known.

6. The citrons and also the deeply staining oval or bulb types may be met with in muscle tissue and in the fluid from haemorrhagic blisters in man in cases of active infection with this organism. This affords an immediate and valuable diagnosis, but a failure to find these types does not constitute evidence that the case is free from an active infection with *Vibrio septique*.

APPENDIX.

Casein Digest Medium.¹

To a 2-litre flask containing 1 litre of tap-water add 20 grams of anhydrous sodium carbonate. Transfer the flask when boiling to a water-bath and add 200 grams of casein, dusting this in gradually to avoid the formation of lumps; then place the mixture in a large Winchester quart bottle, allow to cool down, and add 3 grams of pancreatin with 15 c.c.m. of chloroform. Incubate at 37° C. for five days, shaking vigorously from day to day to break up the crusts that have formed, then add 3 more grams of pancreatin and incubate for ten days longer. After fifteen days' digestion in all the mixture is treated with 400 c.c.m. of N/1 HCl, steamed for thirty minutes to drive off the chloroform, and then filtered. The filtrate is treated with 120 c.c.m. of N/1 NaOH, and its reaction is adjusted to PH = 7.3, using either the hydrogen electrode or phenol-sulphonaphthalein as an indicator in a Marriott scale. The resulting stock broth is diluted with two parts of 0.5 per cent. NaCl in tap-water before use, the reaction being again adjusted if necessary.

The sugars required can be added to this.

Serum Agar Sugar Medium.²

Ordinary agar 75 c.c.m., sterile serum 25 c.c.m., litmus solution 5 c.c.m., to which 1 gram of the required sugar has been added and sterilized by steaming. The medium is made up as for ordinary serum agar.

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TREATMENT AND PROPHYLAXIS OF MALARIA.

BY

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A good many articles on the subject of the treatment of malaria have appeared recently in medical journals,¹ evidently because many men suffering from this disease have been invalided to Europe as the result of the war. A certain amount of apprehension must be felt as to the after-effects of some of the lines of treatment advocated. Time and experience can alone settle the questions raised, but, as a contribution to the subject, I desire to draw attention to a memorandum I wrote for the P.M.O., H.M. Forces in India, in 1901, on the use of hypodermic

injections of quinine in malaria. The method (which was described in a review of the memorandum published in the *BRITISH MEDICAL JOURNAL* of March 29th, 1902, p. 793) has stood the test of time and experience. Since writing that memorandum (about seventeen years ago) I have had no reason to deviate one iota from the dicta I then laid down. Other medical men who have made independent observations on these statements of mine have corroborated them.

As I have had uniformly good results from this treatment, I think it will be useful to give a summary of it, for it seems to have dropped out of mind. I must in the first place strongly insist that the technique for the hypodermic injection must be carried out as laid down, otherwise grave results may occur. It must not be thought that quinine injections can be given hypodermically in the same free and easy way as a hypodermic injection of morphine. In the second place, I wish to make it clear that I do not recommend intramuscular injections, but hypodermic, that is, below the *cutis vera*, and above the fascia of the muscles.

Requirements.

1. An all glass 20 m hypodermic syringe with stout needles, thoroughly sterilized.
2. Saline solution 0.5 per cent., sterilized.
3. A wide-mouthed test tube about 3 in. long, sterilized.
4. Carbolic oil 5 per cent. and some cotton-wool.
5. Pure quinine bisulphate 4 grains.
6. Spirit lamp.

Method of Subcutaneous Injection.

Prepare the patient's flank between the iliac crest and the last true rib by cleansing with soap and water, and then smearing with carbolic oil on wool (I do not like tincture of iodine if it can be avoided).

(a) Put the 4 grains of quinine bisulphate into the sterilized test tube.

(b) Fill the syringe with the 0.5 per cent. saline solution; squirt this into the sterilized test tube to dissolve the quinine powder.

(c) Heat the quinine solution in the spirit flame till it comes to the boiling point.

(d) Fill the syringe with this boiled quinine solution.

(e) Dip the needle into the carbolic oil.

(f) When the solution cools down to about 100° F., pick up between finger and thumb of left hand (with carbolized cotton-wool intervening) a good lump of the *cutis vera* in the flank; plunge the needle in up to the hilt (eyelet downwards) into the subcutaneous tissue; sweep the point of the needle from side to side through the connective tissue, describing the arc of a circle, thus breaking down any small trabeculae, and freeing the point of the needle from any fat globule it may be in, and then inject all the solution into the space thus formed; withdraw the needle quickly; massage the flank with the carbolized cotton-wool to disseminate the fluid as much as possible.

If the above directions are carried out properly, I guarantee that the patient does not feel the uncomfortable sensation of burning or pain; and, strange as it may appear, many of my patients never know when the injection has begun or when ended; in fact, the only remark they make is that they felt me pinching up their skin!

The injection is to be given—the method described being strictly observed on each occasion—once daily for five consecutive days in alternate flanks. In addition, $\frac{1}{10}$ grain arsenious acid should be taken by the mouth, and also 5 grains (only) of quinine well diluted, in the early morning daily; the arsenious acid and the quinine should be continued for a month.

The treatment described is all that is required for an uncomplicated case of malaria, but the complications of malaria may be manifold, such as congested liver and disordered action of stomach and bowels, with loss of appetite and constipation. Measures for the treatment of these conditions on ordinary lines should be taken, but must be regarded as adjuncts to what I call the specific treatment by hypodermic injections of bisulphate of quinine.

For chronic relapsing cases of malaria, with enlarged spleen and liver, the same specific treatment is undertaken, but the five hypodermic injections are repeated every fortnight (together with local treatment of the "ague cake" spleen, by counter irritation producing a mild splenitis, etc.) till the spleen or liver becomes normal.

An important point to which I wish to draw attention is not to overdose the patient with quinine by the mouth, thereby upsetting the digestion and ruining any benefit he

derives from assimilation of his food, which gives him a chance of building up his natural resistance to infections generally, whether malarial or other. It should be remembered that the malarial patient has been robbed of a good deal of his haemoglobin by the parasite, and this has to be replaced by his own metabolism; therefore his *primae viae*—liver and other organs—should be given a chance of doing their duty, and his digestive system should not be upset by heroic doses of quinine by the mouth. It serves no useful purpose, but only intoxicates the patient and every tissue of his body, and does not produce the full parasitocidal action of quinine, weight for weight, against the malarial protozoon.

For the information of general practitioners and accoucheurs I may state that quinine given by this hypodermic method can be safely administered to pregnant women—at least that is my personal experience of many cases, and I have never heard of any untoward event in such cases in the hands of any medical man who has used it in India.

I have never advocated the intramuscular injection of quinine, for the big doses used produce local necroses (so-called cold abscesses) in the muscle; this statement has recently been verified by Major MacGilechrist, I.M.S.,² by a *post-mortem* examination of a case fatal thirty-six hours after such an injection (11 grains of quinine bilydrochloride) into the gluteal muscle. This case serves as an object lesson to those who advocate the administration of quinine by intramuscular injection.

I saw many cases of cerebral malaria in the German East African campaign in the field far remote from the base hospitals (some of them mistaken for cerebro-spinal meningitis), and most of these cases recovered when treated on the lines recommended by me, by hypodermic injections. I have no doubt the intravenous method, as recommended by Sir Leonard Rogers, would produce just as good results, but it is not practicable for sections of field ambulances to carry about the more elaborate equipment for intravenous saline injections, in preference to the simpler and safer equipment for hypodermic administration, especially in the bush of Africa and similar terrain.

Prophylaxis.

As regards the prophylaxis of malaria, I held, as do many other medical men, that the daily dose of quinine is not a prophylaxis against malaria; recent investigations and experiments on this question by Lieut.-Colonel Anderson, I.M.S.,³ on gael populations, showed that quinine as a prophylactic was useless and a distinct waste of public money, for the price now of quinine is enormous.

From a scientific point of view I ask this question: "If you state you are sterilizing a medium (that is, cinchonizing the patient's blood) in order to prohibit the growth of a parasite by daily dosing with quinine, and then find that, after all, this parasite does develop in this medium (through some specially enlisted resistance on the part of the parasite to its environments or any other explanation you like), how are you now going to kill (sterilize) by medication this parasite that has learnt to grow in this cinchonized medium? Are you going to increase the cinchonization of the medium by adding more quinine, and thereby teach the parasite to resist further and remain dormant in this medium till such time as he can regenerate?" Obviously the answer is in the negative. Then why do it? For this is the cause of chronic and relapsing malaria, in my opinion; so the only option apparently left to the physician to cure the case is to poison both patient and parasite by heroic doses of quinine and develop in him some other chronic ailment the result of quinine poisoning, the commonest of which is permanent deafness.

Of course it is understood that occasionally cases of malaria gravidarum occur which have to be tackled heroically to save life, but such cases are not now being considered.

The views here stated will, I know, be criticized by those who advocate doses of gr. xv to xx once weekly on Saturdays, or bi-weekly, on the grounds that they have not thereby "cinchonized the media," but have by this means caught the young parasites already there which would ultimately fulminate into a recognized attack if they were not killed. If this theory is right, and really represents what has actually occurred, then of course the answer is that the

dose of quinine given has been not a prophylactic but a curative dose, and if no malarial outburst occurs an actual infection of the parasite in the medium (blood) has been inadvertently sterilized. But prohibition of the infection, which is prophylaxis, has not been accomplished. Moreover this method (gr. xx once a week) has not kept people immune against malaria, and has therefore failed as a prophylactic.

A further criticism I have heard is contained in the theory that although quinine given prophylactically does not actually immunize the patient against an attack, yet it modifies the toxic action of the parasitic infection, so that only a mild attack is produced—as an anti-typhoid injection acts as a prophylactic. Against this theory I advance my practical experience in the East African campaign. I have never seen so many cases of cerebral malaria, haemoglobinuria (blackwater fever), in all my twenty-eight years' experience in the tropics as I saw in East Africa, yet every one who could was taking quinine prophylactically.

Finally, the only prophylactic medication against malaria for armies in the field, in my opinion and experience, on the ground of practical politics, is arsenious acid $\frac{1}{2}$ gram daily, thereby keeping up the natural resistance of the body generally against many ills, not only malaria. There need be no fear of the cumulative action of arsenic, for the troops very often do not get access to the drug, and a break from the drug can always be arranged for one week every month if necessary. It is easier to stop issuing a drug than to supply it regularly.

A golden rule for tackling the question of malaria for the armies in the field is "arsenic as a prophylactic and quinine as a curative only." Yet this is no new precept, for the Italians have done this years ago.

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EPIDEMIC POLIOENCEPHALITIS.

(SO-CALLED EPIDEMIC BOTULISM.)

BY

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PART II.

IN considering the nature and cause of the present epidemic of cases, many of them presenting paralysis of cranial nerves, which in a recent contribution to this JOURNAL I have designated as polioencephalitis, it is well to bear in mind—in view of the fact that they have been so widely referred to as cases of botulism—that somewhat similar symptoms may occasionally be the result of diverse causes. In both botulism and polioencephalitis paralyzes of cranial nerves are features in common, and Van Ermengem, in his classical paper on the outbreak of botulism in Ellezelles, lays stress upon this point. He states that "in the absence of the previous history" (of poisoning having occurred), "it is impossible to distinguish with certainty cases of botulism from bulbar paralysis (Erb's syndrome), subacute polioencephalo-myelitis, and certain ophthalmoplegias."

Polioencephalitis.

Everybody who has paid attention to the subject now recognizes that there exists an acute primary specific disease affecting the grey matter of the brain, of which sporadic cases are not uncommon. This malady, known as cephalitis or polioencephalitis, was first described by Strümpell in 1884, and, in the form which not uncommonly leads to the development of spastic hemiplegia in young children, is fairly familiar. It is comparable with acute anterior poliomyelitis (infantile paralysis), and, like that disease, often occurs in children, is of acute onset and tends towards recovery. It may or may not be associated with such general symptoms as fever, convulsions, headache, stupor or loss of consciousness, or pronounced irritability. The special symptoms produced by the disease depend, of course, upon the particular region of the grey

matter of the brain involved. For example, polioencephalitis *superior*, which affects the nuclei of the cerebrum and cerebellum, may give rise to marked mental changes, coma, hemiplegia, diplegia, and ataxia, while polioencephalitis *inferior*, which affects the nuclei of the pons and medulla, may cause paralysis of one or other or several of the cranial nerves, and combinations of the two may be met with.

The evidence, both clinical and pathological, goes to show that these affections of the grey matter, whether of the brain or spinal cord, are in reality one and the same disease, and are due to a single factor. Recent researches have demonstrated that this factor is a living contagium, since it has been shown that the contagion can be conveyed indefinitely from monkey to monkey by inoculation, though the organism, which is so minute as to pass through the Berkefeld filter, has not yet been for certain isolated. The two affections may occur in epidemics, in which some members of the same family may suffer from the spinal and others from the cerebral variety. Indeed cases are known in which such eye symptoms as ptosis, ophthalmoplegia, and pupillary changes have been associated with affection of the spinal cord, and the combined condition has been termed polioencephalomyelitis.

Stephenson¹ relates a series of sporadic cases over a considerable period in which affection of the ocular muscles was the most prominent feature, and to his excellent introductory remarks on the nature of the disease I am much indebted. The majority of his cases were in children, and consisted mainly of simple oculomotor paralysis, most commonly of the external rectus alone, but in others of various branches of the third nerve. There were associated symptoms in eight cases out of twenty-eight, such as fits, unconsciousness, sleepiness, and loss of energy.

The cases that have been recently described accord in general with this description, and with that of other writers, of sporadic cases of polioencephalitis, and the case that I saw in 1913, which was generally recognized to be of this nature, would unhesitatingly be classed among the epidemic cases had it occurred in the past few months. One feature in that case, which at first made me distrust the diagnosis of polioencephalitis and favour that of cerebral tumour, was the presence of optic neuritis, but I subsequently found that this, though not a common feature, yet was occasionally met with in polioencephalitis, and it is paralleled by two, at any rate, of my present series. Most of the cases are subacute, the paralysis mostly develops suddenly, but in several certain phases of the paralysis were delayed for days or even weeks. The pupils have not been dilated, nor has there been paralysis of accommodation in any of my cases.

Botulism.

Now with this picture of polioencephalitis let me compare that of botulism, mainly relying on Van Ermengem's description.² In his cases, which occurred after eating an infected ham (raw after the foreign fashion), there was a sudden onset of symptoms after a period of twelve to twenty-four or at most thirty-six hours. These consisted of thirst and a feeling of constriction of the throat, soon followed by paralysis of accommodation and other ocular paralysees. The paralysis for near vision and the dilatation of the pupils were constant symptoms, and double vision, squint, and ptosis, were usually met with. In the more severe cases difficulty of swallowing, or inability, supervened, with loss of voice, constipation, and retention of urine. Fever and disturbance of sensation or consciousness were absent, only in the very last stage of fatal cases did coma or a mild delirium develop. The fatal cases were characterized by gradually advancing respiratory and cardiac failure due to progressive bulbar paralysis. About one-third of those who had eaten the poisonous food died in a few days; another third, after more or less severe symptoms, got well; the rest, who had only taken very small amounts of the infected flesh, remained free from symptoms. In those that recovered the ocular paralysis began to improve after two to three weeks, though in some it was several months before the paralysis of accommodation got completely well. The general weakness, which was a characteristic feature, also took several weeks to recover.

Differential Diagnosis.

The likeness between the two conditions rests upon the occurrence of ocular paralysis in each, particularly the double vision, squint, and ptosis. Apart from this striking feature difference outweighs resemblance. In botulism the onset is sudden, with urgently acute symptoms coming on after partaking of some often definitely recognizable poisonous article of diet. There is dryness and a sense of constriction in the throat, with dilatation of the pupil and loss of accommodation; there is great bodily prostration but no psychical change, and there is early death or early cessation of the acute symptoms with slow convalescence. In the cases in this epidemic and in other cases of polioencephalitis these features are in the main wanting. The onset is either subacute, or the development of the paralysis may be spread over several days, or even weeks. There is no feeling of constriction of the throat, no dilatation of the pupil, no loss of accommodation. There has been little bodily prostration in the cases I have seen, except in those cases of polioencephalitis *superior* in which the grey matter of the cortex is involved, when it is associated with psychical changes—sleepiness, lethargy, coma, and delirium—which are absent in botulism. The majority of cases recover; if not, the fatal ending comes after a course of two or three weeks or more, though occasionally earlier.

But the most striking difference lies in the mode of occurrence of the outbreaks of the two conditions. In botulism, almost without exception, the disease occurs in groups, varying in their numbers but including most of those who have partaken of the infected food. Since sometimes the infection of the food is limited to certain parts, those who eat of the non-infected parts may escape; but though the groups may thus be diminished in size it remains true that botulism, as hitherto recorded, is a "group infection." On the other hand, it is notable that in the present epidemic in no instance, so far as cases have yet been published, has any group infection occurred. The cases have been widely scattered, sometimes two in the same neighbourhood, but no two even in any instance in the same house. This might be thought to prove too much, since it might be supposed to disprove the infectious, and hence infective, character of the disease. But it is well recognized that epidemics of other diseases commonly show similar features. It is often very difficult in the case of diphtheria, enteric fever, or cerebro-spinal meningitis to trace the mode of infection in the numerous scattered cases that constitute an epidemic, but it is now proved that the symptom-free carrier or the individual with minimal and unrecognized symptoms plays an important part in such diffuse epidemics. Polioencephalitis in its epidemic form is known to fall into the same category; and such, I take it, is the true explanation of the apparently unrelated cases in the present epidemic. It is a truism of epidemiology that if the movements of contacts are only worked out with sufficient care and thoroughness, indirect connexions between apparently isolated cases in epidemics of the above diseases can almost always be established.

It is probably true that during the last few months, during which the supply of fresh meat has been so greatly restricted, more tinned food has been eaten in this country than ever before. That tinned food may occasionally become accidentally infected with the *Bacillus botulinus* is a well-known fact, but, as I have argued, the incidence of this epidemic is quite different from the incidence of such attacks of botulism as would thereby be produced. The only conceivable way in which such a distribution could occur would be on the supposition that there was a widespread infection of tinned food with a bacillus of attenuated virulence. In such a case there might be extensive ingestion of small doses of its toxin so small that only those with special susceptibility to its action, or those who ate specially freely of tinned food, showed symptoms of poisoning. This is exactly what is met with in ergotism, in which widespread epidemics may occur, due to poisoning of the bread with the ergot of rye, and in the slighter epidemics, when the degree of contamination is low, the disease may pick out sporadic victims in the midst of general immunity. However, though I mention this possibility, there is no reason to suppose that it represents the facts of the present epidemic, since, so far as investigation has gone, there is no evidence at present of any widespread or even occasional

infection of tinned food with *B. botulinus*. Moreover, certainly one of my patients has disclaimed ever having taken tinned food at all; and its relative infrequency among soldiers from abroad who have lived very largely on tinned food is significant.

Prognosis and Treatment.

It remains now to speak of the prognosis and treatment. In the majority of cases recovery occurs, though there is more likelihood of a fatal termination in those cases of the *superior* type; even here, however, recovery may quite unexpectedly take place. But what is of importance is that we are able to hold out to the patient's friends the possibility of recovery from a condition which, but for our knowledge of its nature, we should otherwise regard either as absolutely fatal or as the commencement of a chronic incurable disease, since different cases may simulate cerebral tumour, tuberculous meningitis, or the onset of disseminate sclerosis. The recovery from paralysis may be incomplete, as in poliomyelitis; it is too soon to speak for certain of this in the present epidemic, but some, at any rate, have made a full recovery.

Treatment seems to have little influence on the course of the disease, but, as in poliomyelitis, we should resort to complete and absolute rest in the dark, with or without the use of bromides or other nerve sedatives, during the stage of onset. Urotropin has been given, from a belief in its antiseptic effect on the central nervous system, and salol for a similar action on the nasopharynx, by which route infection is supposed to reach the brain. Lumbar puncture should be performed and, if necessary, repeated in cases which show the more marked signs of intracranial pressure, such as severe pain in the head, vomiting, and unconsciousness. Later, tonic treatment, such as iron, arsenic, strychnine, and cod-liver oil, with fresh air, are likeliest to restore the vitality of the damaged nerve centres.

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THE "THICK DROP" METHOD FOR THE DETECTION OF SCANTY SPIROCHAETES IN THE BLOOD.

BY

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(ATTACHED R.A.M.C.)

(From the Military Laboratory, Jaffa, E.E.F.)

In the majority of cases of Palestine relapsing fever (among British troops) which have come under my notice the spirochaetes have been throughout present in the blood in very scanty numbers. This has entailed a prolonged search before the diagnosis could be established; frequently a negative finding has had to be returned, as films cannot be carefully scrutinized in their entirety when a large number have to be examined. On several occasions the spirochaetes have first been demonstrated, after considerable search, at the second or even third time of examination of the particular case.

I have therefore made use of the "thick drop" method, which has proved of much service, not only saving time, but also frequently enabling me to report as relapsing fever, cases in which the examination of an ordinary blood film yielded no result.

To prepare a thick drop for examination, a small drop of blood is placed upon a clean slide. The drop should be about as large as is required for making a good-sized smear and should be spread out a little (with the needle) so as to cover an area about $\frac{3}{8}$ in. in diameter. Too thick a drop is not an advantage, as it is difficult to lake (dehaemoglobinize) completely, and more fibrin is present. The drop must be allowed to dry thoroughly, and before proceeding to lake it, may be gently heated by passing it over a flame two or three times.

There are several well-known methods of laking the thick drop. I have made use of two: (a) Distilled water, or (b) acidulated methyl alcohol.

(a) A few drops of distilled water are poured upon the thick drop, and the slide is gently agitated to and fro. The water may be renewed until the blood has completely lost its colour.

The process takes four or five minutes, depending on the thickness of the drop.

(b) Methyl alcohol acidulated is used in the proportion of 10 or 12 drops of HCl to 50 c.cm. of methyl alcohol; the procedure is the same as in the former case, but the laking takes rather longer. After the colour has been extracted, the drop is well rinsed with distilled water and dried.

Dehaemoglobinization is more complete and rapid by the former method, and there is less formation of fibrin. But unless the greatest care is exercised, the drop, or portions of it, are apt to be removed from the slide, in spite of complete drying (as there has been no proper fixation previously). If distilled water is used, and the preparation is to be stained by gentian violet, it is advisable, after carefully draining off the water when the laking is complete, to pour on a few drops of methyl alcohol, for a minute or two, to fix the preparation to the slide.

The thick drop may be stained by the Giemsa or Leishman method, or with aniline gentian-violet; the last gives excellent results with spirochaetes, the intensely blue-stained parasites standing out well from the surrounding elements. Aniline gentian-violet is used in the proportion of 9 parts of aniline water to 1 part of alcoholic gentian-violet, the stain being left on for twenty seconds or so. The preparation is then well washed with distilled water, by which means the requisite degree of extraction and differentiation can be obtained, and finally dried.

Where examination is desired for suspected malaria or relapsing fever, it is a useful plan to have the slide sent in with both a fair-sized film (extending, say, over two-thirds of the slide) and a thick drop (on the other third) upon it. For staining, the smear can be separated from the drop by drawing a line with a grease pencil across the slide, between the two. The smear is stained by the Giemsa or Leishman method, and if no malarial parasites are found, nor spirochaetes quickly seen, the thick drop is used. If it is desired to examine the drop also for scarce malarial parasites (for example, crescents) as well as spirochaetes, the second method of laking is to be preferred, as distilled water is very liable to disintegrate malarial parasites; and in this case the Giemsa or Leishman method must be used for staining.

INTERNAL DERANGEMENTS OF THE KNEE-JOINT.

BY

H. BRAMWELL, T.D., LIEUT.-COLONEL R.A.M.C.,

DIVISIONAL SURGEON, MILITARY HOSPITAL, TIDWORTH.

DURING the past eighteen months several patients have been sent to the Military Hospital, Tidworth, on account of painful cicatrices on the inner side of the joint. In all cases the cicatrices were the result of linear incisions down the inner side of the joint in line with the patella and ligamentum patellae, over the prominent part of the internal condyle. The history was of an operation performed for some internal derangement of the joint. This has been especially noticeable in cavalrymen.

Since September, 1916, it has been found advisable to segregate the knee cases, owing to the large number, principally the result of football accidents, but at one time a number of injured knees followed trench training. There has been on an average at least twenty cases in hospital daily suffering from derangements of the knee-joint the result of injury.

They practically all suffered from traumatic synovitis, some simple, the others with complications.

The most frequent complications were:

Firstly: Rupture of some fibres of the internal lateral ligament, indicated by acute pain on pressure over the inner side of the internal condyle.

Secondly: Looseness with partial or complete dislocation of the internal semilunar cartilage, indicated by pain on pressure over the site of the anterior end of the cartilage, inability to completely extend the joint, and a history of "locking."

Thirdly: A general stretching of the ligaments was the only objective symptom, besides the synovial effusion. This applied more especially to the posterior cruciate ligament, which is the one ligament of the joint put on the

stretch, both in full extension and full flexion, the latter movement being only checked by the contact of the leg with the thigh.

Fourthly: Loose bodies in the joint, such as chips of cartilage, pedunculated outgrowths, and occasionally pieces of shell.

Treatment.

For simple traumatic synovitis, with marked effusion, probably sometimes haemorrhagic, it has been found that three weeks in hospital is sufficient to enable the patient to be sent as a convalescent for a short period of gentle exercise with massage if necessary. Cases with internal complications have required longer. Out of the total of some 550 to 570 cases which have passed through the hospital during the eighteen months, about twenty-five have been operated on. Only men under 40 years of age, with decided symptoms, and likely to be rendered efficient for A 1 class, have been chosen for operation, and only after careful treatment has failed to improve the condition.

Colonel Jones's method of bloodless operation with tourniquet has been used in every case. The incision has been made down the inner side of the ligamentum patellae, to half an inch below the superior margin of the tibia, then curving inwards to a little beyond the outer margin of the internal lateral ligament. The incision is crescentic. A flap of skin is dissected up and wound cloths applied; with a fresh knife a similar flap of the capsule, but slightly smaller in circumference, is dissected up reaching to the anterior lower margin of the internal lateral ligament. This exposes the terminal branches of the anterior internal articular vessels; these are tied, arteries and veins. The synovial membrane is then divided transversely just above the internal semilunar cartilage. This gives a very full exposure of the joint, the crucial ligaments being fully exposed.

When the offending part has been removed, the synovial membrane is stitched with fine catgut, the capsule drawn down and stitched separately, and finally the skin. By this means three layers of tissue in a valvular manner guard the opening into the joint, and the skin incision is well below the internal condyle of the femur and away from all pressure when riding.

Among the cases operated on, in two cases the internal semilunar cartilage was found completely dislocated and lying between the condyles of the femur. In the majority it was the internal semilunar cartilage which was at fault, but in several only pedunculated outgrowths from the infrapatellar pad, or edges of the cartilage, were the cause of the trouble.

This method of operation has proved satisfactory; only one case gave the least trouble, but eventually recovered completely, and the patients have expressed themselves as thoroughly satisfied. Incisions over the condyle of the femur, in whatever direction, always give rise to annoying symptoms afterwards.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TUBAL ABORTION WITH CYSTIC DEGENERATION OF THE OVARY ON THE SAME SIDE.

Mrs. G., aged 25, a healthy woman (2-para; previous labour normal, two years ago), on the morning of August 12th, 1911, felt sick and out of sorts and suffered from dysuria. Towards evening acute pain in the abdomen set in suddenly and she vomited frequently; there was also a show; she thought she was about eight weeks pregnant, having missed two periods. I saw her about 10 p.m., and found her looking rather pale with a rapid (105) but strong pulse, temperature normal. There was a very slight red vaginal discharge; but, as it had really amounted to little all day, and examination showed no signs of unavoidable abortion, I prescribed opium 2 grains. She soon went to sleep, but woke up about 4 a.m. with violent abdominal pain, intense sickness, and an increase of the vaginal discharge. At 5 a.m. I found her suffering acute pain in the abdomen, principally referred to the umbilicus, and the back. Pulse 120, rather small and compressible, but regular; temperature 99°, and respiration 30. Her expres-

sion was anxious, and she said she felt she was going to die.

Examining under chloroform, I found the uterus slightly enlarged, but not quite of the normal size in an eight weeks' pregnancy. It lay in the natural position, but there was a mass behind and to the left, continuous with it and filling a great part of the left pelvic cavity. Extra-uterine gestation was diagnosed, and the patient was removed to the Cottage Hospital. Meanwhile $\frac{1}{2}$ gr. heroin and $\frac{1}{10}$ gr. trinitrin were given hypodermically. Upon opening the abdomen I found the pelvic cavity full of dark blood clot; when this was removed an ovarian cyst was seen about the size of a large orange on the left side, while the left tube curled round behind it with its fimbriated end underneath the cyst. I could find no rupture in the course of the tube, which was almost normal in appearance, but slightly enlarged; upon freeing it from under the cyst I found the fimbriated end much enlarged and broadened out, coated with congealed blood, and oozing slightly. An ectopic gestation had apparently been lodged in the fimbriae and had aborted into the abdominal cavity, but I think the pressure of the cyst lying on the top of the fimbriae had to a great extent prevented the dangerous haemorrhage usual in such cases; in fact no fresh bleeding could be seen until the fimbriae had been freed, and then only a slight oozing. The tube and the cyst were removed, the peritoneal cavity cleaned, and the patient put back to bed. Except for a vaginal discharge containing some membrane (no complete cast came away), which was probably decidual, and which ceased in a week, the patient made an uninterrupted recovery, and left the hospital one month after the operation. The right ovary was also degenerated and of about the size of a large walnut, but as it had some healthy ovarian tissue, I did not remove it. The woman gave birth to a healthy female child thirteen months later. I searched the blood clot carefully, but could not find the ovum; the cyst showed no signs of torsion, and was easily removed.

I think this case of a tubal abortion and ovarian cyst on the same side must be somewhat rare. The evidence seemed to point to the left ovary having been useless as an organ of generation, so that the ovum in this pregnancy must have come from the right ovary to the left tube; the fact that conception took place in the fimbriae almost proves the peritoneal method of transit. I am also persuaded that the pressure of the cyst hindered what might have been a critical haemorrhage. The patient's menstrual history previous to this had always been normal in quantity, of twenty-eight days' type, and four days' duration, and her urine at the time contained no abnormal constituents.

Perrith. ROBERT B. JOHNSTON, F.R.C.S., M.R.C.P.E.

AVULSION OF THE EYEBALL IN BIRTH.

THE note in the JOURNAL of April 6th, p. 415, recalls a case to which I was called by a midwife on April 1st, 1904. The woman, aged 33, had an extremely prominent sacrum, rendering the antero-posterior pelvic diameter very small. In the early stage of each of her two previous pregnancies she had suffered from retention of urine from incarceration of the gravid uterus needing manual replacement. The first child, labour at the eighth month, was delivered alive by forceps; the second—a breech presentation—was still-born owing to delay in getting the head past the sacrum. I found that she had been in labour for twenty-four hours; the vertex presented high up with the occiput to the right. Chloroform was administered and forceps applied at once; after very strong traction the child was delivered with the right eyeball lying on the cheek; the inner canthus was torn, the tear extending about one inch across the lower lid along the margin of the orbit, and the superior oblique muscle could be seen torn away from the trochlear. I replaced the eyeball and put three or four fine sutures on the lower lid and canthus; the wound healed by first intention.

There can, I think, be no doubt that the eye was in this case not injured directly by the forceps, which were applied without difficulty, as the marks of their pressure were quite plain on the left temple and right occipital region. The cheek, which was rather prominent, appeared to have been lodged against the prominent sacrum, and the friction in delivery tore through the skin and

avulsed the eyeball. The boy is now a strong, healthy lad with an outwards and upwards squint, and the eye useless for effective vision though not blind. At a later pregnancy the mother, by the advice of a London physician, underwent Caesarean section and ovariectomy, but unfortunately died about the tenth day from intestinal obstruction.

Burton-on-Trent.

J. H. JOYCE, M.B., B.C.

ABSENCE OF SPLEEN.

THE following case, in which the spleen was completely absent, appears worthy of record:

J. F., of black race, aged 56, male, was admitted to the Public Hospital, Georgetown, Demerara, British Guiana, by Dr. T. B. MacQuaide, suffering from a strangulated right inguinal hernia, on October 8th, 1917. Death occurred on the same day, and at the *post-mortem* examination performed by me the spleen was found to be completely absent; there were no splenuculi to be found, nor was there any splenic artery.

On reference to Adams's *Principles of Pathology*, second edition, I find that at that date, 1911, about thirteen cases only were on record of complete absence of the spleen.

F. G. ROSE,

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British Guiana.

Reports of Societies.

ETIOLOGY OF TRENCH FEVER.

At a meeting of the Society of Tropical Medicine on May 17th Major BYAM, R.A.M.C., gave particulars of the experiments tracing the infection of trench fever to the louse, carried out, as already announced, for the Trench Fever Investigation Committee, of which Major-General Sir David Bruce, K.C.B., F.R.S., is chairman. As has been shown by previous reports in the *JOURNAL*, the prophylaxis of the disease centres round the destruction of lice. The disease is of considerable importance to the army owing to the invaliding it produces, and may become of importance to the civil population if infected men returned to homes where lice existed. In a paper by McNee, Renshaw, and Brunt, published in this *JOURNAL* on February 12th, 1916, it was shown that trench fever was a distinct disease and that the infection could be transmitted from one person to another by injections of blood. Evidence was also adduced that the infective agent was to be found in the blood corpuscles themselves. McNee and his colleagues were unable to say how the disease was transmitted in nature, but they pointed out that it was either contagious from man to man, or, what they thought more likely, was carried by one of the common flies or parasites found in the trenches. The evidence for suspecting the body louse was conflicting when the Committee took the matter up. Attempts to transmit the disease by means of the bites alone of infected lice proved entirely unsuccessful. The infectivity of the excreta was then tested. Major Byam described a series of experiments in which excreta were collected from entomological boxes containing 576 lice, all of which had been fed on many cases of recent trench fever during the previous twenty-seven days, the last feed being six hours before the time of collection. The excreta obtained were dry and in fine powder. A volunteer having been obtained, a small surface on the outer side of the arm was lightly scarified, so that blood was just drawn. A portion of the collected excreta was dusted into this blood and rubbed up into a paste with a sterilized needle. The scarified area was allowed to dry, and the shirt sleeve pulled down without any dressing. Eight days later a febrile illness, believed to be undoubtedly trench fever, commenced, and a relapse followed on the sixth, seventh, and eighth days. The experiments were repeated on other volunteers, and the conclusion was clear that the excreta of lice fed on trench fever patients were capable when applied to an abraded skin area of producing a febrile illness similar in its relapsing character and general clinical picture to the disease known as trench fever. The disease was transmitted by intravenous injection of the whole blood from one of the volunteers

suffering from trench fever; the unfiltered serum, after being centrifugalized, did not transmit the disease. Experiments with lice known not to have fed on cases of trench fever were negative, so that it was concluded that trench fever is not a disease caused by normal lice. Cultures of the excreta from these normal lice experiments showed what was taken to be the organism described by Jungmann as the organism of trench fever. This diplococcus would therefore appear not to be the cause of the fever. Major Byam summarized the results of the experimental work as follows:

1. The whole blood from febrile trench fever cases up to the fifty-first day of disease, when injected intravenously, was capable of reproducing the disease. *The incubation period in such infections varied greatly—from five to twenty days.*
 2. The virus as contained in the circulating blood was destroyed by the addition of distilled water in large quantities.
 3. The bites alone of infective lice did not produce trench fever.
 4. The excreta of infective lice when applied to a broken surface of skin readily produced trench fever. *The incubation period of such infections was remarkably constant and averaged eight days.*
 5. The excreta of lice fed on trench fever patients were not infective till the expiration of not less than eight nor more than twelve days from the commencement of the feeding on trench fever blood, thus indicating a developmental cycle in the louse or a period during which the organism multiplied.
 6. Once lice were infective they remained so till at least the twenty-third day from the date of their infection.
 7. The virus of trench fever, as contained in infected louse excreta, was capable of withstanding drying at room temperature, exposure to sunlight, keeping for not less than sixteen days, and heating to 56° C. for twenty minutes.
 8. 80° C. for ten minutes destroyed the virus, which was therefore not a spore-bearing organism.
 9. The bodies of infected lice when crushed upon the broken skin were capable of producing trench fever. When lice became so infective remained to be determined.
 10. Infection probably did not take place by the mouth or by inhalation.
 11. The excreta of lice were not normally capable of producing trench fever.
 12. Trench fever infected lice did not transmit the disease to their offspring.
 13. There was a possibility of some attacks of trench fever being afebrile throughout.
 14. The percentage of individuals naturally immune to trench fever was exceedingly small.
 15. Old age was no bar to infection.
 16. Such immunity as resulted from an attack of trench fever was not permanent, and might only persist for so long as the individual showed evidence of the disease.
 17. Even as late as the seventy-ninth day of disease a patient's blood might remain infective, and be capable of infecting lice fed on such a patient while febrile.
 18. The different varieties of trench fever resulted from differences in the persons infected rather than in the source of infection.
- As the experiments had been but few, some of these findings might be modified by future work.

Major-General Sir W. G. MACPHERSON, D.D.G.M.S. France, speaking of experiments carried out in France, said that it had been found that the injection of blood from cases of trench fever produced the disease within one week, and the disease could be carried on through several cases. Lice infected from trench fever cases had been fastened on to the arms of men in such a way that the arm could not be scratched, and trench fever had been produced in these men in three weeks or longer. If clothes were placed in pits in which the temperature was raised to 50° to 70° C., the lice they contained were completely destroyed. Men of a platoon should be freed from lice simultaneously. Powders had proved very unsatisfactory.

Colonel Sir W. B. LEISHMAN, A.M.S., also spoke of the work carried on by the Trench Fever Committee in France. The conclusions arrived at were similar to those of Major Byam. The incubation period in France in the case of inoculation directly from man to man was five to seven days. The period was longer when the blood was taken later in the disease or during relapses. In louse bite inoculation the incubation period was three times as long as in the case of blood inoculation. The organism was probably a protozoon, its cycle of development taking five to seven days. The virus was evidently present in the plasma, as the plasma experiments of the American party were positive in 100 per cent. of cases. This suggested that it was extra-corpuscular, and not connected with the blood cells. The mode of transmission was through the excrement, as shown by Major Byam, but late experiments in France appeared to prove

that infection could be caused from the bite of lice apart from excreta. Dried deposit from the urine of three trench fever cases had been rubbed into a scarified place on the arm, the patient developing trench fever in consequence.

Deputy Surgeon-General T. W. BASSETT-SMITH, C.B., R.N., said that the French had inoculated guinea-pigs with blood taken during the pyrexial period. A form of fever similar to that of trench fever was noticed, and spirochaetes had been found in blood taken from the heart during a period of slight rise of temperature. The spirochaetosis was allied to other forms; the immunity reaction was not the same as that of ictero-haemorrhagic fever.

Colonel G. SIMS WOODHEAD, R.A.M.C., asked how long the food material in the blood took to pass through the alimentary canal of the louse, and whether any experiments had been carried out by injecting bone marrow or fluids from it. The organism appeared to carry on its pathological work in the blood, bone marrow, spleen, and sheaths of blood vessels. There seemed to be evidence that the sympathetic system was especially involved, as evidenced by the vomiting, disordered action of the heart, and pyrexia. The myalgia appeared to be referred pain due to excitation of nerve cells in the spinal cord.

Captain ARNOLD RENSHAW, R.A.M.C., said that in twenty cases the bone marrow had been examined but no spirochaetes or any parasites had been found. The hole drilled in the bone marrow promptly relieved pain, which was probably due to pressure.

Major BYAM, in reply, said that food took about three hours to pass through the alimentary canal of the louse and was excreted at the next feed. Experiments showed that the poison appeared to affect the vagus system, and later the sympathetic system. "Referred pain" had been relieved by tapping the spine.

Reviews.

POLIOMYELITIS.

THE prevalence of acute poliomyelitis in America, and especially the great epidemic of 1916 in New York, has stimulated much investigation into the epidemiology and etiology of this disease. Flexner and Noguchi's description of globoid bodies as the causal factor was received with some doubt, and Rosenow and others argue in favour of a streptococcal origin. With this conflict of opinion in mind, it is interesting to compare the views expressed by RUHRÄH and MAYER¹ in their recent work on poliomyelitis in all its aspects with those of Draper of the Rockefeller Institute for Medical Research, whose monograph on the subject was reviewed in our issue of February 2nd, 1918 (p. 152). The two works were published almost simultaneously, and agree on the important etiological questions that the globoid bodies are the most probable causal factor, and that the disease is primarily a general infection which may, but often does not, attack the central nervous system. Ruhräh and Mayer make full use of the work of the Rockefeller Institute, and quote the results of the inquiry made into the epidemic of 1916. The object of the authors, indeed, has been to collect into one volume, from the enormous and ever-growing literature of the subject, the information they themselves wanted. In the chapter on the history of the disease the title-page and a number of figures from Jacob von Heine's monograph of 1840 are reproduced; the earliest mention of the disease as now understood is given from Underwood's *Diseases of Children* in 1784.

The authors adopt the classification of the scheme of the New York Health Department, distinguishing the abortive or non-paralytic, the rare ataxic group, the cortical, and the ordinary spinal form, the last including the meningitic, bulbar, bulbo-spinal, polyneuritic, and ascending varieties. The question of the relation of Landry's ascending paralysis to poliomyelitis is well considered; the conclusion reached is that most of the cases regarded as Landry's disease are poliomyelitis, although other conditions may possibly give rise to the same clinical picture. A special feature of this valuable handbook is the detailed account of the treatment,

especially of the exercises; this part is successfully illustrated by numerous photographs. The authors have certainly produced a most useful work.

APPLIED BACTERIOLOGY.

DR. BROWNING and his collaborators of the Bland-Sutton Institute of Pathology have gathered a fund of useful and original information in the realms of present-day bacteriology within the pages of a small volume with the title *Applied Bacteriology*.² Perhaps the most important single subject dealt with is the brilliant-green-telluric-acid method for isolating organisms of the enterica group, a method resting upon a firm basis of experiment, and adopted with success by other bacteriologists. Dr. Browning quotes an instance in which this method yielded a pure culture of typhoid bacilli from a mixture of two typhoid bacilli with 2,800 other viable organisms. The brilliant-green inhibits the ordinary colon bacilli and the telluric acid the inositol-fermenting group of organisms, both of which are bug-bears of the bacteriologist when making examinations for organisms of the enteric group. It is a pity that Ebrlich's rosindol reaction has not been more widely applied to save both time and expense in the differentiation of lactose non-fermenting organisms. It is, however, quite likely that the brilliant-green method is the best for its purpose; it has been worked out with meticulous accuracy by Dr. Browning and his collaborators. The Widal reaction after inoculation, upon which Mackie and H. G. Wiltshire did invaluable work, is relegated to a minor position in the recognition of enterica organisms, partly on the ground that inoculation agglutinins largely overshadow pathological agglutinins. The "absorption" method is recommended as being more accurate. Accurate measurement is preferred to Dreyer's method of counting drops, and the calibration of pipettes is carefully described.

Dr. J. F. Smith of Glasgow contributes two useful chapters, one on the bacteriological identification of diphtheria, and the other upon the uses of telluric acid in isolating diphtheroid germs and streptococci. The suppression of the *Bacillus pyocyaneus* and the *Urobacillus septicus* by thallium acetate is likewise a discovery of considerable practical value. The chapter on coloured antiseptics strikes new ground. Proflavine and acriflavine are held to be the most effective antiseptics in the presence of serum, and thus to be more powerful than the halogen group, such as chloramine-T. Their use is recommended both generally in sepsis and for turning the scale in early septic peritonitis. The Rideal-Walker antiseptic coefficient is deprecated on the valid ground that it holds good only for short periods of time. Ultra-violet radiation has not been found by Russ and others to possess a practical differential antiseptic value, as Dreyer formerly believed. The Abderhalden reaction in pregnancy is also discredited.

The antibody content of the blood, it is maintained, is not necessarily a gauge of the degree of immunity; this view is at first sight a trifle disconcerting, but it may conceivably be due rather to failure to detect the antibodies than to their absence. The specificity of antibodies of the colon group of organisms, a fact inferred by Emery and other workers in vaccine-therapy, is here established by the result of careful experiments.

The final chapter, on tetanus, contains much of clinical interest, and is very complete. The remainder of the book is purely bacteriological. We rather deplore Dr. Browning's poor opinion of the "crude mass of British (tetanus) statistics," amongst which, in point of fact, Golla's are a model of careful analysis. Dr. Browning wisely emphasizes the importance of giving antitetanic serum intravenously as well as intraspinally in early developed tetanus, the subcutaneous route being too slow in these cases to be effective. That certain horses may be "carriers" of tetanus is a fact which will be novel to many.

This book will be of great practical value to the bacteriologist, but is rather beyond most clinicians or administrators, to whom it is also inscribed. It is based upon a rich fund of well-digested facts.

¹ *Poliomyelitis in all its Aspects*. By John Ruhräh, M.D., and Erwin E. Mayer, M.D. Philadelphia and New York: Lea and Febiger, 1917 (Med. 8vo, pp. viii + 297; 118 figures and 2 coloured plates. 3.25 doles.)

² *Applied Bacteriology: Studies and Reviews of Some Present-day Problems for the Laboratory Worker, the Clinician, and the Administrator*. Edited by C. H. Browning, M.D., D.P.H., with contributions also by W. Gilpin, R. Gullbransen, T. J. Mackie, S. Russ, J. F. Smith, and L. H. D. Thornton. London: Henry Frowde, and Hodder and Stoughton, 1918. (Cr. 8vo, 291 pp.; 4 illustrations. 7s. 6d. net.)

RADIOGRAPHY OF THE SKULL.

In his *X-Ray Atlas of the Skull*,³ Dr. RUSSELL GREEN points out that bony landmarks are so numerous, and vary so much according to the angle at which a radiograph is taken, that the correct interpretation of skull radiographs is a very difficult matter. To overcome these difficulties of reading he has made radiographs of a dry skull from various angles, and has increased the opacity of certain parts by devices such as outlining sections with wire, covering structures with tinfoil, injecting sinuses with bismuth paste, and so on. Confining these processes to one side and then making a radiograph, the result affords a definite elucidation of the meaning and cause of the radiographic appearances.

The *Atlas* consists of a large number of very beautiful plates of these radiographs, showing on the one side the usual x-ray shadows and on the other side the various areas differently coloured. Across each coloured area is printed the name of the bone responsible for the shadow. Each plate shows also a photograph of the head, and of a skull, in the position in which the radiograph is taken.

The work is the result of the author's difficulties whilst attached as an x-ray expert to a large military hospital; and it was undertaken in order to make the localization of foreign bodies in and about the skull a certain and easy proceeding. He claims that the only additional apparatus required is a pair of compasses and a millimetre rule; and that, given good lateral and antero-posterior skiagrams, it is possible to give a definite opinion as to the relation of a foreign body to some salient bony point. In addition to a full description of each plate, the *Atlas* contains a short but concise description of the special radiographic apparatus required, and the author's method of marking the skin spots, as well as a table for reading off the distance of foreign bodies from the plates where a constant distance of 50 cm. from target to plate and a constant tube shift of 10 cm., are used.

Apart altogether from the mere localization of foreign bodies, the series of diagrams set out in this manner should be a valuable addition to the library of every expert x-ray worker, as affording an easy and rapid means of reading off the various shadows and areas in any given radiograph of a head.

"NEWEST TREATMENT."

THE *Handbook of Practical Treatment*,⁴ described as a volume on "the newest treatment," is supplementary to the work which began to appear in 1911 under the guidance of the late Drs. J. H. MUSSEN, sen., and A. O. J. KELLY, two enthusiastic physicians who unfortunately rest from their labours, though the editorial names remain the same. The reader is here presented with accounts of new developments in treatment since the original articles were written, and as a natural result some of the articles are quite short. Others, however, have been rewritten or are quite new, and special mention may be made of Surgeon-General W. C. GORGAS's contribution on yellow fever, Drs. R. COLE and CHIEKERING's account of typhoid fever, Dr. T. JANEWAY's review of the modern treatment of diabetes, Dr. ROWNTREE's description of renal therapeutics, and of Dr. HOMER F. SWIFT's account of auto-salvarsanized serum in cerebro-spinal syphilis. Drs. W. H. PARK and C. KRUMWIDE, jun., have written a clear and sane article on vaccines and serums, and there is an admirable account of the specific therapy of pneumococcus infections by Dr. A. R. DOCHEZ, dealing with antipneumococcus serum, the result of vaccines which he finds do not carry conviction, and ethylhydrocuprein, called optochin for short and trade purposes, which has an encouraging future but the drawback that it may cause temporary blindness and deafness. The only British contributors are the late Sir LAUNDER BRUNTON and Sir CLIFFORD ALLBUTT, who from his ripe experience pleasantly discusses the present state of our knowledge about digitalis, summarizes his experience of the soldier's heart, and says of angina pectoris that, whatever view be taken of its nature, it should be treated

on the lines of aortic aneurysm, by complete rest in bed for some weeks or months. In conclusion, it may confidently be said that this work fulfils its promise.

NOTES ON BOOKS.

WE have received the thirty-fourth issue of the *Year Book of the Scientific and Learned Societies*⁵—a most useful work of reference compiled from official sources. While a few scientific societies have been in abeyance during the past year of war, others have come into being, and the number of papers read fell little short of the average of recent years. As usual, a section is devoted to the principal medical societies. We cannot find any reference to the Medical Research Committee, though a list is given of the medical staff of the Local Government Board.

We have inadvertently omitted to mention that the sixteenth edition of Dr. HALE WHITE's *Materia Medica*⁶ has been published and has undergone various modifications to meet new conditions; in particular, it now contains an appendix setting out the various regulations affecting prescribing that have been issued as a result of the war, and attention is very emphatically drawn to the necessity of the reader making himself acquainted with them. The first edition appeared in 1892; the numerous editions that have been called for since then are convincing proof of the practical merits of the book.

Dr. LESLIE THORNE THORNE has issued a new, fifth, edition of his small handbook on *Nauheim Treatment in England*.⁷ The text has been rewritten, and the book enlarged by the addition of chapters on arterio-sclerosis and high blood pressure, angina pectoris, heart strain, irritable heart and Graves's disease, and one or two other topics. The book is of a practical character, and includes descriptions of the exercises recommended as well as of the baths.

The pictures for Part II of *British Artists at the Front*⁸ are provided by Sir John Lavery, A.R.A., and are chiefly concerned with the naval bases. They include striking sketches in colours of the shipyards and the big ships and the mine sweepers in harbour, but there are some notes of aerodromes and one of tanks in the making, all done with the artist's strong feeling for form.

⁵ *Official Year Book of the Scientific and Learned Societies of Great Britain and Ireland*. Thirty-fourth annual issue. London: C. Griffin and Co., Ltd. 1917. (Demy 8vo, pp. 342. 5s. net.)

⁶ *Materia Medica: Pharmacy, Pharmacology, and Therapeutics*. Sixteenth edition. By W. Hale White, M.D., Lieut.-Colonel R.A.M.C.(T.). 1918. London: J. and A. Churchill. (Fcap. 8vo, pp. xii + 716. 7s. 6d.)

⁷ *The "Nauheim" Treatment, in England, of Diseases of the Heart and Circulation*. Fifth edition. By Leslie Thorne Thorne, M.D. 1918. London: Baillière, Tindall, and Cox. (Cr. 8vo, pp. vii + 160; 92 figures. 5s.)

⁸ London: Country Life, Ltd. 1918. 5s. net.

BRITISH EQUIVALENTS FOR GERMAN MEDICAL SUPPLIES.

I.

THE outbreak of war stopped the ordinary sources of supply of some of the material and appliances used in medicine. The principal disturbance was among the synthetic products derived directly or indirectly from coal-tar. Before the war what are termed "fine" chemicals were largely of German origin, "heavy" chemicals were largely British, though not to the same preponderating extent. Whatever shortage has arisen in "heavy" chemicals has been due principally to Government demands, not to the lack of normally sufficient supplies. In soda salts, for example, which are products of the "heavy" chemical trade, there has been nothing like famine. So far as "fine" chemicals are concerned, the German share in the preparations used in medicine amounted almost to a monopoly, as it did also in photographic developing agents and in many dyes. Even such substances as iron salts, iodine, and cyanide were supplied in part by Continental houses, but in the case of these articles after the outbreak of war the British manufacturers were able to meet demands from their own resources. It was different with some of the very complex compounds. A few synthetic drugs, such as chlorbutol, had been made by British houses in pre-war days, and Franco produced synthetic adrenalin, but among the more important drugs which were, we believe, not manufactured in this country were antipyrin, aspirin, salicylic acid, phenacetin, chloral hydrate, phenolphthalein, saccharin,

³ *X-Ray Atlas of the Skull*. By A. Russell Green, M.B., B.S., Lond., M.R.C.S. Eng. London: Longmans, Green, and Co. 1918. (Med. 4to, pp. 27; 5 coloured plates. 10s. 6d. net.)

⁴ *A Handbook of Practical Treatment*. By many writers. Edited by John H. Mussen, jun., B.S., M.D., and Thomas O. Kelly, A.M., M.D. Vol. IV. Philadelphia and London: W. B. Saunders Co. 1917. (Roy. 8vo, pp. 1000. 30s. net.)

veronal, sulphonal, trional, eucaïne, and novocain, together, of course, with the salvarsan compounds. Most of these were exclusively made in Germany, and the value of the imports of these products was placed at over a million a year. With regard to other pharmaceutical preparations the case was less difficult. For some years opium alkaloids and quinine, and more recently caffeine, strychnine, and emetine, had been produced in this country, some of them on a large scale, even for export purposes, and others, like cocaine and theobromine, in small aggregates; altogether a good many compounds were available. Germany, however, was a larger manufacturer of all these bases except morphine, and it was in Germany that many of the rarer alkaloids were prepared. Atropine, homatropine, and eserine were probably exclusively German.

Under the stimulus of war many British firms started experiments and produced chemicals and galenicals to replace German-made preparations, until, first in respect to one class of products and then to another, the country became self-supporting. A start was made on salicylic acid and its compounds, and one firm was manufacturing salicylic acid early in 1915, and by the middle of 1916 a sufficient supply of salicylates and acetyl-salicylates was assured. This was followed by work on atropine sulphate, which now figures in the manufacturing list of more than one British firm. Among articles previously wholly or mainly of German origin but now produced in this country are absolute alcohol, butyl-chloral hydrate, paraldehyde, lactic acid, homatropine, phenacetin, saccharin, salol, tribromophenol bismuth (xeroform), potassium permanganate, novocain, and salvarsan. A British fine chemical industry has been established, and medicinal products of purely British manufacture now have a wide range, and cover organic antiseptics, antipyretics, sedatives, local anaesthetics, and diuretics. Many of these preparations are not substitutes for the German products if the word "substitute" denotes something different and possibly inferior; they are identical in chemical constitution, and are utilisable for the most part in the same manner and in the same dosage as the products they displace. In some cases they are even better than the original because the standardization is higher; this is true more particularly of the alkaloidal productions. To duplicate the extremely efficient German drug industry is no small achievement, amid all the embarrassments of war conditions, for it has to be remembered that many of the preparations depend upon the by-products and intermediate products of other chemical processes. The achievement was only possible because British manufacturing chemists had been accumulating experience before the war, familiarizing themselves with laboratory equipment, and accustoming their minds to the habit of research. The scientific foundations were already laid, and when the emergency arose the commercial superstructure was quickly added.

The value of this preliminary work was to be proved when, on the stoppage of the German supplies of salvarsan, a licence was granted by the Board of Trade to Burroughs, Wellcome, and Company for the manufacture in this country of these preparations under the name of "khar-sivan" and "neokhar-sivan," and to Poulenc Frères, of Paris, for the sale in Great Britain (through the agency of May and Baker, Limited, of London) of the same products under the name of "arsenobenzol-billon" and "nov-arsenobenzol-billon." In spite of their distinguishing trade names, these products are chemically identical with salvarsan and neo-salvarsan. The licence granted by the Board of Trade was subject to the condition that all samples of the drugs should be submitted to biological tests by an authority approved by the Board; the policy of the Medical Research Committee, the authority chosen, was outlined in the BRITISH MEDICAL JOURNAL of April 10th, 1915 (p. 649), and records of experience in the practical application of the new equivalents have been given in later issues.

In addition to these products, Burroughs, Wellcome, and Company have prepared antifibrin, which was the first of the antipyretic drugs to be discovered in Germany thirty years ago, hexamine, phenacetin, beta eucaïne hydrochloride, and various glycerophosphates, also salts of atropine, cocaine, hyoscyamine, hyosine, homatropine, eserine, pilocarpine, and tropacocaine, all of them previously obtainable chiefly or entirely from Germany. A

further achievement has been the elucidation of the chemistry of the alkaloids of ipecacuanha. The constitutional relationship between emetine and cephaeline has been investigated in the firm's experimental laboratories, and the synthesis of emetine is the direct result. This firm has a materia medica farm at Dartford which seems likely to have an important influence upon the creation of a standard herb supply. Here not only are aconite, belladonna, digitalis, and hyoscyamus grown on a large scale, but experiments with plants other than indigenous are being carried out. It is commonly supposed that the soil and climate of Britain are unsuitable for alkaloid-yielding plants. The difficulty has probably been over-estimated, but in any case, with the resources of the British Empire to fall back upon, there seems no reason why we should not be pharmaceutically self-supporting, and independent of the German syndicates which, while deriving few medicinal plants from their own country, controlled drug supplies grown in various parts of the world. The *Hyoscyamus muticus* of India and Egypt is said to yield 1 per cent. of alkaloid, and the sufficient importation of this plant should be of assistance.

Three interesting products in definite substitution for similar articles previously obtained from Germany have been brought out by Allen and Hanburys. The first of these is thiosinamin salicylate, under the trade name of salicylsin, which is made up for hypodermic injection, and is similar to Merck's fibrolysin. Another of the equivalents brought out by this firm is designed to take the place of bromural. It is brom-iso-valeryl-urea, commercially named dormigene, containing 35.9 per cent. of bromine. Allen and Hanburys have also produced a bacteriological peptone to take the place of Witte's peptone. This product, called eupepton, is a fine, buff-coloured powder, almost odourless, and in the opinion of bacteriologists is equal to the peptone formerly supplied from German sources for the preparation of a nutritive medium. Another manufacturing chemist who has been successful in preparing various equivalent preparations is Dr. W. Martindale of New Cavendish Street, London. Upon his list are chloralamide, bromine, and iodine compounds of albumin, benzonaphthol, and sodium barbiturate (the equivalent of sodium veronal); latterly it has become a question of making organic chemicals directly or indirectly required for war purposes, and among these he names dimethylglyoxine, benzidine, thiosinamin, tribromophenol bismuth, emetine bismuth iodide, phenol-sulphone-phthalein, and others. Along a different line of investigation Dr. Martindale also deserves some credit for introducing a modest industry by the production of compressed moss in sheet form. After twelve months' work in the experimental stages he was able to secure this absorbent dressing, which is specially valuable in view of the shortage of cotton and gauze, in a form equal to, if not better than, the German article, and entirely obtained from British-grown moss.

We cannot attempt to enumerate all the fine chemicals which have issued from British works laboratories during war years. Burgoyne, Burdidges and Company of East Ham have now a list of thirty-four medicinal products which they are manufacturing. These include hexamine (urotropine), calcium lactate, anethol, eucalyptol, cocaine nitrate, and a number of acids and salicylates previously obtained from Germany. A similarly lengthy list, the principal items of which are again hexamine and calcium lactate, and phenacetin, aspirin, and lanoline, as well as salvarsan and neo-salvarsan, is that of Evans, Sons, Lescher and Webb, Limited, of Liverpool.

(To be continued.)

DR. W. HIRSCHLOFF, speaking at a medical meeting at Königsberg, said that the blood pressure was raised after a flight, particularly in men over 30. The amount of haemoglobin and the number of the red cells were invariably found to be increased in men who had been flying for some time. The lymphocytes also were more numerous. Flying provoked no organic changes in the heart other than those associated with athlete's heart. Another speaker suggested that the reason why mountain climbing might induce certain symptoms at an altitude of only 3,000 metres, whereas the airman did not suffer till he had reached a considerably greater altitude, was that the airman had not exerted himself much in getting to this height.

British Medical Journal.

SATURDAY, MAY 25TH, 1918.

PRECAUTIONS AGAINST THE SPREAD OF MALARIA.

It is very well known that malaria used to be endemic in certain parts of England, and although the general belief is that it died out at some time during the last century, it has never been conclusively proved that it might not persist on a very small scale in certain particularly favourable areas. Some seventeen years ago Nuttall, Cobbett and Strangeways, in the course of a survey of certain parts of England, not only found *Anopheles* in districts where ague formerly prevailed, but also in parts as to which they could obtain no record of the disease at any time in the past. They concluded that the occurrence of ague was not so much a matter of the geographical distribution of *Anopheles* as of the numbers present in a district. They attributed the occasional occurrence of ague in certain districts to infection of *Anopheles* by a malarious subject coming from some other country. From that time until military operations took British forces into the near and middle East nothing occurred to direct attention to the subject. Since then it has become necessary for the authorities in England, and also in France, to give attention to the risk of the re-establishment of endemic foci.

Towards the end of 1916 the return of many men invaded with malaria led Sir Alfred Keogh to take steps to obviate the risk, and as a result of conferences with experts it was decided to concentrate soldiers infected with malaria at special malaria hospitals in the United Kingdom. A little more than a year ago Mr. Macpherson was able to state in the House of Commons that centres for the treatment of malaria had then been established in each command, or eight in all, and that officers with experience of the disease had been placed in charge of them. It was anticipated that in spite of all precautions indigenous cases might arise, and this happened in England during the summer of last year, a small number being reported both among the troops and the civil population in the south, but especially in the south-east of the country.

In view of these facts the Army Medical Department communicated with the Local Government Board, and subsequent inquiries have been carried out jointly by the two departments. Preliminary communications were addressed to medical officers of health, and inspections were made. General instructions for the treatment of malaria cases, both in hospital and outside, were issued by the War Office; they were to the effect that all men infected with malaria should be given 60 grains of quinine weekly, and should be provided with bottles of quinine tablets to carry about with them, partly in the hope of preventing relapses, and partly to prevent the spread of the disease from malaria carriers to healthy persons. Soldiers suffering from malaria in places where mosquitos abounded, if they could not be sent to special malaria hospitals or otherwise removed from the district, were collected in huts protected against the entry of the insects. In

the malaria hospitals cases were similarly protected when this was considered necessary, the opinion being that protection from mosquito bites, together with persistent dosing with quinine, would suffice to check the spread of malaria from the military cases in such localities. In addition much work was done in the way of clearing and oiling pools and watercourses. Recent surveys have shown that *Anopheles* occur in small numbers during the summer all through the United Kingdom, but probably, it is considered, usually in such small numbers as to reduce the danger of the spread of malaria to an almost negligible quantity.

Early this year further conferences were held; a new memorandum was issued by the War Office, and several officers, including Captains A. Macdonald, O'Connor, and Parsons, R.A.M.C., and Lieutenant Edwardes, have been put on special duty to visit the most dangerous areas in order to supervise the military measures which have been taken, and to give expert advice and assistance. The Local Government Board has taken steps to ensure that malaria is made notifiable in localities known to be, or thought likely to become, infected. The army has in force a general system for the immediate notification of cases of malaria coming into the United Kingdom from abroad, and records are kept of the ports where such cases disembark and the places to which they go on leave or are stationed when on duty or in hospitals. The civil medical officer of health in an area specially affected can thus be informed when such a case enters his district in order that its subsequent course may be watched. Regular monthly reports sent in by medical officers of all units and military hospitals are collected, tabulated, and studied. The organization now set up provides for the close supervision of all former foci of malaria in England, and if new foci are discovered machinery adequate to deal with the matter is available. In all this the War Office is working with the Local Government Board; the Board's medical department now includes two inspectors who formerly had wide experience of malaria in India—Lieut.-Colonel S. P. James, I.M.S., and Lieut.-Colonel Wilkinson, I.M.S. They are available to give advice on the measures required by the civil authorities.

So far this year no new cases of indigenous malaria have been reported. We understand that the Local Government Board has in preparation a memorandum on the whole subject and that its publication may be expected within the next few weeks.

TUBERCULOSIS OFFICERS AND THEIR WORK.

THE national determination to overcome one great evil in the shape of autocracy and military domination has not had any serious effect upon the other national effort to suppress the unseen but equally deadly evil known as tuberculosis. The army of tuberculosis officers with their assistants of both sexes obtain no mention in the newspapers, and the results of their work can only be judged by the official reports issued for the information of the councils or other bodies by whom they are employed. No great victories can be recorded, but the gradual spread of knowledge and experience into the homes of those who are the unconscious centres of infection, and the gradual weeding out of the dangerous elements, cannot fail to be exercising an influence for good over a very wide area. In most of their reports the tuberculosis officers, especially those working in large towns,

point out the need for closer co-operation between the panel doctors and the tuberculosis centres.

In his report for the borough of Wigan the tuberculosis officer calls attention to the undoubted fact that cases of anaemia, indigestion, wasting and general asthenia are too often glossed over by a soothing diagnosis, although tuberculous in origin. He makes the suggestion that all cases so certified for insurance purposes should be examined at stated intervals at the tuberculosis centre, if certificates are frequently renewed. By such means the true condition might be detected and the high percentage of cases seen for the first time with advanced disease correspondingly lowered. The induction of artificial pneumothorax has been found to be of remarkable value in a few suitable cases without widespread adhesions, and relief has been given which could not have been attained by any other known means. Instances of this are recorded by the tuberculosis officer for the Soke of Peterborough. The results, however, are often disappointing owing to the extreme difficulty of diagnosis of the exact conditions within the thoracic cavity. Even with the best assistance of *x* rays it has not been found possible to avoid occasional mishaps.

The important question of dealing with tuberculous or suspected children in schools is discussed at length in the March number of the municipal report of the Tuberculosis Sanatorium in Chicago, a city in which the whole subject has been attacked very vigorously. Systematic examination has detected a very considerable undercurrent of the disease in family life, wholly unsuspected by the victims and their friends. The assembling of suspected children at a tuberculosis centre, where they are of necessity brought into contact with actual sufferers, is properly deprecated and a system of regular school inspection by tuberculosis officers advocated. Parents do not raise objections to such inspection, which would appear on all grounds to be the more satisfactory proceeding and can be maintained as part of the regular school routine.

Apart from these special points, it must be noted that the same complaint is traceable throughout all the official reports—namely, that notification is too often delayed until the curative stage has been passed. One reason for this delay is to be found in the mistaken idea that a positive diagnosis is not warranted until bacilli appear in the sputum. Much subsequent misery is caused by lack of courage to face unpleasant facts, and if the individual alone were to be regarded he might well be left to take the consequences of his cowardice; but in the case of tuberculosis the interests of the individual must give place to those of the community in which he lives, and his medical adviser, whether he be acting in a private or a panel capacity, should refuse to aid in the suppression of the truth.

THE CONTROL OF THE MEDICAL SERVICE OF THE ARMY.

ONE of the curious anomalies produced by the war is the fact that for the past three and a half years the control of the Army Medical Service as a whole, except in France, has been in the hands of an officer who throughout has been "acting." The reason is that Lieut.-General Sir Arthur Sloggett, the official chief of the service, who took up office as Director-General A.M.S. on June 1st, 1914, has since October, 1914, been abroad in immediate command of the medical affairs of the British armies in France. The regulation term of office for the Director-General of the Army Medical Service is four years, but it has been not uncommon to extend the term by a

further year, and within the next week or two we shall know whether this practice is to be followed on the present occasion or whether the present acting officer, Lieut.-General Goodwin, is to be confirmed forthwith in his appointment as Director-General A.M.S. In either case, however, no change in the directorate of medical affairs in France need necessarily ensue. Sir Arthur Sloggett, we imagine, is far too keen a soldier to desire to lay down his responsibilities until the war is over, and we do not anticipate that the Army Council will invite him to do so, for Sir Arthur Sloggett is one of the Generals who have not only made good, but more than good; his administration, in short, has been characterized throughout by a high level not only of foresight, but also of adaptability to the varying circumstances of the war. Of this point the latest news we have heard from France serves as an apt illustration. An advisory body to control and direct medical research has been created. Progress in medical affairs has all along been rapid in the British army in France, because the desirability of taking full advantage of civilian experience has been thoroughly recognized, and the British medical authorities in that scene of war have made it their duty to see that scientific ambitions shall not be checked more than military needs render absolutely necessary. As a result, an increasing number of medical officers have felt encouraged to endeavour to solve the problems presented by wound treatment and disease prevention, and consequently the number of research centres that have arisen in France has little by little become quite large. In some instances their work has overlapped; in some, owing to ignorance of what others are doing, workers have gone over ground already explored; and in others rival projects for research have been put forward. It is to remedy these drawbacks that Sir Arthur Sloggett has created the new council, which will not, however, lessen the responsibilities or importance of the council whose institution by him early in the war we mentioned at the time. That body deals with any questions on which the D.G.M.S. British Armies in France, thinks it desirable to seek the considered opinion of a body consisting in equal numbers of men whose experience has been mainly civilian and of men whose experience has been mainly military. The new body will deal solely with the co-ordination and control of medical research. Its creation appears to us to be a further example of Sir Arthur Sloggett's happy capacity for seizing on the nodal point of any of the multiple problems that present themselves when a huge number of professional men are suddenly turned on to work which is familiar to them in many aspects but new to them in others. It is a capacity which in Sir Arthur Sloggett's case is combined with a talent of almost greater value—namely, that of making men see things from other peoples' points of view, and thus securing cohesion and loyal co-operation between hundreds of men all very differently trained, and all entitled in civil life in various parts of the world to consider themselves leaders and experts. The net result of the two capacities is that not only has the professional work in France been done on thoroughly scientific lines, greatly to the benefit of the British soldier and of the repute abroad of British medicine, but it has also been done by men who, for the most part, are satisfied with their lot, so far as any man can be satisfied so long as the persistence of war necessitates separation from his family and his private interests. These are among the reasons which enable us to look at the position of medical affairs in France with much satisfaction, whether we regard them from the point of view of parents and relatives of the British soldier, or from the point of view of the medical profession. They are also among the reasons why both parties would, we believe, not only regret any change in the directorship of medical affairs in that country, but very definitely resent it, unless brought about by absolutely unavoidable circumstances.

THE LIQUOR CONTROL BOARD.

THE fourth report of the Central Control Board (Liquor Traffic) deals with the year ending March, 1918. About nineteen-twentieths of the population of Great Britain live in areas covered by the Board's orders. The restrictions upon the output of liquor are imposed by the Food Controller, and during the year under review the amount of alcohol allowed to be sold was 50 per cent. less than in the previous year, but owing to the progressive dilution of spirits and the decline in beer gravities the bulk supply did not decrease proportionately, the reduction in the case of beer being under 30 per cent. In the areas affected by the Control Board's regulations the convictions for drunkenness have fallen to little more than a fourth of the figures for 1913; the reduction in the case of males was from 89,915 in 1913 to 20,801 in 1917, and among females from 28,352 to 9,415. It is thought that the convictions might have been fewer but for the fact that in some localities the supply of alcoholic beverages has been uneven, so that queues and what is called "rush" drinking, with their attendant evils, have tended to alternate with periods during which alcoholic beverages could not be obtained. The Control Board hopes that the methods that have now been put in force, with the co-operation of representatives of the licensed trade, will ensure a more even distribution. The decline in convictions was rapid down to the end of 1916 and continued during the earlier months of 1917 with no great diminution in rate; since then there has been a further improvement, which, though very slow and slight and not quite general, would appear to be still in progress. Contemporaneously there has been a notable fall in the number of deaths due to or connected with alcoholism; the number of deaths attributed to cirrhosis of the liver declined from 2,215 males and 1,665 females in 1913 to 358 males and 222 females in 1917. At the same time the deaths from alcoholic diseases other than cirrhosis fell from 1,112 males and 719 females to 358 males and 222 females. The number of cases of suffocation of infants by overlying, which have been shown to have some association with indulgence in alcohol, also declined, from 1,226 in 1913 to 704 in 1917. Cases of attempted suicide also show a notable decline, but, as was pointed out in a note on the Registrar-General's last report, published in our columns on May 4th, it is probable that the causes of this decline are complex, and that it cannot be attributed directly to decrease in drinking. The constructive part of the Board's work has made considerable progress. The number of industrial cauteens has risen from 570 in 1916-17 to 780 in 1917-18, the total number of persons catered for being nearly a million. The allowances from the earnings of controlled establishments which the Board has undertaken to recommend in respect of the provision of cauteens amount to over a million and a half sterling. Full financial details of the trading are not yet available, but it is estimated that after meeting all the usual trading charges—that is, after providing for rents, repairs, licence duty, rates and taxes, managerial and architectural staff, and depreciation on plant, furnishings, and utensils, the annual return on the capital commitments of the Board in its direct control undertakings has been at the rate of about 15 per cent. This, however, is a subsidiary matter, for the Board's primary object is not to make a pecuniary profit, but to control the liquor traffic as part of an effort towards the successful prosecution of the war. The reduction in drunkenness and its effects has been so considerable that there is now only a relatively small margin for further improvement. In conclusion the Board points out that whether the improvement that has been achieved shall prove permanent or temporary depends on unknown factors, particularly on future legislation and administration. The Board's experience, however, suggests that there is no such inherent difficulty in the problem as to render impossible the permanent maintenance of the present level of sobriety.

POST-GRADUATE TEACHING IN NEUROLOGY.

THE establishment of neurological hospitals throughout the country for the treatment of soldiers suffering from shell shock and war neuroses is an important step in reconstruction, for it is recognized that a large number of soldiers who are incapacitated by war neuroses can be cured by suitable treatment. The essential condition for treatment is correct diagnosis. The earlier the treatment of these functional neuroses, especially of the hysterical manifestations, is undertaken the easier is a cure effected. It has been calculated that the disorders of one-third of the whole of the unwounded soldiers discharged from the army belong to the group of functional neuroses. Hitherto men presenting hysterical contractures and paralyses of the most varied kind have been discharged and are receiving pensions, and unless something is done to prevent this a great and unnecessary waste of power and expenditure of public money will occur, for the longer these functional disabilities are permitted to remain the less curable they become. Dr. Addison, the Minister of Reconstruction, is fully alive to the importance of this matter, and recognizes that it is not only doctors serving in the army who are likely to have the care and treatment of these cases in the neurological hospitals, and who, in the interest of the state, require instruction in the methods of diagnosis and treatment, but also civilian medical men, especially panel doctors, among whose patients there will be for years to come large numbers of soldiers suffering with uncured neuroses or relapses brought on by emotional shock of a varied kind, even such as domestic and financial worries. The war indeed will leave for a considerable time a widespread emotivity in the population, which, unless care is taken, will be fostered by misplaced sympathy and reinforced by the idea of a pension for life. For this reason, Lieut.-Colonel Mott, after a consultation with Dr. Addison and the Director-General A.M.S., proposes to institute at the Maudsley Hospital a course of instruction to a limited number of civilian doctors and temporary R.A.M.C. officers interested in war neuroses and shell shock. The course will consist of lectures and practical instruction in the causation, diagnosis, prognosis, and treatment of functional diseases of the nervous system due to the war. Members joining the course will be afforded the opportunity of examining cases, writing reports thereon, and treating them under the direction of Lieut.-Colonel Mott or officers associated with him. Application to attend the course should be made to Brevet Lieut.-Colonel F. W. Mott, Maudsley Neurological Clearing Hospital, Denmark Hill, S.E.5. Fuller details will be decided later after a consultation with those wishing to attend the first course of instruction.

FACTORS IN RESISTANCE TO TUBERCULOSIS.

UNTIL recently the idea that resistance to infection need not entirely depend on specific immune bodies was largely ignored in experimental work, but certain investigators now believe that tuberculin has no special significance, and its beneficial effects no relation to active immunization, that the actual demonstration of an increase in antibody concentration in tuberculosis is not necessarily associated with favourable clinical results, and that recovery does not depend on the presence of specific antibodies. One of the factors influencing the resistance to tuberculosis, and bearing on treatment, is the ferment-antiferment content of the blood, and this new and rather intricate subject is considered in an interesting manner by Petersen.¹ The caseation in tuberculous formations is due to the inhibition of autolysis, which normally occurs in inflammatory products, by the unsaturated lipoids derived from the tubercle bacilli. These lipoids act as antiferments, and if they are removed or saturated with iodine the caseous material can be digested by trypsin. The

¹ W. F. Petersen, *Arch. Int. Med.*, Chicago, 1918, xxi, 14-38.

absorption of caseous material is thus prevented by anti-ferment action, but if the anti-ferments are diminished locally, or the ferments increased in the blood serum, autolysis occurs, and toxic bodies pass into the circulation. In pregnancy the lipoids of the blood and the anti-ferment content increase; the ferments also increase, but to a greater degree, and therefore begin slowly to digest the fibrous capsule of tuberculous foci, and so to liberate toxic bodies; but the patient feels well. At delivery the anti-ferments rapidly diminish, but the ferment content remains high, so that rapid digestion of the fibrous tissue around tuberculous material occurs, with liberation of toxic bodies and bacilli, thus favouring the spread of the disease. This corresponds with the clinical course of tuberculosis in connexion with pregnancy. In menstruation the proteolytic ferments of the blood increase, and in tuberculous women fever about the menstrual period may be explained as due to digestion of the fibrous capsule around caseous foci and passage of toxins into the blood. Thus, in pregnancy and the menstrual cycle, the activation of latent foci and the temperature changes do not bear any relation to antibody reactions. Tuberculin is not a native protein, but largely a mixture of polypeptides with a toxic action, and Petersen suggests that a subcutaneous injection of tuberculin damages some of the cells and thus raises the ferment content of the blood so that digestion of a tuberculous focus, if present, occurs and liberates some toxic bodies; in a non-tuberculous person nothing happens because there is no focus to be affected. Changes in the ferment-anti-ferment content of the blood may be produced by the injection of various vaccines and foreign proteins, and it therefore appears that the general reaction to tuberculin is not, strictly speaking, specific, though the cutaneous reaction is related to a definite sensitization. Any good done by tuberculin treatment is not due to an increase in antibodies but to a non-specific action—namely, alteration of the ferment-anti-ferment balance in the blood serum as in protein shock therapy. Although clinical experience shows that small doses of tuberculin are advisable, there is some evidence that occasional larger doses, with constitutional effects, may in certain instances be of greater benefit than the continued use of the minute doses commonly employed. It is interesting to note that the highly unsaturated fish oils, milk, cream, yolk of eggs, and phosphorus, empirically given in tuberculosis, increase the anti-ferment content of the blood, and so would inhibit proteolysis of the fibrous tissue surrounding tuberculous foci.

ANTIMENINGOCOCCIC SERUM IN CEREBRO-SPINAL FEVER.

In an epidemic of 208 cases at Camp Jackson, South Carolina, Dr. Herrick,¹ acting on the generally accepted view that at first cerebro-spinal fever is a septicaemia, has on logical grounds gradually evolved the treatment by large intravenous injections (200–600 c.c.m.), combined with free drainage and relatively small intrathecal injections of serum. The existence of the pre-meningitic stage of systemic infection lasting from a few hours to three days could be made out clinically in about half the cases. This modification of the treatment aims at the sterilization of the patient's blood before the meninges have become affected, and is thus an advance on the usual methods which have been concentrated on the later stage of meningitis, when, as Flexner insisted, subcutaneous and intravenous injection of serum have very little influence as compared with the intrathecal method. No bad effects were noticed from the large quantities of serum employed, indeed, a suspicion was aroused that small doses did some harm, and certainly the results were not so good as with large quantities. Mild cases of the disease do equally well with either intravenous or intrathecal injections of

serum; thus, of 36 cases by intrathecal injection one only proved fatal, but the intravenous injection of large quantities of serum reduced the mortality of the severe cases from 62 to 19 per cent. Among 16 cases of various degrees of severity treated by small intravenous (under 50 c.c.m.) and intrathecal injections the mortality was 43.2 per cent., whereas among 79 similar cases given large intravenous injections and average or smaller intrathecal injections the mortality fell to 16.4 per cent. Of the four clinical groups of cases—the abortive, the ordinary, the severe, and the fulminating—the most brilliant results were obtained in the severe cases; the patients often came rapidly out of coma with such remarkable recession of the symptoms that they were free from danger in two days, and anxious to be up on the fourth day. As a result of the treatment the patients have the cheerful optimistic air common in a convalescent surgical ward, subacute and chronic cases with cachexia, delirium, and other distressing symptoms are rare, the duration of the disease is shortened, the complications diminished, and the mortality lowered. In connexion with the free spinal drainage, which formed part of the treatment, attention should be directed to Cobb's method of obtaining a flow of cerebro-spinal fluid when lumbar puncture brings away a few drops only and the foramina may be obstructed. Under chloroform narcosis, which obviates muscular rigidity, the head is manipulated in order to break down adhesions about the foramen magnum and the floor of the fourth ventricle. This method, which might suggest danger from traction on the vagus roots, was often successful in starting a flow of cerebro-spinal fluid, and in one instance restored respiration after it had failed.

HORSE-FLESH AS HUMAN FOOD.

As every one's attention is now necessarily drawn to questions of food, and as criticisms on the rations naturally follow, perhaps raising the suspicion that the meat is the flesh of the horse, the issue of Dr. Leo Price's pamphlet¹ on the subject is appropriate. Horse-flesh was used as food by the early cave men in Northern Europe, and widely and extensively since in various parts of the world. Statistics for Great Britain are not available, but in 1910 Paris and its environs consumed twenty-nine million pounds of horse-flesh, and in 1909 over 150,000 horses and nearly 7,000 dogs were slaughtered in Germany for food. The prohibition by the Mosaic law, and by the papal decrees in the seventh and eighth centuries, together with sentimental feeling, is probably responsible for the prejudice against the use of horse-flesh as human food; but it is wholesome, nutritious, and economical. Deep red in colour, bordering almost on brown or black, horse-flesh shows a bluish sheen on exposure to the air, and when refrigerated turns black after fifteen days. One of its qualities is a slight sweet taste, but toughness is not a necessary characteristic any more than of any other meat. It contains a relatively large amount of glycogen; taurine is said to be present, and the fat is peculiar in its high content of olein and its very low melting point. When used exclusively, horse-meat may cause diarrhoea from the presence of a substance, soluble in alcohol, consisting of 75 per cent. lecithin and 25 per cent. neutral fat and cholesterol, and removed in the meat broth when the horse-flesh is cooked. By acting on this the diarrhoea can be avoided. It has been recommended that it should always be boiled or roasted. In comparison with the meat of cattle and pigs, horse-flesh is a negative factor in causing tuberculosis, and there are no parasites in horse-flesh accessible to man; but every precaution should be taken to eliminate glanders in horses offered for food, and it should be sold under special regulations so as to prevent substitution and adulteration.

¹ W. W. Herrick, *Arch. Int. Med.*, Chicago, 1918, xxi, 541–563.

¹ *Journ. Amer. Veterinary Med. Assoc.*, August, 1917. Reprint Series, No. 6., January, 1918.

MEDICAL INSURANCE AGENCY.

At a meeting of the Committee of the Medical Insurance Agency, on May 9th, Dr. G. E. Haslip, who was in the chair, referred with deep regret to the death of Mr. Guy Elliston, agent and secretary since the Committee was formed, to whose energy and good judgement so much of its success has been due. It was resolved to forward a letter of sympathy to his family. The chairman, in presenting the balance sheet for 1917, said that in spite of the fact that the country was now in the fourth year of the war the Agency had maintained its business all round and had been able to allocate the substantial sum of £1,000 to medical charities, the largest amount distributed in any one year since the Agency was founded. In addition the policy holders had benefited to the amount of £717, so that the total amount by which the profession had benefited through the Agency in 1917 was £1,717. There had been an increase in life and accident business, and even in respect of motor car policies the shrinkage in revenue had been exceedingly small. The Committee resolved to make an interim distribution for 1918 to medical charities of £500; it was allocated as follows: the Royal Medical Benevolent Fund, the War Emergency Fund, Royal Medical Benevolent Fund Guild, and the Belgian Doctors' and Pharmacists' Relief Fund, to each £100; Epsom College Benevolent Fund and Royal St. Anne's School for Girls, to each £50. As a result of this additional distribution the total sums allocated to medical charities by the Agency since its foundation have reached £3,905. It was resolved again to call the attention of the Royal Medical Benevolent Fund and Epsom College to the hope of the Committee that the two institutions should come to satisfactory arrangements with regard to settling any differences of opinion that might arise with regard to testamentary benefactions not clearly defined.

INFANT WELFARE IN GERMANY.

THE Local Government Board has issued a report¹ on infant welfare in Germany during the war, prepared by the Board's Intelligence Department. Information is given as to the birth and death rates, the special maternity grants which have been provided, and the other measures for saving the lives and improving the health of infants. The most striking fact is the heavy fall in the number of births. The first three years of the war reduced by over two million the number of babies who might have been born had peace prevailed. In 1916 the total number of births was 40 per cent. less than in 1913. In the months immediately following the outbreak of war there was a sudden rise in the infantile death-rate, but this has since been kept well down, at its worst it was never so high as in the very hot and dry months of 1911. The most noteworthy measures taken for infant welfare are the special grants to women who give birth to children. One of the grants is given only to those who breast-feed their babies. They are administered largely through the insurance societies, but the best opinion is in favour of administration through infant welfare centres, of which the numbers have increased since the war. Local authorities have been active in taking steps to overcome the difficulties of making proper provision of food for expectant and nursing mothers, and for infants and children. In contrast to this country, the infantile death-rate in Germany is higher in the rural districts than in the towns, and the improvements in infant welfare in Germany during the war have been effected principally in urban centres. Looking at the actual results of their well-advertised schemes and plans, we find the Germans still far behind our own country. Thus our infant death-rate is some 50 per cent. lower than that of Germany. The report is mainly based on information published in

German journals devoted to infant welfare, local government, medicine, and social reform; it will repay careful study.

THE Minister of Munitions has appointed a committee to advise him upon the general principles to be adopted in carrying out the welfare and health work of the Ministry, and to report on all matters connected therewith that may be referred to them. The committee is a mixed one, containing representatives of various interests, and the chairman is Mrs. H. J. Tennant. The medical members are Sir Walter M. Fletcher, K.B.E., M.D., F.R.S., secretary of the Medical Research Committee; Dr. E. L. Collis, Director of Welfare and Health Section, Ministry of Munitions; and Dr. T. M. Legge, medical inspector, Factory Department, Home Office.

Medical Notes in Parliament.

State Medical Service and the Proposed Ministry of Health.—

Mr. Booth asked Dr. Addison upon what ground the question of a state medical service was regarded as a forbidden subject in considering a Ministry of Health; and whether he was aware that many of the workers under the Insurance Acts were desirous of having the proposal thoroughly examined with a view to remedying some large and serious evils. Dr. Addison replied: The negotiations to which the hon. member refers were limited to the discussion of the redistribution of the functions of central departments in relation to health services. As stated in reply to a similar question on April 22nd, the question of a state medical service would not therefore have been relevant to the proceedings. In reply to a further question, Dr. Addison said that the negotiations with the various interests as to the Ministry of Health had been completed, and there was no disposition on the part of those concerned to suggest that personal claims entered into the important matters under consideration.

Royal Air Force Medical Committee.—Major Baird (Under Secretary to the Air Ministry) stated, in reply to Sir H. Greenwood on May 15th, that the Medical Administrative Committee of the Air Force had met on four occasions. The Director-General of the Naval Medical Service was present at three of the meetings. The Director-General of Army Medical Services was present at the first two meetings and sent representatives to the other meetings. In answer to Mr. Joynson-Hicks, Major Baird said that the Committee had arranged for the inspection of aerodromes. These inspections were being carried out by eleven senior medical officers of the navy and army, lent to the Royal Air Force. Reports had been received from them on nearly all aerodromes at which flying took place. All possible steps were being taken to meet the requirements for the medical service to the Air Force.

Retired Officers' Rights.—In reply to Major David Davies, on May 16th, Mr. Forster said that an officer of the Special Reserve placed on the retired list in consequence of wounds, but who had not relinquished his commission, was entitled to the gratuity awarded to officers who had left the service, and also to the issue of a Service Rendered Badge. They were permitted to wear uniform when employed in a military capacity, and on ceremonial occasions of a military nature.

Officers' Pensions Appeal Tribunal.—Sir A. Griffith-Boscawen, on May 16th, informed Sir M. Barlow that it was intended that officers invalided out of the Navy, Army, or Air Force, should have the right of appeal already possessed by non-commissioned officers and men as to whether their disabilities were or were not attributable to or aggravated by their naval or military service. A short time ago a special committee was constituted to act as the tribunal for dealing with officers' appeals.

Territorial Force Medical Officers' Gratuity.—Sir Watson Cheyne asked the Under Secretary of State for War, on May 13th, what was the reason why medical officers belonging to the Territorial Force could not be paid the gratuity which they had earned annually, as was the case with temporary medical officers, and was he aware that hardship often resulted from deferring this payment. Mr. Forster, in reply, said that the gratuity provided in the Pay Warrant for Territorial Force officers of all kinds was not payable until completion of service. In the case of the temporary medical officer the terms of the contract provided for the payment of an annual gratuity.

Malaria among Troops in Greece.—Mr. Macpherson, replying to Mr. Will Thorne on May 16th, said that the general health of the troops in Greece was good, but malaria was still prevalent. The admission rate for malaria, although high, was not due to serious cases. The death-rate fell from 5.64 per 1,000 in 1916 to 3.61 in 1917, and 2.51 for the first eighteen weeks in 1918.

¹H.M. Stationery Office. 6d. net.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

CAPTAIN P. B. SEWELL, A.A.M.C.

Captain P. B. Sewell, Australian Army Medical Corps, was reported as killed in action, in the casualty list published on May 20th. He had previously been returned as missing.

Died of Wounds.

CAPTAIN R. MACGRATH, R.A.M.C.

Captain Roger MacGrath, R.A.M.C., was reported as having died of wounds, in the casualty list published on May 18th. He graduated M.B., B.Ch., and B.A.O. in the National University of Ireland in 1914, joined the R.A.M.C. as a temporary lieutenant on January 25th, 1915, and was promoted to captain on completion of a year's service.

CAPTAIN J. K. VENABLES, M.C., N.Z.M.C.

Captain Joseph Kendrick Venables, M.C., New Zealand Medical Corps, died of shell wounds in a casualty clearing station on May 9th. He was the son of the late Joseph Venables of Christchurch, New Zealand, and took the Scottish triple qualification in 1914. After acting as house-surgeon of the Christchurch Public Hospital, he joined the New Zealand Medical Corps. He received the Military Cross on January 1st, 1918.

Died on Service.

LIEUT.-COLONEL A. G. SARGENT, I.M.S.

Lieut.-Colonel Alfred George Sargent, I.M.S., died of angina pectoris in Mesopotamia on May 14th, aged 45. He was born on September 14th, 1872, the eldest surviving son of the late Lieut.-Colonel J. F. Sargent, I.M.S., and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1896. Entering the I.M.S. as lieutenant on January 28th, 1898, he became captain on January 28th, 1901, major on July 28th, 1909, and lieutenant-colonel on July 28th, 1917. He served in the third China war of 1900, receiving the medal. Before the war he held the appointment of superintendent of Rangoon Lunatic Asylum and lecturer on materia medica in the Rangoon Medical School.

Wounded.

Major E. J. Bradley, M.C., R.A.M.C. (S.R.).

Major E. E. Herga, M.C., R.A.M.C. (temporary).

Major K. N. Steele, Australian A.M.C.

Captain H. F. Brice-Smith, R.A.M.C. (temporary).

Captain C. Cairnie, R.A.M.C. (temporary).

Captain C. K. Carroll, M.C., R.A.M.C. (temporary).

Captain J. Colgan, R.A.M.C. (temporary).

Captain E. Forbes, M.C., R.A.M.C. (temporary).

Captain R. I. Forsyth, Australian A.M.C.

Captain L. V. Gatt, R.A.M.C. (temporary).

Captain E. D. F. Hayes, R.A.M.C. (temporary).

Captain M. P. Power, R.A.M.C. (temporary).

Captain E. C. W. Starling, M.C., R.A.M.C. (S.R.).

Captain E. G. Thomson, Australian A.M.C.

Captain R. P. Wheeler, M.C., Australian A.M.C.

Lieutenant A. C. Reid, R.A.M.C. (temporary).

Lieutenant J. A. Stewart, R.A.M.C. (temporary).

Missing.

Captain A. B. Cluckie, R.A.M.C. (temporary).

Prisoners of War.

Major J. Kennedy, R.A.M.C. (S.R.).

Captain W. Arnott, R.A.M.C. (temporary).

Captain S. A. Forbes, R.A.M.C. (temporary).

Captain C. G. Gibson, R.A.M.C. (temporary).

Captain W. H. McCarter, R.A.M.C. (temporary).

Captain H. C. Martin, R.A.M.C. (temporary).

Captain E. E. Mather, R.A.M.C. (temporary).

Captain C. A. Meaden, R.A.M.C. (temporary).

Captain C. Mearns, R.A.M.C. (T.F.).

Captain R. M. Soames, R.A.M.C. (temporary).

Captain D. F. Troens, R.A.M.C. (temporary).

Captain E. Underhill, R.A.M.C. (temporary).

Lieutenant J. A. Loughridge, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Davies, Geraint, Captain, elder son of Dr. Morgan Davies of London, student of Guy's Hospital, died of wounds, April 14th, aged 22.

Davis, Guy Clifton, Lieutenant Northumberland Fusiliers, youngest son of the late Dr. Robert Davis of Orpington, Kent, died at a casualty clearing station on May 11th of wounds received on April 19th, aged 23. He got his commission on February 4th, 1915.

Harrhy, Ramsay, Corporal, late Captain, Bechuanaland Fusiliers, son of the late Dr. Harrhy, J.P., of Barkly West, South Africa, died of wounds, May 10th, aged 28.

Mason, Ethelbert, only son of Dr. J. R. Mason of Newcastle-upon-Tyne, died in France, May 12th. He was an undergraduate of the Durham University.

Sumner, Geoffrey, Lieutenant, son of Dr. Sumner of Waterloo, Liverpool, died on May 11th in his 22nd year. After joining the forces as a private in the Royal Field Artillery he obtained a commission in the Royal Air Service, but was subsequently invalided home on account of ill health.

Thompson, G. P. N., Lieutenant Royal Dublin Fusiliers, only son of Dr. C. J. Thompson of Newport, Isle of Wight, killed May 4th, aged 19. He was educated at Epsom College, got his commission through Sandhurst in July, 1916, became lieutenant in January, 1917, and went to the front in September.

Weir, T. H., Major Royal Engineers, second surviving son of Dr. J. Johnstone Weir of Jarrow-on-Tyne, killed May 8th. He became lieutenant in the Third Durham (Gateshead) Field Company of R.E. on May 11th, 1915, and got the command of a company last October. He had twice been mentioned in dispatches.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE following special promotions are announced in recognition of the services of the officers mentioned in connexion with the recent attack on Zeebrugge: *To be Fleet Surgeon:* Staff Surgeon James McCutcheon, R.N. *To be Staff Surgeon:* Surgeon Henry St. C. Colson, R.N. Temporary Surgeon F. P. Pocock, M.C., R.N., is noted for early promotion. A statement of the individual services rendered by the officers promoted will be issued as an appendix to Vice-Admiral Keyes's dispatch.

MENTIONED IN DISPATCHES.

The first list of names brought to notice by Sir Douglas Haig in a dispatch dated April 7th, 1918, for distinguished and gallant services and devotion to duty between September 25th, 1917, and February 25th, 1918, includes temporary Surgeon W. J. McCracken, D.S.O., M.C., attached R.N.V.R., and Major and brevet Lieut.-Colonel E. Ryan, D.S.O., R.A.M.C. The list of officers of the medical service mentioned in the dispatch will be published in a Supplement to the *London Gazette* at a later date.

Surgeon Maitland Bodley Scott, R.N., is among the officers mentioned in dispatches (*London Gazette*, May 17th).

COMMENDED FOR SERVICES.

The following are among the officers brought to notice by Lieut.-General Sir A. A. Barrett for valuable services rendered during the operations against the Mahsuds (March to August, 1917): Colonel P. Hehir, C.B., C.M.G. Lieut.-Colonels L. Addams-Williams, R.A.M.C., P. H. Faulkner, R.A.M.C., G. G. Giffard, C.S.I., I.M.S., C. H. S. Meyer, I.M.S., F. R. Ozzard, I.M.S., J. B. Smith, I.M.S. Majors C. C. Morrison, I.M.S., G. E. Stewart, I.M.S. Captains J. A. Sinton, V.C., I.M.S., J. M. Weddell, R.A.M.C. 1st Class Assistant Surgeons H. A. Poyntz and W. H. Thiphrop, I.S.M.D.; and Dr. R. Cox of the Church Missionary Society.

NOTES.

CONFERENCE ON CARE OF DISABLED MEN.

THE work of the Inter-Allied Conference on the after-care of discharged sailors and soldiers has proceeded at the Central Hall, Westminster, this week, in accordance with the programme published in this column last week. The conference, which is attended by representatives of the United States, France, Italy, Belgium, Canada, Portugal, and Serbia, and by about one hundred British representatives, including those from Australia, New Zealand, South Africa, and India, was opened by the Duke of Connaught on Monday, when Mr. Hodge, the Minister of Pensions, was in the chair. The Duke's speech of welcome was acknowledged by Dr. Bourrillon for France, Professor Enrico Burci for Italy, and Lieut.-General Melis for Belgium. Apart from the work done in the sections a great deal of interest has been excited in the exhibition, which was visited by the King and Queen on Monday. It consists partly of soldiers' work in various trades, and partly of artificial limbs and appliances, also, in many cases, made by

disabled men. Italy, whose representatives have taken a large part in the work of the sections, makes a very effective display in the exhibition. The French exhibition is largely concerned with the work of the re-education schools at Paris, Havre, Lyons, and Marseilles. The British display is mainly from the various military orthopaedic centres in this country. The Canadian and Australian sections are also very interesting, and much of the work done is for their hospitals in this country. The Scottish Hospital for Limbless Sailors and Soldiers at Erskine is represented, and it was shown that the pattern shops of the Clyde have co-operated in making artificial limbs on a standardized plan. The Serbian Red Cross has a most interesting exhibition, chiefly of artistic work made from war débris.

During the week delegates have paid visits to various institutions for disabled men in the neighbourhood of London, and on Tuesday, May 21st, they were entertained at dinner to the number of between one and two hundred by the Lord Mayor of London.

SCOTTISH WOMEN'S HOSPITAL WITH THE SERBIAN ARMY.

The Elsie Inglis Unit of the Scottish Women's Hospitals, which left London at the end of February, after inspection by the King and Queen, reached its destination on the Macedonian front on April 1st, and the camp was ready for the reception of patients a fortnight later. The Jugo-Slav division of the Serbian army, to which the unit is attached as sole field hospital, has been in severe fighting since then, and the wards are now filled with sick and wounded brought straight from the front. The hospital has its own transport, and the girl drivers make daily rounds with the motor ambulances to fetch in the cases.

England and Wales.

LONDON WATER.

In his twelfth annual report Dr. A. C. Houston, Director of Water Examination, Metropolitan Water Board, records the results of the chemical and bacteriological examination of the London waters for the twelve months ended March 31st, 1918. From March, 1915, onwards "resistance to filtration" experiments, which had been made from time to time for twelve years, were systematized and a bi-weekly check kept on the quality of all the prefiltration waters, twenty to twenty-four in number. The results are of considerable practical as well as scientific importance, as upon them, it is said, depends the possibility of anticipating filtration difficulties by inhibitory algicidal treatment. Though algal growths can be destroyed, yet the risk may remain of other and more resistant growths taking their place. A notable instance occurred in 1917 during the continuous treatment of No. 1 reservoir at the West Middlesex works with copper sulphate (1 in 4 millions). While the growths (*Fragillaria*, *Asterionella*, *Stephanodiscus*, filamentous confervoid growths, etc.) affecting the neighbouring reservoirs were almost completely held in check, a fresh growth, composed of cells so excessively minute that they readily passed through four folds of fine linen, developed abundantly, and caused serious blocking of the filters. In his twelfth research report Dr. Houston dealt in detail with the successful results of the chlorination of raw river water, and showed that a better water could be provided, with a saving of coal and cost generally.¹

Last year it was reported that experiments with liquid chlorine had been started, with gratifying results. This year, he says, a much more cautious opinion must be expressed, not of the efficacy of chlorine as a germicidal agent, but of the difficulties that have to be overcome in adding this reagent to water in the proper dose. With the apparatus used successful results were obtained during the warm weather, but when the air and water temperature fell below a certain point there was trouble. Practical experience during cold weather shows that either the gas must be added as a solution to the water to be sterilized or some improved form of porous diffuser must be discovered. Taking a period embracing the bad winter months, from October, 1917, to the end of March, 1918, the average chlorinated raw river water results work out at 83 per cent. "negatives" and 17 per cent. "positives," figures which show that, as judged by the *B. coli* test, better

results can be obtained by chlorination than by storage. Despite the magnitude of treatment (70 to 80 million gallons daily) no complaints as to taste were received. Storage, however, has an important "levelling" or "equalizing" effect. A clear saving of nearly £12,000 a year has been effected by substituting chlorinated for stored river water, but Dr. Houston does not attempt to plead that the former gave not only equal but additional security to the consumer. If, however, chlorinating the water were to lead to the blocking of the sand filters, this might be urged as an objection to the method. Dr. Houston considers that, though it may be presumed that after the war the cost of pumping will fall in far greater ratio than that of chlorination, the margin will always be in favour of chlorination. The two great factors which militate against successful chlorination are extreme cold and short contact. Separately, and still more in conjunction, they tend to prevent sterilization, or if sterilization takes place owing to a superdose—that is, a dose in excess of what is actually required under more favourable working conditions—the water is apt to have a chlorinous taste and to contain active chlorine. Dr. Houston sets forth the results of his experiments in a number of clearly arranged tables.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

The annual meeting of the Governors and General Council of King Edward's Hospital Fund for London, to receive the accounts and the report of the General Council for the year 1917, was held at St. James's Palace on May 14th, the Speaker of the House of Commons being in the chair. Lord Revelstoke (the hon. treasurer) was able to report that the Fund had again made a substantial increase in the distribution, and had also added to its reserves. If the ordinary income showed no decrease the Fund should be able to maintain the distribution at or near the total arrived at in 1917. Mr. Frederick M. Fry (hon. secretary) presented the draft report of the Council for the year 1917. The grants amounted to £190,000, being £20,000 more than in 1916. The expenses of administration were £1 9s. 0½d. per £100 of the total amount received, in spite of the increased cost of printing and paper. Sir Henry Burdett drew attention to the importance of keeping up and increasing the amount received from subscriptions and annual donations, and Lord Somerleyton undertook to bring the matter before the Executive Committee.

CENTRAL MIDWIVES BOARD.

At a meeting of the Central Midwives Board on May 16th, Sir Francis Champneys presiding, the re-election for one year of Mr. Sangster as a member of the Board was announced. It was decided to call the attention of the Local Government Board to a form issued by a local supervising authority, and particularly to the note at the foot, which seemed to the Board to be an endeavour to enforce the notification of pregnancy on midwives, and to ask the Local Government Board to deal with the matter. It was decided to bring the action of a medical practitioner in giving a certificate to an uncertified woman stating that she was "quite capable of undertaking the duties of an ordinary midwife," to the notice of the General Medical Council, and to express the Board's willingness to appear as prosecutor, if desired, should the Council take action in the matter. Seven women were removed from the roll on their own applications. It was decided to increase the price of the Midwives Roll to one guinea, and to ask the Treasury to contribute £117 3s., the estimated cost of 375 copies of the roll additional to those required for sale to the public.

Scotland.

The work of the Glasgow Day Nursery Association is about to be transferred to the Corporation of Glasgow. The association has been at work for thirty-five years and its nurseries are well equipped, but the funds at its disposal are too limited to allow the full development of a child-welfare scheme by it.

NEURASTHENIC SOLDIERS.

At a meeting of the Scottish Joint Institutional Committee, over which Sir A. Griffith-Boscawen, M.P., presided last week, it was reported that the extension of Craigend

¹ BRITISH MEDICAL JOURNAL, July 21st, 1917, p. 97.

neurasthenic home was proceeding satisfactorily and would provide beds for fifty or sixty patients. The orthopaedic annexe at Tynecastle would shortly be ready. The Chairman pointed out that under the new pensions warrant allowances would be paid to the families of men undergoing treatment for disabilities not attributable to service. Dr. Fletcher Porter stated on behalf of the Ministry of Pensions that, owing to new arrangements made by the Army Council, these cases would in future be treated in special hospitals before discharge. It seemed probable, therefore, that no soldier would be discharged who required institutional treatment for any functional nerve disorder. A scheme for making additions to the Springfield farm colony for tuberculosis is under consideration.

Ireland.

We are informed that Captain J. C. McWalter, M.D., R.A.M.C., has been invited to become a candidate to represent the National University of Ireland in Parliament, and has given a provisional consent. It is, we are informed, expected that a candidate in the Sinn Féin interest may also contest the seat. Captain McWalter, who has been a member of the senate of the university since 1914, is an alderman of the city of Dublin, and was chairman of the Dublin Insurance Committee until he joined the R.A.M.C.

THE CONTROL OF SYPHILIS.

At a meeting of the Section of State Medicine of the Royal Academy of Medicine of Ireland, on April 12th, with the President, Sir William Thompson, in the chair, Dr. Kirkpatrick read a paper on the state and syphilis. He outlined the action of the state in England in its control of prostitution since the time of Henry II, and referred to the regulations enforced in Scotland at the end of the fifteenth century for the prevention of the spread of syphilis. In England an Act was passed in the middle of the eighteenth century regulating the method of prosecuting those who kept bawdy houses. Dr. Kirkpatrick discussed the recent legislation that has followed the publication of the report of the Royal Commission on venereal diseases, and the schemes at present under the consideration of some of the Irish sanitary authorities. He urged the cordial co-operation of all medical men in the carrying out of such schemes. Sir John Moore drew attention to the fact that in the Venereal Diseases Act, 1917, medical treatment by unqualified persons was for the first time in England made illegal. Professor McWeeney said that some Dublin hospitals would not undertake the treatment of patients suffering from these diseases in an infectious stage, while the authorities of some of the university and college laboratories objected to such patients attending the laboratories for the purpose of diagnosis. Dr. Crofton said that as it was almost impossible to say when patients with venereal diseases were cured, more was to be hoped for by prevention than cure. He advocated strongly the use of prophylactic applications to prevent infection. Sir Andrew Horne referred to the advantages and limitations of the Dublin Lock Hospital. He believed that syphilis in Dublin was increasing, and urged the importance of establishing places where patients suffering from it could be adequately treated. Dr. Coey Bigger gave an account of the action taken by the Local Government Board for Ireland. He hoped that shortly there would be several schemes for treatment started in Ireland. Dr. Joseph Bigger described the work that had been done in Sheffield under the scheme in force there. He pointed out the great difficulty in making a diagnosis of gonorrhoea in the laboratory. The President referred with satisfaction to the change in public opinion with regard to the treatment of patients suffering from these diseases, and from this change he expected and hoped that a great improvement in public health would result.

THE Town Council of Madrid has decided to establish a school of "Maternology" to be under the direction of the professors of the municipal institute of puericulture. Practical courses of instruction will be given at various centres in the capital.

Correspondence.

A MINISTRY OF HEALTH.

The British Medical Association Scheme.

SIR,—I have read the pamphlet, *A Ministry of Health*, issued by the British Medical Association, with interest, but to me the whole scheme is humdrum and unimaginative: there is no insight or ideal. It contains no bold device for the betterment of the people, or the improvement of the lot of the general practitioner, and little for the advancement of medicine. It may be said to be only the glorification of the national insurance.

No reference is made to the doctrine that it is the duty of the doctor to cure the patient in the least possible time, so as to return him to work as soon as may be, and the duty of the patient to do all he can to promote his own recovery, although the whole scheme is good or bad according to the degree in which it enables this to be effected. I make bold to maintain that the doctor cannot give efficient attention to every case so long as he knows that he has to work at high pressure to earn enough to keep the home together—it is not fair to either the doctor or the patient. It follows that more doctors are urgently needed, even in times of peace, and to get them it is essential that the conditions of work should be improved, including the pay. It is suggested that practitioners should be encouraged to specialize; they have not the time at present, yet the mass of clinical material they see would be most valuable if it were only collected. The continuance of the voluntary hospitals, with their debts to hamper their work and their long waiting lists, is advocated on the ground that they compare favourably with the hospitals of certain Continental countries, whereas it is just as reasonable to say the difference is due to national characteristics and traditions. There must be far more hospitals, and to try to combine voluntary and state ones would be fatal.

A state service would involve all branches of medicine being under the state—hospitals, schools, qualifications, research, etc. The state would obtain drugs and appliances at a much more economical rate than is now paid under insurance. To the members of the profession it would mean better conditions generally—if not, the whole thing would be a failure as great as the present state of things—better pay, better conditions under which to work, better opportunities for improving one's knowledge, better chances of rest (for example, holidays), better chance of retiring owing to the pension; to the public it would mean better treatment and an earlier return to work; to the state it would mean increased powers of production. I have not referred to the nurses, dentists, and dispensers, but they would have to be incorporated in the state service.

I doubt whether there is a calling, except the Church, which can claim such unselfish work as the medical profession. Our aim is the betterment of the lot of humanity, our thanks are often kicks. If we are to be in a condition to realize our aims, it is essential that we should have our own condition improved. "The greatest good for the greatest number" is really our ideal, and it is from that standpoint that we must build any suggestions we have to offer, and remember that for each of us there are roughly two thousand other persons in these islands.

I do not suppose that any one who is interested in the health of the nation wishes to "raise false hopes" or anticipates a "sanitary millennium" any more than a moral millennium; what is wanted is a scheme which will permit of the grafting on to it of each improvement with the least possible disturbance. The British Medical Association scheme does not appear to do so.

Maternity hospitals are suggested, but not the suppression of the midwife. We appear to have forgotten the outcry about giving the mother in labour over to an inferior class of practitioner, yet it is still true that no labour is free from danger till an appreciable time after it is completed.

The choice of doctor is really a very beautiful idea, worthy of the poet's song; but is it practical to-day? So long as every individual can afford to pay a doctor privately no interference is needed, but as soon as some people need assistance to obtain treatment there is no logical reason why others should not claim it. Why

should X. have to pay for Z.'s medical treatment and not be able to obtain assistance when he is ill himself? The lack of means has cost many an one his or her life; what has it cost the country? Every individual has a right to be supplied with medical treatment by the state, and the state has a right and a duty to supply it if it considers the best is not obtained. A conservative British nature will grumble at first at the loss of choice and then willingly acquiesce, later on to praise the arrangement, if only because it was thought to be British.

There would always be a certain number of people who could afford to engage a private doctor and pay good fees, so that those who did not want to remain in the service could try their luck outside, but the existence of a public service would be a sufficient excuse for keeping fees at a high level.

The whole change would probably require considerable time to effect, but so long as a definite plan existed it could be carried out systematically; but, in any case, one upheaval is better than repeated tinkering with an unsatisfactory condition of things.—I am, etc.,

Mumbles, May 18th.

F. DE COVERLY VEALE.

EXTRA RATIONS FOR TUBERCULOSIS PATIENTS.

SIR,—The fact that the profession are asked to fill up the required forms specifying the amounts of meat and butter to which patients are entitled suggests that we should discriminate between those likely to benefit from the extra ration and others who are too ill to require it. It is possibly eaten by other members of the family who are not entitled to benefit.

A patient to whom it was refused raised an objection, and I therefore wrote to the Ministry of Food for instructions, and in reply was informed "All cases of active tuberculosis are eligible for extra rations of meat and butter but not sugar, and should be notified." Of course all cases are notified, but this reply suggests that the profession might be saved much time and difficulty in decision if the local food office were confidentially supplied with a list of notified cases, and themselves issued the necessary forms, for in many cases it takes a brave man to say that the disease is no longer active and does not require extra feeding to prevent recrudescence.—I am, etc.,

Halstead, Essex, May 15th.

C. GORDON ROBERTS.

ACUTE GONORRHOEA TREATED WITH VACCINES.

SIR,—In his article on vaccine treatment in acute gonorrhoea (BRITISH MEDICAL JOURNAL, 1917, vol. ii, p. 450) Captain N. P. L. Lumb, R.A.M.C., arrives at a series of conclusions which appear to be quite unwarranted. His thesis is that vaccines are of considerable value in the treatment of acute gonorrhoea. His method is to give two courses of vaccine treatment, each course consisting of six doses extending over fifteen days, the two courses occupying forty days, allowing for an interval. Now before the results can be of the slightest value in a comparative sense, no treatment other than vaccine treatment must be employed at the same time. But in Captain Lumb's series of cases, in addition to and contemporaneously with the administration of vaccines, the patients were having irrigation by Janet's method twice daily. It must be clear to Captain Lumb that before his results can pretend to be of any value he must have other methods of treatment with which to compare them. For instance, if out of 300 cases he had treated 100 with vaccines alone, 100 with Janet's lavage alone, and 100 by the two methods combined, then there might have been some value in his publication.

His results in five hundred cases in no manner justify his contention that vaccines are of any great value in acute gonococcal urethritis. They are in no way striking, and the value of the treatment seems to be rather, as judged from the results, below the ordinary.

When the Janet method of *grand lavage* alone is properly carried out, much better results are obtained and the proportion of complications is less than in Captain Lumb's series of cases. The explanation of the occurrence of 26 per cent. of complications—epididymitis, prostatitis, etc.—is obviously that "the patient is instructed to

thoroughly wash out the anterior urethra first and then to get the solution into the bladder." It shows a high degree of optimism to expect that the patient will be able to carry out these instructions. Experience has shown that it is only in rare instances that such will be done. The usual result of allowing the patient to carry out the irrigation himself is to ensure the conversion of an anterior infection into a posterior one with the complications of epididymitis, prostatitis, and cystitis.

Regarding the general effects upon the patient all of them—mental relief at the rapid disappearance of the discharge, rapid disappearance of pain, and that exercise can be taken without delaying the cure—can be attained as rapidly, if not more so, by the method of lavage alone. Were the treatment carried out by injection of vaccines alone there would be some justification for the assertion made by Captain Lumb that his method has a beneficial effect upon the mental state of the patient in that "anything which tends to turn his thoughts away from the site of the disease and associated ideas is valuable." But as the treatment partially consists of Janet irrigations twice daily, which must direct the patient's attention to the site of the disease, the statement just quoted seems to be devoid of point.

Captain Lumb's article is apt to lead others to imagine that there is some clear value in vaccine treatment, a thing which has only been asserted but not proved in his publication. The danger of Captain Lumb's statement is that others may act upon it, and waste time by treating cases of acute gonorrhoea by vaccines alone, or combined with a modified course of irrigations not thoroughly carried out.—I am, etc.,

Mesopotamia, March 16th.

E. T. BURKE.

QUININE IN MALARIA.

SIR,—After over twenty-five years' experience of malaria in far apart tropical and subtropical countries, I still maintain that quinine is a good prophylactic and a good drug in the treatment of this disease. My cases got well or improved, after I learnt from experience how and when to administer quinine.

It was, and for all I know is still, the custom in tropical countries for newcomers to be told by doctor and layman, "You must take a good pinch of quinine every day—10 gr. or so—in tabloid or wrapped up in a cigarette paper." The newcomer generally does so, and as a rule gradually develops indigestion, with vomiting, suffers from inanition, becomes cachectic, and gets malaria *plus* quinine poisoning. The doctor is sent for, and as a rule prescribes a large dose of solid quinine. The patient becomes worse, and the quinine is blamed.

A good many years ago on the West Coast of Africa I was dosed with quinine as a prophylactic, as described. I did not contract malaria, but I developed indigestion and gastritis due to the irritant effect of the solid quinine, little, if any, of which was dissolved by the gastric juice at first, and none at all later on.

Years later I contracted malaria in Marysville, California, and was nearly poisoned by a well-meaning physician, who dosed me with solid quinine. Later I held an official appointment in Rhodesia, where malaria of a severe type was rampant in the outlying camps. I treated it in the way I had been taught, and allowed the officers and men to follow the instructions issued by those in authority, namely, to dose themselves daily with quinine powders or tablets. I myself got a severe attack of malaria contracted at a pestilential camp, and then learnt useful facts about quinine, which, although probably known to many, are worth setting forth, namely:

1. To administer calomel always before giving quinine, unless calomel is contraindicated by some other disability of the patient.
2. Never to give quinine in solid form by the mouth or rectum, but always in solution (in dilute sulphuric acid by preference).
3. Never to give quinine during a high rise of temperature, but to wait until it has subsided in the ordinary way, or been reduced by sponging, etc.
4. Never to give quinine on an empty stomach, and in many cases to give alcohol in a moderate quantity almost immediately after the quinine, or champagne in exceptional cases.

5. To build up the strength of the patient by every means available during the periods of intermission.

6. Never to neglect the idiosyncrasies of each patient, his response to small or large doses, and the general effect of the drug upon him.

7. To discourage the indiscriminate and unscientific method of "shovelling" large quantities of solid quinine into each and every stomach irrespective of the constitution, temperament, and chemical reaction of the individuals concerned.

I found that the administration of quinine given without attention to these rules was the cause of much illness amongst officers and men, that their constitutions and resistance became weakened, and when they developed malaria generally suffered severely.

From experiments upon myself and others I found quinine a good prophylactic given as follows: On the first of the month, say, a dose of calomel to suit the individual was administered, and, after the bowels were well cleared, 15 grains of quinine dissolved in dilute sulphuric acid was given, after a good meal. On the 15th of the month another dose of calomel and another dose of quinine (15 grains) was given, and the individual was advised to pay strict attention to the bowels at all times.

After adopting this plan malaria became less frequent and severe in camp and out-stations, and was more easily treated.

In the treatment of malaria I found quinine satisfactory when given with due regard to the points above enumerated.

I met the late Professor Koch when he was in Bulawayo. He told me he had always adopted the rules I mentioned, and that neither he nor his assistants suffered from malaria during their long residences in malarial districts.—I am, etc.,

London, W., May 21st.

EDWARD YEATES, F.R.C.S.I.

"BOTULISM" AND MENINGITIS.

SIR,—Would your readers care to learn from one who has been over-persuaded by the recent Local Government Board memorandum on "an obscure disease with cerebral symptoms"?

My case was in the Evelina Hospital—a child of 6 years, who became drowsier and drowsier until she would, for example, fall asleep over her meals in bed; but she was never comatose and could be roused easily enough. She developed bilateral ptosis, dilated pupils, pyrexia, constipation, and retention of urine. She had no other paralysis, no rigidity, no fits, no optic neuritis, and no Cheyne-Stokes breathing. Lumbar puncture brought no fluid, though we tried half a dozen times.

Fortified by what we had read we all thought she must be our first case of botulism—until she died and Mr. Leatham demonstrated tubercles in the pia arachnoid.—I am, etc.,

London, W., May 20th.

DAVID FORSYTH.

UNIVERSITY REPRESENTATION IN PARLIAMENT.

SIR,—In reply to Dr. Kingdon, I would point out that the reason no invitation to our meeting was sent to him was that in the London section of the *Medical Directory* his address is given as c/o British Medical Association, 429, Strand, W.C.2 (on military service). From this I assumed that he was overseas, and therefore would not be able to attend.

I am sorry he should be aggrieved, but we did take great pains to find names and addresses of graduates, a somewhat difficult matter.—I am, etc.,

HERBERT G. WILLIAMS,

Hon. Sec., Combined Universities Conservative and Unionist Association.

London, S.W., May 18th.

WHAT IS A CONSULTANT?

SIR,—As a general practitioner, in a rural district with no druggist, I sent a patient with my letter to a specialist, who saw the patient, wrote to me, gave a prescription, and took his fee as a specialist, and the prescription is brought to me to be dispensed. This has been done now for many months; during this time the patient has gone up to town and seen the consultant occasionally, and for all this time I have not been called in once to that patient. It seems to me that my patient was seen once as a specialist and

ever after as a general practitioner. If this is so, I must in future refuse to give my good patients away and to become (because we have no druggist) the specialist's dispenser.—I am, etc.,

May 18th.

GENERAL PRACTITIONER.

REMOVAL OF WORM (FILARIA LOA) FROM THE EYE.

SIR,—In my paper which appeared in your issue of May 4th, 1918, I stated that the worm was a female. The specimen was examined for me by a tropical expert, and the statement was made on the strength of his evidence. Dr. Leiper has since kindly examined the worm, and has conclusively demonstrated to me that it was a male. I greatly regret the error, and shall be obliged if you will allow me to put the matter right as soon as possible.—I am, etc.,

London, W., May 21st.

R. H. ELLIOT.

The Services.

PAY AND GRATUITY OF TERRITORIAL OFFICERS.

WE would refer a correspondent who asks a question on this subject to Section VI of the Royal Pay Warrant of the Army, which deals *inter alia* with the emoluments of officers of the Special Reserve of Officers and Territorial Force employed on army service.

Article 496 (b) lays down that officers specially taken into employment by reason of a national emergency shall receive while so employed the same rates of pay and allowances as officers of corresponding army rank in the same arm or branch of the service; or if holding a command, or employed on the staff, the rates of consolidated pay laid down for their appointments. Such officers may include those of the Special Reserve of Officers and Territorial Force employed with the Regular Army.

Article 497 lays down that officers employed under the above conditions shall, provided that they serve for the full period of their engagement, or of the emergency in respect of which they are employed (unless a shorter period is specially approved by the Army Council), be entitled on the cessation of such employment to a gratuity at the following rate: 124 days' pay for the first year of service, or any part of a year, and sixty-two days' pay for each subsequent year of service, or part of a year. For the purpose of such gratuity pay is held to mean regimental, departmental, or staff pay only, and not to include additional pay of any kind, or (except in the case of officers drawing consolidated rates) allowances.

Reference may also be made to Mr. Forster's reply to Sir Watson Cheyne in the House of Commons, reported on page 599.

PROMOTION OF NAVAL SURGEONS.

AN Order in Council, published on May 17th, authorizes the Lords Commissioners of the Admiralty during the period of hostilities and for twelve months thereafter to dispense with the prescribed examination to qualify for promotion to the rank of staff surgeon, R.N., and to promote to the rank of staff surgeon all surgeons qualified by length of service, with retrospective effect accordingly where necessary, who have had uniformly good reports during their naval service, and who are recommended for such promotion by the Director-General of the Medical Department, R.N.

AIDES-DE-CAMP FOR MEDICAL GENERAL OFFICERS.

SURGEON-GENERAL G. J. H. EVATT, C.B., A.M.S., ret. (London, W.), writes: Wherever a medical "general officer" is employed either in direction of the medical affairs of a "command" in England or of an "army corps" or "army" in the field, he should "by order" have an aide-de-camp on his personal staff.

2. This officer should be a medical officer not above captain's rank, and should have gone through four months' staff training in the head quarters offices of a "command" at home or abroad.

3. An aide-de-camp attends to the housing, the feeding, and the transportation of his chief, and so greatly helps that officer's fitness in the field. I have seen pitiful results from the absence of such an officer on a directing medical officer's staff. Further, the aide-de-camp acts as "gentleman usher" to his chief, and prevents his being intruded on by every casual inquiring visitor. He is able to see visitors, and himself give them much of the information they desire. He also can be sent on messages to distant officers, to convey important orders—or to make inquiries of a confidential character. A young man himself, he hears the gossip of the camp, often very valuable to know, and he learns either of neglects or failures which would never come direct to a medical general officer's ears. For want of such an officer, directing medical officers of considerable age and seniority have broken down in the field, or come back as wrecks after directing the medical affairs of a stiff campaign.

I strongly advise the recognition of such an officer, and compulsory orders should exist directing general medical officers to nominate such a personal staff officer. I am positive that a

medical officer employed in this capacity during a campaign, so far from being injured in his medical or sanitary efficiency by this duty, would, at the end of his term of service, be a far more valuable medical officer than he could have been without this experience. Whatever he may cost the state he will amply repay that expenditure in the bettered efficiency that may result to the medical service in the field. We failed in our old wars largely for want of a trained directing staff, and the absence of an aide-de-camp has helped on failure, and has at times broken down completely the health and efficiency of medical directing officers.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

THE Senate has elected Dr. F. Gowland Hopkins, F.R.S., Professor of Biochemistry, as the Representative of the University on the General Medical Council for a term of five years, in succession to Professor Sir Clifford Allbutt, who did not offer himself for re-election.

At a congregation held on May 18th the degree of M.D. was conferred on W. C. D. Maile.

UNIVERSITY OF EDINBURGH.

Finance.

THE General Council of the University, on May 16th, approved an ordinance containing regulations for the administration of the finances of the university. The ordinance in force dates from 1895, and requires that a number of funds should be administered separately and independently. Experience has shown that this is inimical to the free development of the university. Another defect was that the salaries of the professors fluctuated according to the state of the fee fund at the moment; many of the salaries were too low, not exceeding £600 in a number of instances. The new ordinance would bring all the funds into a general revenue and expenditure account, and under it a professor's salary would never fall below £700. The Principal said that the purpose was not so much to alter professors' salaries as to simplify the university accounts. He added that Edinburgh had suffered more than any other of the universities, except possibly Oxford and Cambridge; in three years of war its loss in fees amounted to £52,000, and the net result was to leave it £27,000 the bad. Though the position had been relieved by a special Treasury grant of £14,500, it still caused anxiety.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following were, on May 16th, admitted Fellows: J. J. Armistead, W. T. Garretson, S. Green, E. W. Lewis, V. D. Nimbkar, E. H. Roberts, A. L. Yates.

The Bathgate Memorial Prize has been awarded to Miss Janet A. A. Sang.

Obituary.

JOHN COUPER, F.R.C.S.,

Consulting Surgeon to the London Hospital.

MR. JOHN COUPER, for many years surgeon to the London Hospital, died on April 30th. He was of ancient Scottish lineage, and studied medicine in the University of Glasgow, of which university his father was professor of *materia medica*. He was born in Glasgow, and received his preliminary education there, but subsequently went to Paris to perfect his knowledge of French. He graduated M.D. Glasgow, in 1858. In the following year he became M.R.C.S., and a Fellow in 1861. At Glasgow he attended the anatomy lectures and demonstrations of Professor Allan Thompson, and in London he was a student of Professor Ellis and Professor Sharpey. For a short time he went to Berlin and studied surgery under Langenbeck. Upon returning to London he became assistant surgeon and demonstrator of anatomy to the London Hospital, and was afterwards surgeon and lecturer upon surgery. He was one of the earliest promoters in London of the antiseptic system of surgery, a knowledge of which he had acquired from Lister at Glasgow. In fact, he established Listerian treatment at the London Hospital many years before Lister himself brought it to King's College. As a speciality he adopted ophthalmology and became clinical assistant to Crichton at Moorfields. At the meeting of the British Medical Association at Newcastle in 1870 he contributed a valuable paper upon the diagnosis of astigmatism by the ophthalmoscope. Upon retiring from active practice he went to reside first at Ellesborough, in Buckinghamshire, but subsequently removed to Falmouth, where he died and where he is buried.

Mr. Couper was of a retiring disposition. He catered little for popularity, but possessed many warm friends. Any medical views he had to express (and all his views were valuable) he communicated quietly to the transactions of one of the medical societies. Mr. Couper leaves to mourn his loss (a loss which will be felt far outside his family circle) a widow, three daughters, one of whom is married to the vicar of Ellesborough, and a gallant son, Colonel Duncan Campbell Couper, R.E., now at the front.

RICHARD GRAINGER HEBB, M.A., M.D.CAMB., F.R.C.P., Consulting Physician and Physician-Pathologist to the Westminster Hospital

WE regret to record the death, on May 12th, of Dr. R. G. Hebb. He was the eldest son of the late John Hebb of East Dulwich, and received his medical education at the University of Cambridge and King's College Hospital. He obtained the M.R.C.S. diploma in 1874, the M.D. degree in 1880, and was elected a Fellow of the Royal College of Physicians in 1891. In 1888 Dr. Hebb joined the teaching staff of the Westminster Hospital, and held for many years the two offices of physician and director of the pathological department. He was also pathologist to Queen Charlotte's Hospital, and for a long period secretary and editor of the Royal Microscopical Society, which recognized its indebtedness to him for the high standard maintained by its journal. He served as a civil surgeon in the Zulu war of 1879, and on the formation of the territorial hospitals received a Majority, but unfortunately his ill health prevented him from taking an active share in the work of the 4th London General Hospital, to which he was posted. He had been an examiner in medicine at the Royal College of Physicians and in the University of Cambridge; he held the office of reader in pathology in the University of London. In his more active days he was secretary of the old Pathological Society.

No member of the staff of the Westminster Hospital in the last thirty years exercised so great an influence over the students or was so universally esteemed for the precision of his knowledge, for his entire freedom from professional cant, and for his essential probity of character; to none did old students return in after years with more affectionate or grateful remembrances. As a physician in the out-patient department Dr. Hebb's teaching of physical signs was invaluable, for his perceptions were acute, his mind sceptical and almost entirely free from self-deception. But not every student could learn from him. In the wards in later years he attracted few besides his clinical clerks, but they certainly never failed for want of drilling in the elements of clinical observation. So it was with his systematic lectures; they were sound but unattractive. On the other hand, his demonstrations of morbid anatomy had become a tradition in Westminster; they were at one time largely attended by practitioners and colleagues as well as by the students; they were a continual delight; in themselves almost a liberal education.

Of his own work in pathology none but those who worked with him will ever appreciate its worth; he wrote but little, though his experience was great and his memory very remarkable. His modesty was so ingrained that the value of his observations was discounted by a reluctance to publish that owed something also to a rather cynical sense of the fleeting value of many contributions to the professional press. One who worked with him for years says that whilst his perceptions and descriptive powers were great, he was lacking in scientific imagination; hence it came about that many "discoveries" by other workers depended upon observations with which he had been familiar for years, but which he had failed to visualize in form or context communicable to the world. Scholar and gentleman, his teaching will long bear fruit in the work of generations of students who owe their fundamental ideas to him.

OWEN MEREDITH JONES, F.R.C.S.Eng., F.A.C.S., died on April 3rd at Victoria, Vancouver Island, where he practised for thirty years, and was long known as the leading surgeon in the west of Canada, enjoying besides great credit up and down the whole Pacific coast. Born fifty-five years ago at Carnarvon, and a student of the London Hospital, he went out to the coast in 1890 as surgeon of H.M.S. *Warspite*, and, leaving the navy, married and took

up practice. His wide knowledge, sound judgement, and great operative skill established him within the profession there as its leading consultant. His personal charm and sympathy endeared him to his patients. His devoted, unremunerated, and skilful attention to the wounded returned from the war, was crowned with remarkable success. As a doctor in Victoria writes: "The number of cripples he has restored is wonderful. . . . He certainly gave himself for the returned men, and they are grateful. . . . At a memorial service in Christ Church Cathedral on April 7th, nurses, doctors, and returned men occupied the middle of the nave, and the rest of the church was packed with patients. The Bishop preached." Dr. Jones will be greatly missed, not only from the Dominion and Provincial Medical Councils, but because of his great influence always exercised on behalf of the medical profession, and the action it knew to be needed in all matters of public health and morals. His eldest son, at the beginning of the war a second year medical student, is still serving in France with the C.A.M.C.

DR. JEAN JOSEPH PEYROT, surgeon to the Lariboisière Hospital, and lecturer on surgery in the University of Paris, died recently at the age of 74. He was a member of the Académie de Médecine, very popular as a teacher and distinguished as an operator. He was the author of many monographs, among them being one on the surgical treatment of intestinal obstruction, which is regarded in France as a classic. He contributed the volume on diseases of the neck, chest, and abdomen to the *Manuel de pathologie externe*, which under the name of the "Manuel des quatre agrégés," was the favourite textbook with the generations of students who followed each other in the French schools from 1885 to 1900. Of the four authors the only survivor now is Professor Kirmisson. The others were Reclus, who died on the eve of the declaration of war, and Bouilly, who fell a victim to cancer of the tongue some years before. Professor Peyrot was elected to the French Senate to represent the Dordogne in 1903.

COLONEL CHARLES FANCOURT WILLIS, C.B., Bombay Medical Service (retired), died at East Grinstead, Sussex, on April 28th, aged 63. He was born on May 22nd, 1854, and educated at St. Thomas's Hospital (taking the M.R.C.S. in 1875, the L.R.C.P. Edin. in 1877, and the M.R.C.P. Edin. in 1882) and at Durham University, where he graduated M.B. in 1879 and M.D. in 1887. After filling the post of clinical assistant at the Royal London Ophthalmic Hospital and at Newcastle Eye Infirmary, he entered the I.M.S. as surgeon on October 31st, 1879. He became surgeon-major on October 31st, 1891; lieutenant-colonel on October 31st, 1899; was placed on the selected list on May 24th, 1904; and promoted to colonel on November 14th, 1908, retiring on October 1st, 1913. Before his promotion he was civil surgeon of Satara, and as colonel was P.M.O. of the 5th (Mhow) Division. He served in the Egyptian war of 1882, in the battle of Tel-el-Kebir, and in the forced march to and occupation of Cairo (medal with clasp and Khedive's bronze star); in the North-West Frontier campaign of 1897-98; in the operations in the Kurram valley (medal with two clasps); and in the Tirah campaign of 1897-98; in the reconnaissance of the Khamana defile and action of November 7th, 1897; and in the operations against the Khani Khel Chamkanni tribe (mentioned in dispatches, G.G.O. No. 244 of 1898, clasp). He received the C.B. on June 19th, 1911.

PROFESSOR W. A. FREUND died in Berlin on December 24th at the age of 84. As a gynaecologist he distinguished himself by his work on extirpation of the carcinomatous uterus, an operation which, according to German sources, he was the first to perform. Of recent years he had devoted himself to the pathology of pulmonary tuberculosis and emphysema. His contributions to the mechanics of respiration are undoubtedly of high value.

DR. CHARLES BLAREZ, professor of chemistry in the University of Bordeaux, who died on March 3rd, was born in 1852 and received a teaching appointment in 1874. He published more than two hundred memoirs on pure or applied chemistry, and was the author of a course of organic chemistry in three volumes, and of monographs on the urine, and on milk. His last publication was a treatise on wines and spirits embodying the results of forty years' work.

Medical News.

THE pay of army nurses in Germany has been raised from 33.30 to 60 marks a month.

DR. HENRY JACKSON (Putney Hill) has been adopted as prospective Liberal candidate for the Putney, Roehampton, and Southfields Division.

THE Board of the Prussian Medical Chamber has declared in favour of an immediate rise of 50 per cent. in the pay of doctors.

THE Royal Dental Hospital, Leicester Square, has received a donation of £500 from the trustees of Smith's (Kensington Estate) Charity.

DR. ALEXIS CARREL, whose hospital at Compiègne was recently destroyed by German bombs, has been made a Commander of the Legion of Honour in recognition of his services.

THE annual general meeting of the Asylum Workers' Association will be held at the Mansion House, London, on Wednesday next, May 29th, when the chair will be taken by the Lord Mayor at 3 p.m.

PROFESSOR THOMS, Director of the Pharmaceutical Institute in Berlin, reports that efforts to grow opium in Schleswig have proved successful, and that the dried opium contained as much as 22 per cent. of morphine.

A COURSE of lectures to nurses on venereal diseases will be given by Mr. Leonard Myer, F.R.C.S., at St. Paul's Hospital, 13A, Red Lion Square, W.C.1, beginning on Tuesday, June 4th, at 5 p.m. The lectures are open free to nurses and midwives.

A COURSE of demonstrations and discussions on venereal disease will be held in connexion with the work of the Venereal Diseases Department of the Royal Institute of Public Health on Wednesday afternoons, at 2.30, beginning on May 29th.

IN Berlin complaints of the excessive moisture of the bread have led the bread control authorities to caution the bakers. In future a sample of bread must be tested at least once a week in every bakery, and the moisture must not exceed 47 per cent. in the crumb.

ON the recommendation of a meeting of the heads of the French army centres of neurology and of representatives of the French Neurological Society, a committee of neuro-psychiatric control has been set up by the French War Office to exercise general control over neurological and psychiatric centres, and to deal also with individual cases in which there is a difference of opinion as to convalescence, discharge, or military punishment.

A COMMITTEE of American poets has given to the Italian army an ophthalmic motor ambulance designed by Professor Busi of Bologna and Major Balestra. The equipment all packs into a trolley of the dimensions required by the railway authorities. It provides a small operating room with wooden walls and roof covered with impermeable canvas, and a waterproof tent mounted on iron frames with a rainproof roof which forms a reception room, and also on occasion a radiological cabinet and for ophthalmoscopic examinations, when it is covered internally with black cloth.

IN the article on Military Orthopaedic Hospitals, by Dr. W. Colin Mackenzie, which originally appeared in the JOURNAL of May 26th, 1917, and has now been republished in the compilation *British Medicine in the War* (British Medical Association, 429, Strand, W.C.2; price 2s. 6d.) a list was given of orthopaedic hospitals and centres in the United Kingdom. In this the 2nd Northern General Hospital, Beckett Park, Leeds, was described as having 250 beds. We are informed that since April, 1917, there have been 1,800 beds at this hospital, and that in the present year the number has been increased to 2,000.

THERE were only eight deaths from typhoid fever in army camps in the United States from September, 1917, to March, 1918, when there was only one suspected case under observation. In the Spanish-American war the death-rate from typhoid was 8.79 per 1,000; if that rate prevailed to-day the American armies, on the basis of 1,500,000 men, would have lost 13,000 to 15,000 from this disease alone. There has been no death from dysentery, and there are no cases now under observation. The annual death-rates per 1,000 during the six months ending March 8th, 1918, were: from pneumonia 5.2, meningitis (all varieties) 1.04, measles 0.096, scarlet fever 0.042, diphtheria 0.940, tuberculosis 0.15.

THE lighting, heating, and power order of the Board of Trade was discussed at the meeting of the Illuminating Engineering Society on May 14th. It was recommended that in order to avoid waste, carbon filament lamps should be discarded as far as possible in favour of metal filament (tungsten) lamps, and flat flame gas burners in favour of modern (low pressure) incandescent burners, and that in

large rooms a single gas-filled (half-watt) lamp could advantageously replace a number of small filament lamps of less candle power. It was recommended also that wrappings of silk or coloured paper which absorb a great deal of light should be replaced by diffusing or prismatic glass devices or cardboard or enamelled shades with white interiors.

THE annual general meeting of the London and Counties Medical Protection Society, Limited, was held at the offices of the Society, 32, Craven Street, W.C., on May 15th. Colonel L. C. Bensley, Chairman of Council, who presided, said that the membership of the society had decreased to a very small extent during the year, but the financial position continued to grow stronger. Five hundred members had received advice and assistance, and about one hundred of these cases have been referred to the society's solicitors. Many of the cases were concerned with the administration of the Insurance Acts, with respect to which many vexatious matters were continually arising; others, a considerable number, had to do with matters arising out of military and naval service. The society had been very successful in its law suits, and several unqualified practitioners had been prosecuted and penalized. Dr. Owen Fowler, the acting treasurer, said that the investments of the society at the end of 1915 stood at £14,614, and at the end of last year, after a considerable sum had been written off in order to bring them down to current market values, they stood at £20,242. The President, Major-General Sir John Rose Bradford, was re-elected, as were all the other officers, and the four retiring members of the council.

A NEW charter has come into force this year at Cincinnati placing all the medical, scientific, and nursing work in the new city hospital under the direction of the university. The medical director of each department will be the professor in the corresponding department of the medical college, and the board constituted by these directors will nominate, through the president, all members of the staff of the hospital, including the superintendent, who will be the general executive and business manager. The superintendent will select all the other employees under the rules of the Civil Commission of the City. By this arrangement the hospital is removed from the sphere of politics and all the facilities of the hospital are made available for purposes of education and research. The new building of the medical college, which stands on a site of twelve acres immediately opposite the hospital, has recently been completed, and is, we learn from *Science*, now occupied. This gives Cincinnati a complete plant for medical teaching and research which has cost over £1,000,000. The medical college is a regular department of the university, which pays all its expenses. The city will continue to pay the general working expenses of the hospital, including heating, lighting, food, and engineering. The total cost to the city of the combined medical college and hospital plant will be, without including income on endowments, approximately £140,000 a year.

BIJL (*Nederl. Tijdschr. v. Geneesk.*, December 15th, 1917), writing of the recent epidemic of cerebro-spinal meningitis in Holland, states that 54 cases were recognized in 1915, 226 in 1916, and 449 in the first six months of 1917. Expert assistance in making lumbar punctures was freely given to local doctors, and apparently the *Diplococcus intracellularis* was found in all the cases notified. A number of cases notified simply as (idiopathic) meningitis, in which no lumbar puncture was made, may have been instances of the epidemic form, for isolated cases of meningitis in remote villages were often found unexpectedly to be due to the diplococcus. This is one reason for thinking that a number of cases must occur annually in Holland and be mistaken for non-epidemic meningitis, or even for enteric fever, influenza, or other febrile diseases. The mortality of epidemic cerebro-spinal meningitis was 54 per cent. in 1916 and 43 per cent. in 1917, a fall due either to treatment or to the recognition of mild and atypical forms. The mortality from all forms of meningitis has steadily fallen in Holland from 3.96 per 10,000 in 1901 to 1.41 in 1916 in spite of the epidemic. A rise, of course, is now to be expected. The epidemic character of the illness is not pronounced. *Bijl* admits that 11 cases occurred in one small place and 30 in another, but in 1916 there were fifty-one districts in which only one case occurred, and in 1917 72 per cent. of the cases were solitary. Small epidemics of so-called sporadic idiopathic meningitis, of the form regularly occurring in Holland have often been noted. Thus, in small places, five, seven, and nine cases have occurred at the same time. This is a second reason for thinking that so-called epidemic cerebro-spinal meningitis is always present in Holland, unrecognized maybe, for the diagnosis can only be made bacteriologically.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

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1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology*, Westrand, London; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulato*, Westrand, London; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

DR. LEONARD HILL, F.R.S., writes: It has been announced that I am to give a lecture at the Institute of Public Health, Russell Square, on July 3rd. Will you allow me to state that I have reconsidered this matter and this lecture will not be given?

EARLY THERAPEUTIC USE OF ANIMAL EXTRACTS.

DR. LOUIS MACPHERSON (Edinburgh).—The *locus classicus* as to organo-therapy in antiquity is the 28th Book of the encyclopaedic treatise on natural history by the Elder Pliny (23-79 A.D.). Of this work there is a fine English rendering (*The Histories of the World Commonly called The Natural Historie of C. Plinius Secundus*, Translated into English by Philemon Holland, Doctor in Physicke, London, 1601). The ancients left little untold in the domain of animal extracts, and their enterprise was limited only by their ignorance of anatomy. Dioscorides, who flourished in the first century of the Christian era, in his great work (*De materia medica*, Libri V, Recensuit etc. Curt Sprengel: *Medicorum Graecorum Opera*, Leipzig, 1829-30) gives a large place to animal extracts. But it was not till the middle ages that organo-therapy received the freedom of the medical city. One of the chief sources on the subject is Mesuë, an Arabic writer as to whose identity there is some mystery. It would seem that two different authors had become fused into one. Mesuë the elder (A.D. 777-857) was physician in ordinary to the famous Caliph Haroun-al-Raschid of the *Arabian Nights*, and afterwards to Al-Mamoun. His aphorisms were gathered into a volume which was translated into Latin under the title *Selecta Artis Medicæ*. Down to the fourteenth century he was constantly quoted by medical writers under the name of Janus Damascenus (John of Damascus). Mesuë the younger (circa 1015 A.D.) is said to have been a pupil of Avicenna, but there seems to be some reason to believe that a Latin compiler of the tenth or eleventh century assumed the name. His writings on *materia medica* formed the basis of the western pharmacopoeias, and were consulted up to the beginning of the eighteenth century. Organo-therapy was practised, on the lines laid down by Mesuë, by Rhazes and Albucasis in the tenth and Avicenna in the eleventh century. In the twelfth century the teachers of Salerno followed the Arabians in the use of animal extracts. In the thirteenth century Albertus Magnus, in his *Liber Secretorum de virtutibus herbarum, lapidum et mineralium* (1250), and Guy de Chauliac, in his *Grande Chirurgie*, written in 1363, speak of the use of animal extracts and secretions. Among other writers who recommend them may be mentioned Fernel, in his work on therapeutics (1558); Jerome Cardan, in *Ars Curandi Parva* (1566); Liébault, in *Quatre Livres des Secrets de Médecine* (1573); Pietro Andrea Mattioli of Siena, who wrote a commentary on Dioscorides (1572); Jean de Renou, in his *Dispensatorium* (1608); Nicholas Lémy in his *Pharmacopée* (1689); and *Dictionnaire des Drogues* (1693); Pomet in his *Histoire générale des Drogues* (1694); and Lientaut in his *Précis de la matière médicale* (1748). A more accessible source is Alfred Franklin's *La Vie privée d'autrefois: les médicaments* (Librairie Plon, rue Garancière, 10, Paris, 1901). Nicolas Culpeper (1616-54), in his *Physicall Directory* (1649), an unauthorized translation of the pharmacopoeia issued by the College of Physicians, ridicules not unhappily the animal remedies included in that work. The pharmacopoeias of the sixteenth and seventeenth centuries recall the hell broth of the witches' cauldron in *Macbeth*. Traces of these horrors are to be found in dispensaries published in this and other countries down to the nineteenth century. Gordon Cumming, in his *Wanderings in China*, gives numerous examples of the use of disgusting remedies of animal origin in the Celestial empire, and an important chapter is devoted to medicine in Captain Bourke's *Skatalogical Rites of all Nations* (see BRITISH MEDICAL JOURNAL, June 11th, 1892).

p. 1263). In a series of articles on organic medication before Brown-Séquard, published in the *Archives Cliniques de Bordeaux* (February, March, April, 1898), Dr. Félix Brunet, a medical officer of the French navy, gives a historical review of the subject with a copious bibliography.

LETTERS, NOTES, ETC.

PHYSICAL DETERIORATION OF BOYS UNDER WAR CONDITIONS.

MR. ROBERT R. HYDE (Director of the Boys' Welfare Association, Sanctuary House, Tothill Street, Westminster, S.W.1.) writes: Much attention has been devoted to the above question during the last two years, and in spite of the abnormal conditions under which industries are being carried on, many attempts have been made to grapple with it. The evils can only be counteracted by personal influence and leadership (the suggestion of Dr. Howard Distin in your issue of May 11th, as to the limitation of wages, involves many serious issues, and is impracticable). In order to supply such forces where they can be used to the best advantage—that is, in workshops and factories—a scheme of boys' welfare supervision has been adopted by some hundreds of leading employers throughout the country. Results, so far, have been excellent.

SOLDIERS' TRACT ON VENEREAL DISEASES.

MR. WILLIAM JONES (librarian, the Liverpool Medical Institution) writes that during the past two years the Institution has distributed 250,000 copies of a pamphlet written in plain non-technical language for young soldiers, warning them of the dangers and disabilities incurred by contracting these avoidable diseases. The tract has proved to be of great acceptance after lectures or talks to the men on these subjects. Inquiries are invited from C.O.'s, members of the R.A.M.C., chaplains, and social workers who would care to have a number of copies sent for distribution. Letters addressed to the librarian, Liverpool Medical Institution, will receive prompt attention.

THE HUMAN AND THE EQUINE FOOT.

MR. T. S. ELLIS (Gloucester) writes: Under the heading of "Feminine Equinism" is recorded in the *JOURNAL* of March 30th a discussion at the French Academy of Medicine on the effect of the high-heeled shoe, and on a deformity called "equinism, the horse foot, or hoof foot." I do not see how a resemblance to a hoof can be so caused, but I ask permission to tell once more how a recognition of the close analogy in the formation of my own foot and that of the horse was to me of inestimable value.

More than half a century ago my own foot was crushed between the body of a horse and the stones of a street crossing. The astragalus was forced inwards (subastragaloid dislocation) and the middle cuneiform upwards so as to project on the surface of the foot. Both deformities are still manifest. After some months I was able to walk, wearing a costly and very uncomfortable apparatus; the prospect of having to go through life under such conditions weighed heavily upon me. I happened to see a horse rear to an unusual height, and I marvelled at the strain there must be on the ligaments which bound together the bones which form the fetlocks. The backward and downward thrust must be enormous, such as no ligaments could stand. On reflection I thought that the tendon of the great flexor muscle, coming down from the haunch past the hock (the anatomical heel) and subtending the curve of the fetlock, must have a bow-string or tie-rod effect upon it. This would relieve the strain on the ligaments. I thought, too, if this be so, is not the tendon of the flexor longus pollicis in my own foot the bow-string or tie-rod of my plantar arch? And, further, is it not possible that a vigorous and prolonged action of this muscle would restore my flattened foot? Perseverance, pain being disregarded, soon brought some reward, but the story of the restored arch would be too long to tell here. Enough to say that I never again wore any kind of apparatus, and for many years no one who did not know would suppose that I had ever been lame. In my book, *The Human Foot*, and elsewhere I have tried to convince others of the practical importance as well as scientific interest of foot physiology. How little it is recognized is shown by the discussion at the French Academy, when it was thought worth while to pass "a resolution declaring that the fashion of very high heels was injurious and absurd." Moreover, the British Government supplies the public with boots having heels 2½ in. high with toes pointed in the middle line, in disregard of anatomy, of the great human characteristic of asymmetry of form and of difference in function between the great toe and that of the smaller toes.

THE OLDEST ENGLISH HOSPITAL.

DR. S. D. CLIPPINGDALE points out that Miss Mary Clay, in her book on *The Mediaeval Hospitals of England*, defines these early institutions as "houses for wayfarers, sick, aged and infirm, insane and lepers (founded before 1547)." The earliest dates of hospitals in England mentioned by her are 1087, St. Nicholas, Nantwich; 1089, St. John the Baptist and St. Nicholas, both in Canterbury. In 1100 followed St. Leonard Bentley, Derbyshire, and St. Cross, Bath. The date of the

foundation of St. Bartholomew's, Rochester, is given as 1108. Dr. Clippingdale would derive the word "hospital" from hospitium, which meant a place to receive guests. Murray (*N.E.D.*) infers that it came into English from the French, which got it from the mediaeval Latin "hospitale," the neuter singular of an adjective meaning really hospitable. Murray recognizes that the onrrent use of the word "hospital" is confined to an institution for the care of the sick and wounded. Dr. Clippingdale refers incidentally to the fact that the hospital established in Jerusalem by the knights of St. John in 1112, which was capable of receiving 2,000 persons, had its infirmary. So did many religious institutions. Murray states that "infirmary" was the common English word for a public hospital in the eighteenth century, and the use has survived very generally, we believe, in Scotland as well as in many large English towns.

THE FIRST INCUBATED BABY.

It is said that the first instance of successful rearing in an incubator was a premature infant who grew up to be a distinguished member of the medical profession. The case is related by Adrien Baillet in *Le jugement des Savants sur les principaux ouvrages des auteurs* (Paris, MDCCXXII). Fortunio Liceti, a man of encyclopaedic knowledge, was born on the coast of Genoa on October 3rd, 1577, two hours after midnight, during a voyage which his parents made from Recio, their native place, to the town of Rapallo, where his father intended to settle as a practitioner of medicine. The fatigue of the journey, combined with the fury of a storm which they encountered in passing near Cape Portofino, brought on labour pains in his wife, which he considered to be false in spite of all the mother could say to persuade him that she was not far off the seventh month. The babe, which was not larger, it was said, than the palm of the hand, was brought alive to Rapallo, where it was shown to Jerome Bardi and other physicians. It was found that nothing essential to life was lacking, and the father undertook to complete the work of Nature by the same artifice that is used to make chickens hatch in Egypt. He instructed a nurse, and had his son placed in a properly fitted oven kept at a uniform temperature exactly measured with the thermometer. The child lived nearly eighty years and composed eighty different works. In addition to this account which Baillet found in the work of Michael Giustiniani (*Degli Scrittori Liguri*), and which is quoted by Sterne in *Tristram Shandy*, where the length of the fetus is given as 5½ in., there is another which represents Liceti as simply having been reared in a box lined with cotton. It is not possible to determine which of the two accounts is the more authentic, but the oven heated in an uncertain way, in which the atmosphere must have been dangerously dry, and the absence of data as to the manner in which feeding was carried out, render the first story somewhat suspect to those who know the minute care with which a child in an incubator has to be surrounded. Rearing in cotton under similar conditions would not be more easy. Liceti was successively professor of philosophy at Pisa and Padua, physician at Bologna, and professor of medicine at Padua. It is true the eighty books with which he is credited by his biographers rather suggest that, like the great Lipsius, he composed a work on the day he was born, but there are certainly more than fifty which bear his name. In addition he corresponded with the most intellectual men of his day, and his letters fill many volumes. He died in 1657.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the week ending May 18th:

	£	s.	d.		£	s.	d.
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X. Y.	1	0	0	Dr. Henry Whitehouse	1	1	0
Dr. Reid	1	1	0	(also 10s. monthly)	1	1	0
Dr. S. G. Sloman	5	0	0	"Subscriber"	0	10	0
Dr. Mary A. Smith	0	10	6	Dr. Geo. McIntyre	2	2	0
Dr. J. S. Fraser	1	1	6				

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *restante* letters addressed either in initials or numbers.

THE CARE OF THE TUBERCULOUS SOLDIER.*

By MAJOR P. HORTON-SMITH HARTLEY, C.V.O.,
M.D., F.R.C.P.

HONORARY ADVISER ON TUBERCULOSIS TO THE MINISTRY OF PENSIONS;
SENIOR PHYSICIAN TO THE BROMPTON HOSPITAL FOR
CONSUMPTION AND DISEASES OF THE CHEST.

In this paper I propose to bring before the conference the steps which are being taken in Great Britain to treat and assist the soldier who has acquired tuberculosis in the service of his country or whose disease has been aggravated thereby. Our allies may have adopted methods which differ in part at least from those in vogue in this country, and a consideration of such differences may be of material value in indicating the directions which our further efforts should take.

A year ago, in an article published in the journal. *Recalled to Life*,¹ I sketched out the proposals and plans which the Ministry of Pensions then had in view. In the present paper, based on my former article, I propose to bring the position up to date, to state what is being done and to indicate what there remains to do.

The problem is a vast one. Up to the end of last year about 20,000 men had been invalided from the British army suffering from pulmonary tuberculosis, and each year the war continues large numbers will be added to the total. The national importance of the problem is also heightened by the fact that too often a case entails suffering, not only upon the patient himself, but also upon those near and dear to him, thus augmenting suffering and greatly increasing the cost of treatment.

Need for Careful Examination of Recruits.

In considering the subject, we must first ask ourselves whether every care is exercised to limit the problem by seeing that men already suffering from tubercle are not admitted into the army. In the past this has not been the case. Men have been passed into the army who had previously been inmates of sanatoriums and had suffered from consumption. Of these, not all break down again, the result depending much on the hardships to which they may or may not be exposed, but many certainly do succumb after a longer or shorter interval and are invalided from the service, thus entailing great expense to the country in treatment allowances and pensions. It is clearly wiser, therefore, to exclude such men from the army, leaving them to continue their work, which may be of great value to the country, in their more sheltered civilian capacity. Great care must be exercised, therefore, in examining recruits. Histories of previous pleurisies and haemoptysis must be carefully inquired into and investigated, and the assistance of tuberculosis officers and others who have experience in the diagnosis of diseases of the chest invoked in any case where doubt or difficulty arises. The need of care in this respect is now more generally appreciated, but it must be constantly borne in mind, in the interest both of the country and of the individual recruit.

But if all such cases of obvious tuberculosis could be eliminated from the army we should still have a vast problem to deal with, for to the war itself must be attributed a large proportion of the cases of phthisis with which we have to deal. Modern research teaches us that nearly every adult is already infected with tubercle. Under normal circumstances the natural immunizing processes are sufficient to prevent the spread of the infection, and most of us carry the poison through life without harmful result. But under the strain of active service it is different. The soldier's strength becomes sapped by exposure and strain and his vitality diminished, and under these conditions the tuberculous focus, which might otherwise have remained for ever dormant, wakes into life, and signs of active disease, for the most part affecting the lungs, make their appearance.

Direct infection has no doubt also played its part in the spread of tuberculosis which we are considering. The close proximity of man to man, inseparable from life in tents and the unavoidable overcrowding sometimes met with in billets or huts, must have presented many oppor-

tunities for massive infection and consequent danger when a case of consumption has developed under such conditions.

Need for Early Diagnosis.

The next point which must be borne in mind is the necessity for early diagnosis, when once signs of pulmonary tuberculosis begin to manifest themselves, if we are to obtain the best results from treatment and prevent the further spread of the disease. In view of the insidious onset of the malady in so many cases this is by no means easy, especially under conditions of active service. The members of the Royal Army Medical Corps must, therefore, ever be on the watch for the disease, and when signs of lassitude, cough, and wasting make their appearance the man should at once be placed under observation, his temperature registered, and the sputum tested, not once, but many times. If this is done, in most cases the disease will be recognized early, and appropriate treatment will have the best chance of success.

Let us now consider what is being done in this country to secure for the soldier who has developed phthisis the treatment best suited for him in the different stages of his illness, and in the following pages pulmonary tuberculosis or phthisis will be especially considered, this being the chief problem with which we have to deal. It should be added, however, that treatment for surgical and other forms of tuberculosis is provided by the National Health Insurance Commissioners.

Treatment of Early Cases of Pulmonary Tuberculosis : Sanatorium Treatment.

As soon as it is evident that the patient is suffering from phthisis, or even when this is strongly suspected, he is sent home to one of the military hospitals in this country. If there is no doubt about the diagnosis he comes before a medical board, and in due course is invalided from the army, his further treatment being undertaken by the civil authorities. Before being discharged, however, from the military hospital, and in order to avoid delay in procuring him suitable treatment, steps are taken to arrange with the National Health Insurance Commissioners for his admission to a sanatorium, if he be an early case, or to a hospital if his disease be more advanced—every discharged soldier, whether insured or not, whose tuberculosis has, in the opinion of the invaliding board, been either "caused" or "aggravated" by military service, being now entitled, under arrangements recently made, to such form of treatment as his case requires. For this purpose a form (National Health Insurance, A.F.O. 1835), entitled "Application for Sanatorium Benefit on Discharge from the Army," is filled in, giving the man's name and intended place of residence on discharge, together with certain medical details in regard to his case. It is signed by the officer in charge of the military hospital, and forwarded to the National Health Insurance Commissioners of England, Scotland, Ireland or Wales (at the addresses given on the form), according to the part of the kingdom in which the applicant proposes to reside. Arrangements are then made by the Commissioners (under financial agreement between the Commissioners and the Treasury) whereby the soldier, now invalided from the service, is transferred, provided he be an early case and accepts the treatment, to a sanatorium, and this is, so far as possible, the institution with which the Insurance Committee of his place of residence has habitually made arrangements, and consequently, as a rule, not far from the patient's home.

Before leaving the hospital the case is also brought to the notice of the Local War Pensions Committee of the area in which the man will eventually reside. These bodies have now been established all over Great Britain, and one of their most important duties is to keep in touch with discharged soldiers and to assist them when in difficulty, and to obtain for them such treatment as they may from time to time require.

In the early period of the war not a few men refused sanatorium treatment in their anxiety to return home and see their relations and friends, from whom they had been long separated. This difficulty has been overcome by granting the soldier a fortnight's leave on full pay and allowances after leaving the military hospital and before entering the sanatorium. In other cases refusal of treatment may have been due, in part at least, to insufficient

* A paper read before the Inter-Allied Conference on the After-care of Disabled Men.

care on the part of hospital authorities in impressing upon the patient the necessity of accepting sanatorium treatment in the early stages of his disease. To give another chance to such patients, the Ministry of Pensions has made financial arrangements with the Insurance Commissioners whereby, if such a case is brought to their notice by the Local War Pensions Committee or otherwise within six months of discharge from the army, sanatorium treatment will be given with as little delay as possible.

Allowances during Sanatorium Treatment.

It was clearly useless, however, to expect men who may not feel very ill, and who are capable of some work, to accept sanatorium treatment should they feel that their families are in want as a result of their absence from home. It was decided, therefore, that whilst a man is at a sanatorium he shall be considered "totally disabled," and he is in consequence given an allowance at the maximum rate of pension, which, in the case of privates, amounts to 27s. 6d. a week (less a deduction of 7s. per week in respect of maintenance), together with a separation allowance of 13s. 9d. per week for wife, and of 6s. 8d. per week for the first child, 5s. for the second, and 4s. 2d. for the third and subsequent children, provided they are under 16 years of age. It may be added that, as provided by Article 4 of the Royal Warrant, if a man refuses to carry out treatment without good and sufficient reason, he is liable to forfeiture of anything up to one half of his pension.

Treatment at the Sanatorium.

During a patient's stay at a sanatorium he is kept in bed for a time, and as soon as it is clear that there is no pyrexia (or as soon as this has passed away), he is, at all well run sanatoriums in Great Britain, treated by a system of graduated exercise—the German Liege-Halle system, of which rest is the chief factor, having never found much favour in this country, except, of course, in febrile cases. The exercise prescribed is at first walking only, but such a monotonous occupation is gradually replaced by light and useful work, increased little by little until at last, before their discharge, the most favourable cases do six hours' hard navy work a day.

As a result of this treatment the patient, when the course is finished, returns home with his muscles in good condition and able to resume work, but he must continue to carry out at home, as far as possible, the open-air lines of treatment which he has learnt at the sanatorium, if he is to maintain his health. He must also be careful not to overtax his strength in the early months after his discharge, and only gradually return to full work, and even then he should be in a position to take a day off from time to time, and to rest if he should not be feeling quite himself. This has been the great difficulty with the sanatorium patient in the past, his "benefit" payment from his friendly society ceasing as soon as he returned to work of any kind, even for an hour or two a day, so that it has been incumbent on him to work at once "full time" if he is to earn his weekly wage and thus to support himself and his family. The ex-soldier is, however, in a happier position. The Minister of Pensions, recognizing the position, and appreciating the fact, accepted by all life assurance societies, that a man who has had consumption can never be regarded again as the equal of one who has not suffered from this malady, has taken steps in conjunction with the Ministry of National Service to see that all medical boards at which the soldier's pension will hereafter be reviewed, shall be furnished with the opinion and advice of the medical superintendent of the sanatorium (if the patient be still at the sanatorium when the board is held), and afterwards of the tuberculosis officer, who will have the future care of his case, and who will be conversant with his condition, so that the man's pension will be properly graded according to his working capacity, in so far as this is affected by his tuberculous disease. This is a matter of vast importance, and the Minister's wise and just decision will in future afford the patient a greatly increased chance of maintaining arrest of his disease.

Advice as to Work and Occupation after Leaving the Sanatorium.

It may at this point be of value to refer to the important question as to the kind of work which the patient should

undertake on leaving the sanatorium, and the advice which should be given him in this respect, for upon a right decision in this matter his future health will largely depend. He will be a man who has probably had some former trade or occupation, and if this be not obviously injurious, the question often to be settled is as to whether he should return to his former occupation, which will probably offer him a good wage, even though this may necessitate his living in a city under "urban conditions." Some recent observations on the after-histories of patients who have left the Brompton Hospital Sanatorium, at Frimley in Surrey, are very instructive in this respect.² They would seem to show that the outlook of patients with limited disease who leave the sanatorium with their malady arrested, and who return to urban life under fairly satisfactory conditions, is infinitely less hopeful than the outlook of similar cases who have been able to effect a change of environment into the country, and sometimes a change of work. If possible, therefore, a return to town life should not be sanctioned, but in advising on the matter we must ever bear in mind the wage to be earned from any form of work proposed, for it is of paramount importance that the man should obtain from his work, supplemented by his pension, a sufficient income to enable him to be properly fed and adequately housed. Without this the most ideal climatic conditions will not save him from a breakdown and renewed activity of his disease. The work also must not be of too arduous a nature.

For this reason the advice so often given, urging the patient to give up his former occupation and to undertake, without any previous experience or training, the work of an agricultural labourer, is generally mistaken. The wages are not high, the housing accommodation is too often very poor, and the work is often exceedingly arduous. It is carried on under conditions of great exposure, and the hours at certain seasons are very long. As a result, only the exceptional case can stand it without breaking down, and it is not suitable for the average consumptive on leaving the sanatorium. We may add, too, that it is not a life which possesses great attractions for the former town-dweller.

In many cases, owing to the difficulty of finding a totally new occupation, and the fact that under such circumstances the man will at first be untrained, and therefore capable, for a time at least, of earning only a low wage, probably the wisest course is to allow the patient to return to his former avocation, provided it be not, like coal-mining, clearly and obviously unsuitable to a consumptive patient, *changing, however, the environment whenever possible.* To quote from my former paper:

Thus, a clerk may return to his clerical work, but should obtain, if possible, a post in the country or at the seaside. Similarly, a bank clerk may often be transferred to a country or seaside branch. A railway porter should apply for removal to a country station, and a policeman to a suburban division, while a carpenter may obtain work as an "estate carpenter." In this way the patient is often enabled to return under good conditions to his former work, in which he is skilled, and can thus earn a better income than if he attempted a change of occupation. He has accordingly more money to spend in food, his vitality remains good, and his chances of keeping well are increased.

Should it be necessary, however, to find a fresh occupation for a patient, then one must be chosen in which the work is carried on under satisfactory conditions, and as much in the open air as possible. Whenever possible, too, the employee should be to some extent his own master in regard to the number of hours worked each day, and the ability to take a day off from time to time, should he not be feeling quite up to the mark. In this way his strength is conserved, and the danger of a breakdown lessened.

In deciding on the exact occupation the various trades should be considered. For example, in the building trade the work of a painter or decorator, a builder, a bricklayer, a carpenter or joiner may all be permitted, by preference, however, in a smaller rather than a larger town. Similarly, wood-carving or wood-road laying may be suitable. In the transport trades a man might take up the work of a coachman, cab-driver, chauffeur, taxi-cab driver, motor-van driver, or motor cleaner; but experience shows that the work of an omnibus or tram conductor or driver is too arduous in these days of large vehicles and rapid driving. Railway ticket collecting and some forms of mechanical work on the railways should also be suitable.

Certain lighter forms of work on the land may also be recommended, such as market and flower gardening, fruit growing, hurdle-making, forestry, and woodman's work. The work of a gamekeeper, park ranger, park attendant, or lodge keeper is also excellent, but the number of such posts is limited. Other light occupations which may be mentioned are those of a

traveller, an insurance or commission agent, rent collector, canvasser (though in individual cases they may involve too many hours' walking), commissionaire, and bookstall attendant.

Should in any case the larynx be affected, an occupation involving much talking is to be avoided. Similarly, if the case be one liable to superadded attacks of bronchitis, then the less exposed occupations must be chosen. Window cleaning is not to be recommended, owing to possible risk of hæmorrhage.

The above list of occupations is by no means exhaustive, and is given only as an indication of the kind of occupation which may be recommended. If the ex-soldier's occupation is thus changed, it is probable that, for a time at least, there may be some loss of income, but, as already pointed out, this will be taken into account when his pension is reviewed from time to time, in so far as the medical board is satisfied that the man's physical condition is affecting his normal working capacity.

The Value of Health Visitors.

A change of environment, and sometimes of work as well, such as we have recommended, is not, however, to be accomplished by the stroke of a pen, and certainly not without taking all the circumstances of the man's family and home surroundings into consideration. For this purpose the services of a health visitor who has had training in social work, as well as practical experience at a tuberculosis dispensary, have been found of great value. It is her duty, while the patient is at the sanatorium, to visit his home and to make herself acquainted with the circumstances of his family. Should the medical superintendent of the sanatorium, after becoming fully conversant with the man's case, advise a change of work and environment, it is her privilege, in co-operation with the Local War Pensions Committee and the Tuberculosis After-care Committee, where such exists, to help him to effect the change, and very often her efforts will be successful. Later it will be the duty of the health visitor to visit the home from time to time, to see that proper precautions are carried out and that the man reports himself to the tuberculosis officer for examination at regular intervals. She will also arrange for the examination of contacts, and give friendly counsel in regard to the occupation chosen for the children, bearing in mind their predisposition to the disease.

Health visitors such as these already exist in certain areas and are doing excellent work, and a proposal is now being considered by the Ministry of Pensions and the Local Government Board to establish them generally throughout the country, so that the tuberculous soldier may obtain the maximum benefit from the treatment which he is entitled to receive.

Treatment of Advanced Cases.

After the patient has returned to work he is kept under observation by the tuberculosis officer, the health visitor seeing that he reports from time to time for medical examination. Should he show signs of breaking down, it is the duty of the tuberculosis officer to obtain for him, through the Insurance Committee, the treatment which his case requires—possibly a 'further course of sanatorium treatment, possibly treatment at home under his panel doctor, or possibly a spell of hospital treatment.

A time will come, however, in most cases, when the disease becomes advanced, and the patient bed-ridden and totally incapacitated. He is now in urgent need of medical treatment and careful nursing, and it is a time when, in the interests of his wife and family, in order to avoid the risk of massive infection, which at this stage of the disease is a grave one, he should receive institutional treatment. Such cases in the past have too often drifted into the Poor Law infirmaries—when they have not declined such treatment and elected to remain at home, with all the attendant risks and consequences of their families—since provision for such cases is not generally made under the Insurance Act. To prevent this unsatisfactory state of affairs, provision of "advanced beds" has been made by the Minister of Pensions.

Arrangements in the first place have been entered into with the Metropolitan Asylums Board, whereby up to 150 beds have been made available in the hospitals under their charge in the various London districts for the treatment of such cases, which must be certified as "In need of residential treatment, though not likely to recover a reasonable degree of working capacity." At present three wards, containing 64 beds, have been opened, and as the necessity arises more will be placed at the disposal of the Ministry. The Metropolitan Asylums Board is responsible for the maintenance and treatment of the patients, the actual cost being paid by the Ministry. The arrangement has

worked excellently, and the Ministry is indebted to the Metropolitan Asylums Board for the valuable help which it has given in this matter. The patients have been admitted without delay, have been well and sympathetically treated, and not a few have stayed until they died in the institution. As the patients for whom these beds are assigned are drawn from London and the adjoining counties, they are not too far removed from friends, who can visit them from time to time, and a sense of isolation is thus avoided.

In other parts of England beds for advanced cases are also being provided. At the Walker Gate Sanatorium, Newcastle, and at the Cottingham Sanatorium, near Hull, 15 beds at each institution have been placed at the disposal of the Ministry, and at Bierley Hall, Bradford, and at the Fazakerley Sanatorium, near Liverpool, 60 and 30 beds respectively will shortly be available. At the Cambridgeshire Tuberculosis Colony, at Papworth Hall, some ten miles from Cambridge, the Pensions Ministry has also obtained a lien on 40 beds, some of which will be used for advanced cases. In addition, small pavilions to accommodate 12 beds each (in the case of Birmingham 24) are being erected in the grounds of existing hospitals and sanatoriums—namely, at St. Helens, in Lancashire, at Birmingham, Derby, Southampton, Bristol, and Exeter, and these will shortly be in occupation. Towards the cost of the erection of these buildings the sum of £10,000 has been generously placed at the disposal of the Ministry by the British Red Cross Society and the Order of St. John of Jerusalem. The pavilions so erected, as well as the beds at the various institutions referred to above, will serve not only the urban districts mentioned, but also the surrounding areas, and the patients admitted will not be separated too far from relatives and friends.

It is interesting to note that in France our allies recognize equally with ourselves the importance of providing hospital treatment for the advanced tuberculous soldier, alike in the interest of the patient himself and with a view to preventing the spread of infection to his family, in this last and most dangerous stage of the disease, and that the erection of a hospital for this class of case is in contemplation by the French Red Cross Society.

Farm and Training Colonies.

In conclusion, I must say a few words in regard to farm and training colonies. In discussing the question of the work which a patient should take up after leaving the sanatorium, I have indicated that there are certain occupations, such as coal-mining, which, though not unhealthy in themselves, are clearly unsuitable for the consumptive. If the patient's previous occupation has been of such a nature, he must, therefore, perforce effect a change. A certain number of such patients may have had some previous knowledge of the land and be desirous of undertaking training in agricultural work, and for such as these farm colonies are being started. To these institutions the selected patients will be drafted direct from the sanatorium, and at them they will stay a year, since adequate training cannot be given in a shorter time. During this period treatment will be continued, and the patient will also be trained in agricultural work, market gardening, pig-keeping, bee-keeping, poultry-farming, and dairy work, together with rough carpentry and metal work, so that at the end of his stay he will be in a position to undertake work on the land either in this country or the colonies, or if he should eventually find other work, he would possess the requisite knowledge to cultivate an allotment with profit and success. During his year's stay the arrest of his lung disease should be rendered more secure.

Such colonies are a new development and are still in the experimental stage, for it is not known whether, under the existing conditions of the labour market, when well-paid work is so easy to obtain, men will be content to remain a year at a colony, nor can it be said as yet with certainty how far the after-history of a colonist, trained and treated as above, is better than that of a man who has simply passed through the full course of graduated labour at a first class sanatorium, and returned to suitable work in good environment at the end of his three or four months' treatment. This being so, and as the cost to the country of treating and training a patient at such a colony for a year will be considerable, the Ministry of Pensions is proceeding carefully in the matter, but if such colonies prove successful the scheme will no doubt be extended.

At present four such colonies are being started. They are as follows:

1. The Red Triangle Colony, at Kinson, five miles from Bournemouth, under the management of the Young Men's Christian Association. (21 colonists.)

2. The Cambridgeshire Tuberculosis Colony, at Papworth Hall, some ten miles from Cambridge, at which the Ministry

has a lien on 40 beds, some of which will be available for colony patients.

3. The colony now being inaugurated through the generosity of Mr. R. A. Pilkington in connexion with the Liverpool Sanatorium, in Delamere Forest. (30 colonists.)

4. The Royal Victoria Farm Colony, Polton, near Edinburgh, originally started by Sir Robert Philip. (Possibly 100 beds.)

Each of these colonies will probably develop on slightly different lines, as dictated by local conditions. At Kinross and at Edinburgh the colonies, as at present advised, will be purely agricultural. At Delamere Forest it is hoped that, through the good offices of H.M. Office of Woods and Forests, training in forestry will also be given, for which there will be full scope after the war, and it is possible too that training in a trade, such as olog-making, may be provided for certain of the colonists. At Papworth, under the energetic management of Dr. Varrier Jones, there will be training in agricultural and gardening work, but carpentering and engineering shops are also being erected. In the latter a course of instruction will be given, having as its basis the agricultural motor trade, such motors being now much in request in the agricultural counties adjoining Papworth, and the work of driving such ploughs having been found suitable for the patients. The colony at Papworth bids fair, therefore, to develop into a training colony rather than a farm colony pure and simple.

Such variation is all to the good, and will help to show on what lines the movement may best attain permanent success.

The patients sent to the colonies by the Ministry will be carefully selected, and will be those with early disease, in whose sputum tubercle bacilli have been found, or who have had a definite attack of haemoptysis or pleurisy with effusion, thus leaving no doubt as to the correctness of the diagnosis. The patients will be received direct from the sanatorium, and must be capable of working at least six hours a day without pyrexia, malaise or undue acceleration of pulse. They will engage to stay a year at the colony. During their stay payments for maintenance and training will be made by the Ministry on behalf of patients whose cases have been accepted by the Ministry at rates agreed upon between the body responsible for the management of the colony and the Ministry. The individual patient will also be entitled to the following benefits: During the year of treatment and training the man's

pension will be in abeyance, but he will receive instead an allowance at the rate of 27s. 6d. per week, from which a certain amount will be deducted weekly towards the payment of his board and lodging. Out of the balance it is proposed to pay over to him 5s. weekly, leaving the remainder to accumulate for his benefit until he leaves the colony, or, should he desire it, the balance may be paid weekly to such dependants as he may name. In addition to the above allowance, the colonist will be entitled during the last six months of his course to a weekly bonus of 5s. per week, provided that he completes satisfactorily the full year's course of treatment and training. This bonus will be paid to him at the termination of his year's course.

At the Kinross Farm Colony it has been decided (and possibly similar arrangements may follow elsewhere) that at the end of the twelve months' course the colonist will also receive a small sum, representing half the net profits (as apportioned among the colonists) which it is hoped may accrue from the successful farming operations of the colonists, the exact amount depending largely upon their individual efforts. The remaining 50 per cent. will go towards defraying the cost of the maintenance of the colonists.

Such are the lines on which farm or training colonies are being developed in this country, and it is hoped that these institutions may be the means of giving a fresh start in life to many a deserving patient, who might otherwise drift downhill by returning to unsuitable work amid unsatisfactory surroundings. In association with the other measures already taken for the proper care and treatment of soldiers whose tuberculosis has been caused or aggravated by military service, they are also an earnest of the firm resolve of the Minister of Pensions to spare no pains and to save no effort in his determination to do all possible to help these most deserving men, who have jeopardized their health in the service of their country.

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REMARKS ON ROENTGENOGRAPHIC PELVIMETRY.*

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In considering the use of the Roentgen rays in the diagnosis of pregnancy, and in the prognosis of difficult labour, attention is to be paid to the size and shape of the mother's pelvis and of the fetal head, and also the relation of the one to the other. This paper deals chiefly with the former, as in the majority of cases the abnormal presentation is due to pelvic deformity rather than fetal abnormality.

Since the existence of contracted pelvis was first reported by Arantius various methods have been employed for diagnosing the existence and measuring the extent of pelvic deformity.

External pelvimetry, introduced by Baudelocque, while enabling us to measure directly the external pelvic diameters, and thence to draw certain conclusions as to the degree of contraction, is insufficient for estimating the size of the pelvic cavity. This cannot be done directly in the living woman.

Internal Pelvimetry.—A method was devised by Skutsch which makes it possible to estimate the size of the pelvic cavity indirectly and with fair accuracy, but as the employment of his instrument is usually painful to the patient, an anaesthetic is required if an accurate diagnosis is to be made.

The Roentgen rays, it was thought possible, might afford a valuable method of investigating the size and shape of the pelvis, but it was found that, while an excellent idea as to shape was obtained, that as to size was erroneous,

owing to the fact that the sacrum and pubis lay at different levels from the sensitive plate, and consequently one portion of the pelvis was enlarged out of all proportion to the other. This defect made it impossible to utilize the radiograph for purposes of mensuration.

The employment of the following method will obviate this difficulty, and make it possible not only to see the existence and extent of the pelvic contraction both of the inlet and outlet, but also to compare it with the normal pelvis, and measure its degree without causing much inconvenience to the patient.

Method.

In a normal pelvic bone, which is designated the

"standard pelvis," the various diameters, both external and internal, are accurately measured. When this bone is radiographed definite points can be marked on the plate; the distance between these points will bear a definite ratio to that between the corresponding points measured on the

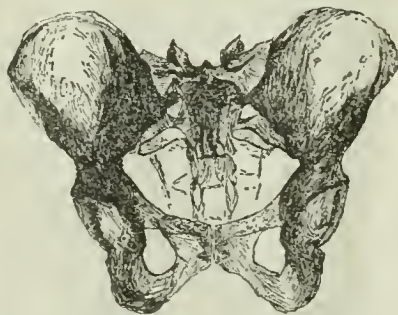


FIG. 1.—Drawing from skiagram of a normal pelvic bone, "standard pelvis."



FIG. 2.—Drawing from skiagram of abnormal pelvic bone.

pelvis. This radiograph is taken as the "standard plate." By radiographing the patient in the same position as the "standard pelvis," having the points of focus the same, the x-ray tube at the same angle and the same distance from the sensitive plate, an accurate comparison of the patient's plate with the "standard plate" will be obtained, and therefore of the patient's pelvis with the "standard" or normal pelvis; from it the internal measurements can be mathematically worked out: when compared to the direct measurements they are fairly accurate, as is shown by Figs. 1 and 2, there being an error of 2 mm. only. To work out mathematically the transverse diameter, for example, of the pelvic inlet the length of the transverse diameter of the pelvic radiograph of the patient is multiplied by the transverse diameter of the standard pelvis, and divided by the transverse diameter of

*Read before the Ulster Medical Society, March, 1913.

the standard plate. In the same way the antero-posterior diameter of the inlet or the transverse diameter of the outlet can be worked out. I have not mentioned the oblique diameters, because if the true conjugate is diminished the oblique will also necessarily be reduced in proportion.

Fetus.

It is possible to obtain the x-ray shadow of the fetus *in utero*, and this is a great clinical advantage in cases in which there is doubt as to the presence of pregnancy or the existence of abnormality. I am unable to state the earliest month at which the fetus can be recognized. It is necessary to take the x-ray plate in the earlier stages, if pelvic measurements are required, for in the later stages, as will be readily understood, the outlines of the pelvis may be more or less obliterated by the presenting part. An accurate comparison between the fetal skull and the pelvic inlet can be obtained if the photograph be taken when the head is about to engage in the pelvis.

While it is possible to measure the diameter of the head which lies parallel to the transverse diameter of the pelvis, it is not so with the diameter which enters the true conjugate. Therefore dependence must be placed on comparison rather than measurement. Even on finding the

Fig. 3, drawn from a skiagram, represents the pelvis of a healthy woman, aged 25 years, who has had three normal labours, and whose external measurements are normal. The internal measurements have worked out very satisfactorily when compared with the standard plate.

	Standard.		Mrs. "A."	
	Pelvis.	Skiagram.	Pelvis.	Skiagram.
Inlet:				
Antero-posterior...	11.5 cm.	13.5 cm.	11.5 cm.	13.5 cm.
Transverse... ..	13.6 cm.	15.9 cm.	13.6 cm.	16.0 cm.
Outlet:				
Transverse... ..	11 cm.	12.0 cm.	11 cm.	12.2 cm.

Fig. 4 is a drawing from a skiagram of a woman with a flat pelvis. This patient's first child was eviscerated and her second was delivered by Caesarean section. The transverse diameter of the inlet is normal, but the antero-



Fig. 3.—Drawing from skiagram—normal pelvis of healthy woman.

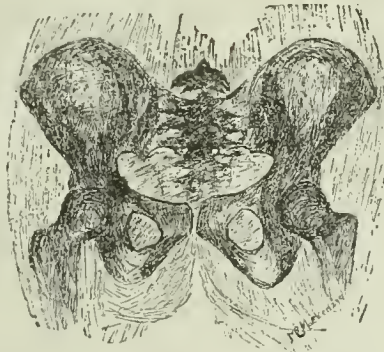


Fig. 4.—Drawing from skiagram—flat pelvis.

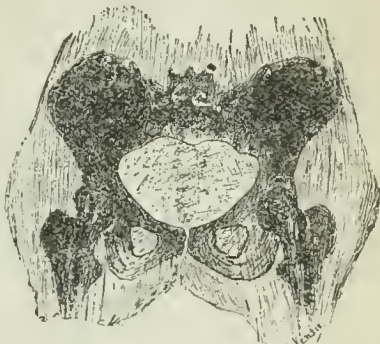


Fig. 5.—Drawing from skiagram—generally contracted pelvis.

relations of the fetal head to the mother's pelvis satisfactory, we must take into account the inability to judge the exact amount of mobility existing between the bones of the fetal skull, which, if soft, would mould themselves to the pelvis, but if densely ossified would be incapable of reduction in size.

Fig. 1 is a drawing from a skiagram of a normal pelvic bone, which is taken as the "standard plate"; the dimensions are :

	Pelvis: Direct Measurements.	Skiagram.
Inlet:		
Antero-posterior	11.5 cm.	13.5 cm.
Transverse	13.6 cm.	15.9 cm.
Outlet:		
Transverse	11.0 cm.	12.0 cm.

Fig. 2 shows an abnormal pelvic bone, the internal measurements of which show a very slight diminution when worked out by the above method as compared with the direct measurements, there being only an error of 3 mm. in the antero-posterior diameter of the inlet, 2.1 mm. in the transverse diameter of the inlet. It also shows clearly the diminution in the outlet.

	Pelvis.		Skiagram.
	Direct Measurement.	Worked Out.	
Inlet:			
Antero-posterior	10.5 cm.	10.2 cm.	12.0 cm.
Transverse	12.0 cm.	11.79 cm.	13.7 cm.
Outlet:			
Transverse	7.5 cm.	7.5 cm.	8.2 cm.

posterior is diminished over an inch. The transverse diameter of the outlet is 1 cm. larger than normal.

	Standard.		Mrs. "B."	
	Pelvis.	Skiagram.	Pelvis.	Skiagram.
Inlet:				
Antero-posterior	11.5 cm.	13.5 cm.	8.5 cm.	10.0 cm.
Transverse	13.6 cm.	15.9 cm.	13.6 cm.	16.0 cm.
Outlet:				
Transverse	11.0 cm.	12.0 cm.	12.19 cm.	13.3 cm.

Fig. 5 is drawn from a skiagram of a woman with a generally contracted pelvis. This patient's first confinement was terminated by craniotomy and the second by Caesarean section.

	Standard.		Mrs. "C."	
	Pelvis.	Skiagram.	Pelvis.	Skiagram.
Inlet:				
Antero-posterior	11.5 cm.	13.5 cm.	9.6 cm.	11.3 cm.
Transverse	13.6 cm.	15.9 cm.	11.71 cm.	13.7 cm.
Outlet:				
Transverse	11.0 cm.	12.0 cm.	10.8 cm.	11.8 cm.

Fig. 6 represents the pelvis of a healthy primipara seven and a half months pregnant. She consulted her own doctor as to his prognosis of a normal labour. He found on external pelvimetry that the distance between the anterior superior spines was only 8 in. and that between the iliac crests 9½ in. She was sent to me for x-ray pelvimetry.

External.—On comparing her x-ray plate with the "standard" there is considerable narrowing and apparent

flattening of the iliac bones, more marked on the right side. When worked out, the amount compares favourably with the doctor's direct measurements.

Between Iliac Crests.				Pelvis.	Skiagram.
Standard	...	...	...	28 cm.	32.5 cm.
Mrs. I.	...	...	...	23 cm.	26.8 cm.

At the level of the antero-inferior spines the bones are distinctly narrower than normal.

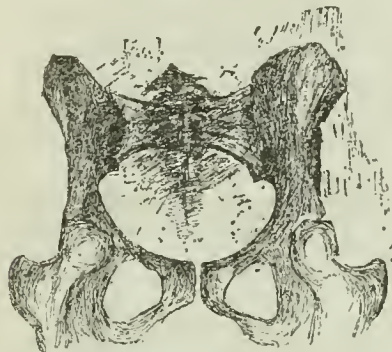


FIG. 6.—Drawing from skiagram—female pelvis showing deformity of iliac bones and normal cavity.

Internal.—On comparison with the "standard," the inlet appears normal, and when worked out it is as follows:

	Antero-posterior.		Transverse.	
	Pelvis.	Skiagram.	Pelvis.	Skiagram.
Standard ...	11.5 cm.	13.5 cm.	13.6 cm.	15.9 cm.
Mrs. I. ...	11.5 cm.	13.6 cm.	13.6 cm.	16.0 cm.

This case demonstrates clearly the advantages of this method of pelvimetry.

Fig. 7 is a case of normal full term pregnancy with a normal delivery, x-rayed at eight and a half months, and showing the fetal head engaging the pelvis.



FIG. 7.—Drawing from skiagram—fetal head engaging pelvis.

Conclusion.

In conclusion I would like to emphasize the following:

1. The necessity of a "standard" plate for pelvic measurements.
2. The patient must be radiographed in the same position as the "standard" pelvis, having the same point of focus, the x-ray tube at the same angle and at the same distance from the sensitive plate.
3. The accuracy of diagnosis in showing to advantage the variety of pelvic contraction, and the ease with which the various pelvic diameters can be worked out.
4. The minimum amount of discomfort to the patient compared to other methods of pelvimetry.
5. The absence of any ill effect to the fetus.

FROM October next the University of Maryland will admit women students to the medical department. Women have been admitted to the dental and pharmacy departments for some time.

THE PART PLAYED BY CONCOMITANT INFECTION WITH ANAEROBIC ORGANISMS (OTHER THAN *B. TETANI*) IN THE CAUSATION OF TETANUS.

BY

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(From the Laboratories of the Lister Institute.)

I. INTRODUCTION.

THE problem of tetanus is bacteriological, and susceptible of solution only by bacteriological inquiry. While it is a platitude thus to state that the important factor in the causation of tetanus is reproduction of *B. tetani* in the living tissues or in immediate proximity thereto, it is almost necessary at the present time to emphasize this factor of infection as opposed to the factor of intoxication. The tendency on the part of investigators to focus all attention upon the process of intoxication and upon its mechanism has led to the disease being regarded from too limited a view point—that of the pharmacologist and physiologist.

The result has been that the prophylaxis of the disease has been so far limited to the employment of tetanus antitoxin, and to those general surgical measures designed for the limitation of sepsis. Admittedly tetanus antitoxin has reduced to a very remarkable extent the incidence of tetanus, but one feels that, as the immunity conferred by the prophylactic use of this agent is transient, lasting apparently only seven to ten days, and as even its repeated employment at seven-day intervals for a period of four weeks has not absolutely eliminated the disease, other influences in its causation, notably those relating to infection, are worthy of special attention.

The general surgical methods directed to the limitation of wound infection have also done much to assist this reduction in the numbers of cases of tetanus. It must be clearly appreciated, however, that even the most efficient antiseptic is unable to sterilize an infected wound, for the conditions obtaining in a wound, notably the presence of living tissue, are such that the value of any reagent which can be incorporated in a dressing is much reduced in respect of its bactericidal and antiseptic properties. So far, no substance has been obtained which does not exert a deleterious influence upon the tissues at the same time as it exerts a restraining influence upon the growth of bacteria in the wound exudate.

The ideal method of dealing with war wounds, which are all infected to a greater or less degree, is excision of the wound area. This, however, is not always practicable, and even when practicable a certain number of cases are bound to remain considerably infected—though the mass infection is greatly reduced—owing to the conditions under which military surgery must be practised in the field.

In what Direction can the Prophylaxis of Tetanus be Improved?

The experiments to be described indicate one direction in which improvement can confidently be hoped for and the measures which they suggest, while they in all probability will result in the limitation of the incidence of gas gangrene, will also form a valuable adjuvant to the prophylactic measures at present in use for the prevention of tetanus.

The reason for conducting the experiments under consideration is indicated in the results obtained by Vaillard and Vincent and by other investigators, who demonstrated that tetanus spores deprived of toxin by washing and heating, when injected into animals, do not frequently determine the development of the disease. If, however, an irritant foreign body were introduced, or a solution of an irritant chemical were injected along with such spores, tetanus almost invariably supervened. Similar experiments, in which growths of staphylococci or other aerobic micro-organisms were used as the irritant, gave variable results.

It may be stated broadly, then, that anything which causes devitalization of tissue will enhance the infectivity of *B. tetani*. The devitalizing factors that play a notable part in war wounds are (1) trauma and the presence of

foreign bodies in the tissues, (2) concomitant infection with other organisms.

The first of these is, when possible, dealt with by the surgical measure of excision of the wound area, which procedure also to a great extent limits infection with all organisms. But upon the nature of the concomitant infection may largely depend the subsequent development of tetanus. Anything which tends to bring about necrosis, and especially necrosis of muscle, will greatly enhance the development of the tetanus bacillus in wounds.

Is there any Known Infection Common in War Wounds that Leads Especially to Devitalization of Muscle?

While any infection by staphylococcus, streptococcus, or the colon bacillus, etc., may to some extent lead to this, there are two organisms which are particularly suspect—namely, *B. welchii* and *Vibrio septique*. As both of these develop diffusible toxins, and as the toxin of *B. welchii* is known—in consequence of the brilliant work of Major Carrol Bull, U.S.A.M.C.—to be definitely “myotropic,” it seemed of special value to determine the influence of the toxins of *B. welchii* upon the development of tetanus. An investigation of this kind is all the more imperative in that an antitoxin to *B. welchii* is available, while the prevalence of this organism in wounds, and its capacity for rapid growth, make it a peculiarly dangerous constituent of wound flora. It seems not improbable, too, that this suggested symbiotic relationship between *B. welchii* and *B. tetani* may play some part in the causation of cases of delayed tetanus. It is conceivable that when wounds have healed and a slight trauma, received later, has resulted in the development of acute tetanus, there has been a reproduction of *B. welchii* or *Vibrio septique* locally which has exerted a trigger effect in the development of resting tetanus spores lying in the wound area. In such instances it is improbable, unless the trauma be fairly severe, that *B. tetani* develops without some assistance of the kind indicated. In an animal susceptible to tetanus the degree of infection by *B. welchii* required to light up tetanus need not be marked, so that it may well escape clinical observation.

Could we combat the necrotizing influence of *B. welchii*, and of other similar organisms, during the early stages of wound treatment much might be done to assist in the healing process, and, what is equally important, a healthier scar with fewer necrotic islets within it would be obtained. In order to investigate the symbiotic relationship suggested in the preceding paragraph the following experiments were undertaken.

II. EXAMINATION OF THE INFLUENCE OF THE TOXIN OF *B. WELCHII* UPON THE DEVELOPMENT OF TETANUS SPORES IN VIVO.

Reagents Employed.

In all series of the experiments the tetanus spores were prepared thus:

Tubes of Douglas broth, enriched by the addition of fresh sterile rabbit kidney and incubated to ensure sterility, were inoculated each with one of the definitive serological strains of *B. tetani*. The tubes were incubated for three weeks at 37° C., by which time the maximum sporulation had taken place. The growths were then filtered through sterile wool, centrifuged, and the supernatant fluid pipetted off. The deposit was suspended in saline and the tubes again centrifuged. This process having been repeated twice, sufficient saline was added to make the spore content of each suspension equal to 2,000 million spores per cubic centimetre, and the suspension was then heated to 80° C. for thirty minutes.

The toxin of *B. welchii* employed was of such potency that it caused the death of one guinea-pig of 250 grams weight out of three that were inoculated, when administered intramuscularly in a dose of 1 c.cm.; and only produced slight oedema when injected by the same route in a dose of 0.2 c.cm. diluted in 1 c.cm. of saline.

The antitoxin of *B. welchii* used was the product of the Rockefeller Institute of Experimental Medicine, and was marked as “Horse 2,” and contained 1,400 units of antitoxin per cubic centimetre.

A preliminary series of experiments was carried out (1) to determine approximately how many washed and heated tetanus spores could be injected into the guinea-pig without causing the development of tetanus, and (2) to determine what dosage of the toxin of *B. welchii* available invariably produced the disease (tetanus) when injected along with a constant number of tetanus spores, but was

by itself unable to cause more than slight oedema, demonstrable by palpation.

These preliminary experiments showed that if care were taken 1,000 million washed and heated spores could be injected in a volume of 1 c.cm. into the gastrocnemius of the guinea-pig without causing tetanus. It was therefore decided to employ this number of spores in all subsequent experiments, as such a number excluded the possibility of any inoculum consisting entirely of non-viable spores.

When this number of spores was injected along with 0.2 c.cm. of the toxin of *B. welchii*, the whole inoculum having a volume of 1 c.cm., acute tetanus invariably developed on the second or third day after inoculation. This experiment was carried out using three series of three animals each.

1. Animals *a*, *b*, and *c* were injected with 1,000 million Type 1 tetanus spores plus 0.2 c.cm. of *B. welchii* toxin, the volume of the inoculum being 1 c.cm. and the inoculation made into the right gastrocnemius.

2. Animals *d*, *e*, and *f* received the same inoculation, but Type 2 spores were used instead of Type 1 spores.

3. Animals *g*, *h*, and *i* received the same material, but Type 3 spores were used in this instance.

All nine animals died of acute tetanus between the second and third days after inoculation. Control experiments, in which 1 c.cm. of normal horse serum was inoculated into the left gastrocnemius before the inoculation was made on the right side, showed that normal horse serum did not prevent the fatal issue.

When a smaller dose of the toxin of *B. welchii*—less than 0.2 c.cm.—was employed, especially if it were diluted, the results were variable. It was therefore decided to employ in future experiments 0.2 c.cm. of the toxin. Having thus obtained an experimental method which gave constant results, I proceeded to determine whether passive immunization with *B. welchii* antitoxin would prevent the development of tetanus in animals inoculated with mixtures of tetanus spores and *B. welchii* toxin. The following series of experiments was therefore carried out. Details are given of the experimental methods employed in each series.

Experiment I.

Guinea-pig I was inoculated in the right gastrocnemius with 1,000 million spores Type 1 (U.S.A.) tetanus in 1 c.cm. saline. For the first five days the animal was well; on the sixth and seventh days it limped slightly (? local tetanus); on the eighth day there was no obvious limp, and on the remaining six days during which the animal was under observation it remained well.

Guinea-pig II was inoculated with 1,000 million spores Type 1 tetanus plus 0.2 c.cm. *B. welchii* toxin (volume 1 c.cm.). The following day there were signs of local tetanus; on the second day there was definite local tetanus; and on the third day the animal died.

Guinea-pig III also received 1,000 million spores Type 1, plus 0.2 c.cm. *B. welchii* toxin (volume 1 c.cm.), in the right gastrocnemius. One hour later 1,400 units of *B. welchii* antitoxin were injected into the left gastrocnemius. The animal showed no sign of tetanus, and remained well during the period it was under observation.

Experiment II.

Guinea-pig I A was inoculated in the right gastrocnemius with 1,000 million Type 2 tetanus spores in 1 c.cm. saline. It remained well for the first five days; on the sixth there was a slight limp (? local tetanus); on the seventh day there was definite local tetanus; on the eighth general tetanus, and the animal was killed.

Guinea-pig II A was inoculated with 1,000 million Type 2 tetanus spores, plus 0.2 c.cm. *B. welchii* toxin (volume 1 c.cm.). On the first day the animal appeared to be well; on the second it was moribund, and was killed.

Guinea-pig III A received 1,000 million Type 2 tetanus spores, plus 0.2 c.cm. *B. welchii* toxin (volume 1 c.cm.), in the right gastrocnemius. Two hours later 1,400 units of *B. welchii* antitoxin were injected into the left gastrocnemius. For the first five days the animal was well; on the sixth and seventh days it limped slightly (? local tetanus); on the eighth day the limp was less marked, and on the ninth day the animal was well, and remained well during the time it was under observation.

Experiment III.

Guinea-pig I B was inoculated with 1,000 million Type 3 tetanus spores in 1 c.cm. saline, in the right gastrocnemius. Guinea-pig II B received 1,000 million spores Type 3, plus 0.2 c.cm. *B. welchii* toxin (volume 1 c.cm.). Guinea-pig III B was inoculated in the right gastrocnemius with 1,000 million spores Type 3 plus 0.2 c.cm. *B. welchii* toxin (volume 1 c.cm.), and received 1,400 units *B. welchii* antitoxin in the left gastrocnemius. Guinea-pig I B remained well; Guinea-pig II B died of tetanus on the third day; and Guinea-pig III B, beyond exhibiting slight stiffness of the inoculated limb from the sixth to the fourteenth day after inoculation, remained well.

The deductions to be drawn from these three experiments are self-evident. They indicate that an antitoxin for *B. welchii* and tetanus antitoxin should be employed together for the routine serum prophylaxis of tetanus. The evidence is unequivocal that the antitoxin of *B. welchii*, in addition to neutralizing its toxin, has the advantage that it completely protects (in the case of the guinea-pig) against the development of tetanus spores in tissue which has been exposed to the devitalizing effect of that toxin. It is highly probable that the same protecting value would be found in the case of man.

Attention is called to the death of the control animal, I A, in Experiment II. The death of this animal, while in no way detracting from the validity of the experiments or of the deductions to be drawn from them, indicates that the development of tetanus depends upon a number of different factors. It is not improbable that in this instance a certain degree of trauma, when the inoculation was made, was responsible for the development of the infection. It is to be specially noted, however, that while the test animal, II A, died on the second day after inoculation, the control animal did not die until the eighth day. Moreover the test animal died of acute, almost fulminating, tetanus, while the course of the disease in the control animal was much less acute. Experiment II is therefore exceptionally instructive, for, while it shows that the danger of infection with *B. tetani* and notably of early development of the disease owing to symbiosis with *B. welchii* could be considerably mitigated, if not completely eliminated, by the use of a combined serum for prophylaxis, it also calls attention to the fact that while such a reagent would probably be of great value, surgical measures could not be permitted to be less carefully applied because of its introduction.

I call attention to this as, if a combined prophylactic serum were to be introduced, it might lead to the development of a feeling of false security, and too optimistic a view might be taken regarding the probable value of such a combined serum. As a natural sequence its unmerited condemnation would ensue if the results obtained did not completely bear out expectations.

III. INFLUENCE OF THE TOXIN OF *VIBRION SEPTIQUE* ON THE DEVELOPMENT OF TETANUS SPORES IN VIVO.

Vibrio septique is another of the organisms which are commonly found in wounds, and develop diffusible toxic products. While it is not known whether the toxin of this organism is a particularly active necrotizing substance or only has marked oedema-producing properties, it seemed of importance nevertheless to determine the possible influence which it might exert upon the development of tetanus.

As the properties of this toxin, then, are at present less well defined than are those of the toxin of *B. welchii*, the experiments to be described in this section cannot be so clearly interpreted as are those dealt with in section II of the present communication. This difficulty is enhanced by the fact that at the time of writing specific *Vibrio septique* antitoxic serum was not available, so that protection experiments could not be undertaken.

I here wish to record my thanks to Miss Robertson of the Lister Institute of Preventive Medicine for placing at my disposal a quantity of the toxin of *Vibrio septique*.

The methods employed and the results obtained in making this investigation were as follows:

Experiment IV.

Guinea-pig A was inoculated in the right gastrocnemius with 0.25 c.cm. *Vibrio septique* toxin plus 0.75 c.cm. saline. On the first day there was slight oedema and stiffness of leg. On the second day the oedema was palpable, but not extensive; there was still stiffness of leg. On the third day the oedema was almost gone and the leg less stiff. On the fourth day the animal had almost recovered, and on the fifth day it was well, and remained so during the period of the experiment.

Guinea-pig B was inoculated with 0.25 c.cm. *Vibrio septique* toxin, plus 0.25 c.cm. saline, plus 1,000 million tetanus spores. Type 1. On the first day there was slight oedema and stiffness of leg. On the second day oedema palpable but not extensive; still stiffness of leg. On the third day the animal was recovering, and on the fourth it had almost recovered. On the fifth day it was well, and remained so.

Although the oedema resulting from the injection of 0.25 c.cm. of this toxin was quite as marked as, if not more marked than, that produced by 0.2 c.cm. of the toxin of *B. welchii*, it is remarkable that tetanus did not

develop. I therefore decided to make the test much more stringent, employing 1 c.cm. of the toxin plus 1,000 million tetanus spores. The result of an experiment employing this technique is shown below.

Experiment V.

Animal C was inoculated in the right gastrocnemius with 1 c.cm. *Vibrio septique* toxin plus 0.5 c.cm. saline. On the first day there was marked oedema over the whole of the injected limb; on the second the oedema was more marked and extending over the abdominal wall, soft on palpation. The next day the oedema was reduced and the animal lively; limb stiff. On the fourth day the oedema was disappearing; leg still stiff. On the fifth day the animal had recovered, and remained well till the conclusion of the experiment.

Animal D received 1 c.cm. *Vibrio septique* toxin, plus 1,000 million Type 1 tetanus spores. On the first day there was marked oedema over the whole of the injected limb; on the second, oedema as in animal C. On the third day the oedema was reduced and the animal lively, but limb stiff. Fourth day, oedema almost gone; leg still stiff. On the fifth day the animal was well, and remained so.

A slight stiffness of the limb remained in both animals until the completion of the experiment, which was considered to have occurred on the fourteenth day. The animals have remained well, and the stiffness is slowly disappearing. This experiment is striking in that although the oedema produced in the animals was much more marked than that resulting from the injection of 0.2 c.cm. of the toxin of *B. welchii* employed in the previous series of experiments, no development of tetanus occurred.

This result was scarcely expected, and the experiment was therefore repeated.

Experiment VI.

Animal E was inoculated with 1,000 million Type 1 tetanus spores suspended in 1.5 c.cm. of saline. Animal F with 1 c.cm. of *Vibrio septique* toxin plus 1,000 million Type 1 tetanus spores. These animals both remained well, so corroborating the findings indicated in Experiment V.

As the disturbance produced by *Vibrio septique* toxin—oedema production—was so pronounced, it seemed remarkable that tetanus did not develop. The experiment was repeated a second time, using spores of a representative Type 3 tetanus bacillus. The findings of this experiment are as follows:

Experiment VII.

Animal G was inoculated in the right gastrocnemius with 1,000 million Type 3 tetanus spores suspended in 1.5 c.cm. saline. It remained well. Animal H was inoculated with 1,000 million Type 3 tetanus spores plus 1 c.cm. *Vibrio septique* (volume 1.5 c.cm.). There was marked oedema on the first day, but the animal was active. On the second day there was general tetanus, and the animal was killed.

As specific antitoxin for *Vibrio septique* was not available it was decided not to complete the present series of experiments using Type 2 spores, for the results shown in Experiment VII indicate that *Vibrio septique* may, like *B. welchii*, play an ancillary part in the causation of tetanus.

The negative results obtained on three occasions when Type 1 spores were used indicate, however, that the toxin of *Vibrio septique* is probably a less constant factor in stimulating the growth of *B. tetani* in the tissues than that of *B. welchii*. In view, however, of its frequent occurrence and in view of the fact that it sporulates more readily than does *B. welchii*, its capacity for doing harm is possibly extended over a more prolonged period than is the case with *B. welchii*. It would seem, therefore, advisable that antibodies to the toxin of *Vibrio septique* should also be included in serum used for the prophylaxis of tetanus.

Commenting on the results obtained in the two series of experiments described in the present communication, it is to be noted that Vaillard and Vincent foreshadowed the possibility of its being demonstrated that certain organisms might play a more important part in stimulating the growth of *B. tetani* *in vivo* than would others.¹

CONCLUSIONS.

1. There is good ground for believing that the ancillary part played by *B. welchii* in the causation of tetanus is clearly defined. The capacity of this organism for doing harm in the connexion under consideration can be almost eliminated by the use of the antitoxin for *B. welchii*.

2. The capacity shown by the toxin of *Vibrio septique* for stimulating the growth of tetanus spores *in vivo* is more

variable than is that of *B. welchii*. Experiment VII indicates, however, that it too may play a part in the causation of tetanus.

3. It follows from conclusions 1 and 2 that antibodies to the toxins of *B. tetani*, *B. welchii*, and *Vibrio septique* should be included in all serum employed for the prophylaxis of tetanus.

4. While such a polyvalent serum promises to reduce still further the incidence of tetanus it would be too optimistic to assume that it would absolutely eliminate that disease, for infections other than those dealt with in this communication may also play a part in stimulating the growth of *B. tetani* in wounds. One of these, *B. oedematis*, I propose to investigate immediately.

REFERENCE.

¹ *Annales de l'Institut Pasteur*, January 1st, 1931.

ANEURYSM OF THE THIRD PART OF THE LEFT SUBCLAVIAN ARTERY,

SUCCESSFULLY TREATED BY LIGATURE OF
THE SECOND PART.

By HERBERT H. BROWN, M.D., F.R.C.S.,

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IDIOPATHIC aneurysm of the subclavian artery is not common, and until recent years its treatment has been most unsatisfactory. Ligature of the first part of the artery is an operation of considerable difficulty, owing to the anatomical relations of the vessel and its depth from the surface, and in pre-antiseptic times was invariably fatal.

The second part, behind the scalenus anticus, has apparently not often been chosen for ligature; but it is far more accessible than the first part, and the operation is not especially difficult. In the case recorded below, I started the operation with the idea of ligaturing the first part, but found the second part could be more easily reached, and there was no difficulty in ligaturing the vessel. The result of the operation was completely satisfactory.

The patient, a farm labourer aged 50, was admitted into the East Suffolk Hospital on February 27th, 1918, complaining of severe pain in the left arm, which kept him awake at night. There was a pulsating oval tumour extending above the clavicle into the posterior triangle, rather smaller than a hen's egg. The left radial pulse was distinctly smaller than the right. The systolic pressure in the right brachial artery was 230 mm., in the left 195. The patient was kept in bed, given potassium iodide, and morphine at night.

Operation.

On March 8th, 1918, an incision was made along the posterior border of the sterno-mastoid, commencing at about its centre, and extending over the head of the clavicle for an equal distance on to the thorax; it was about six inches in length or rather less. The posterior edge of the sterno-mastoid was defined, the muscle drawn inwards, glands, etc., removed, and the internal jugular vein exposed. The attachments of the sterno-mastoid to the upper border of the clavicle, and of the pectoralis major to the lower border, were divided, and the inner half of the bone cleared with a periosteal elevator, the clavicle was divided with a saw, disarticulated at the sterno-clavicular attachment, and the inner half removed. The subclavius muscle was taken away and a large suprascapular vein; the subclavian vein was then exposed and cleaned. After removal of some lymphatic glands the scalenus anticus with the phrenic nerve was defined. It was evident that the aneurysm commenced at the outer edge of the scalenus anticus, and was confined to the third part of the artery. The first part had not yet come into view. The phrenic nerve was drawn inwards, the vagus, internal jugular, and internal carotid were also retracted out of the way, and the scalenus anticus muscle divided a short distance above its attachment to the rib.

The second part of the subclavian artery was now fully exposed to view. It appeared to be quite healthy and normal, and there was no difficulty in passing a ligature round it. Two silk ligatures of No. 4 silk were tied sufficiently tightly to occlude the vessel without rupturing the coats. Pulsation in the aneurysm and radial artery

immediately ceased. The wound was closed after suturing the divided sterno-mastoid and pectoral muscles, and a small drainage tube left in the centre of the wound. This was removed after forty-eight hours.

The patient made an uninterrupted recovery. The left arm and hand continued to be quite warm and free from pain. There was never any cyanosis or oedema. Muscular movements and sensation were unaffected. He left the hospital on March 28th, within three weeks of the date of operation.

I saw the patient again a month later—April 28th. He looked and felt perfectly well. All movements of head and arm were normal. He was quite free from pain and was advised to return to work. The radial pulse was still absent; the only trace of the aneurysm was a very small soft tumour above the clavicle resembling a lipoma. The systolic pressure in the right brachial artery was then 165 mm.

The operation has apparently been completely successful.

I am indebted to Colonel A. Carless for his kindness in giving suggestions as to the line of incision and *modus operandi*, and to my colleague, Mr. A. Y. Pringle, and Mr. Arthur Woo, the house-surgeon, for assistance during the operation.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF CEREBRAL TOXAEMIA— ?"BOTULISM."

THE following notes relate to a patient recently under my care. In the light of the interest lately aroused in the subject of botulism, and in consideration of the "epidemic" character of that disease, a report of this case, which occurred in Glasgow, may be suggestive epidemiologically. So far as I am aware, no case has, at this time, been recorded further north than Leeds.

Clinical Features.

J. G., male, aged 35, was admitted on May 6th, notified as typhus. His illness began on May 1st. The history, given by the relatives, was unsatisfactory, but headache, sickness, constipation, stupor, and delirium were the prominent features. The latter two appeared early, persisted throughout, and, as the disease progressed, tended to deepen.

On admission: coma, pyrexia (101–103° F.), sordamina or toxic erythema, dry brown flaccid tongue, bucco-pharyngeal hyposecretion, dysphagia, palatal paralysis, divergent strabismus, slightly dilated pupils reacting sluggishly to light, and retention of urine. Cerebral excitement was a prominent feature, producing muscular tremors greatly aggravated by interference. Forcible raising of the arms or separation of the legs revealed a spastic tone of the musculature. Movements constant, irregular, quick, choreoid (as in choreic diplegia), involuntary—although sufficiently purposive to necessitate restraint of the arms to prevent interference with catheterization. Sensation appeared hyperacute, as even slight digital pressure induced exaggerated collateral muscular response. Knee-jerks exaggerated, Kernig and Babinski present, ankle clonus indefinite. Heart: rate 120–144, sounds indefinite. Lungs: bronchopneumonic catarrh. Trace of albumin in urine. Abdominal examination negative.

Although, clinically, the case in no way resembled typhoid fever, the Widal reaction showed complete agglutination of *B. typhosus* in a dilution of 1 in 50 in an hour and a half.

Whereas, on admission, there appeared to be photophobia, next day paresis of both levatores palpebrae superioris was evident, and on the day before death there was bilateral ptosis with slightly contracted, fixed pupils. Bilateral facial paralysis was suspected, but could not be established on account of the profound stupor. Percussion over the chin and attempts at drinking produced a curious clonus of the masticatory muscles. The electrical reactions were not examined. Sixty hours after admission death occurred peacefully as from a gradual paralysis of the respiratory centre.

Post-mortem Findings.

Skin.—Over the shoulders, upper arms, and sides of thorax there were numerous small, circular, brownish spots, of variable size, some showing minute vesicular elevation. Over both suprascapular regions and backwards over the shoulders there was a copious eruption of sudamina.

Chest.—The left lung was intensely hyperaemic and oedematous. The right lung had an ill-defined area of pneumonic consolidation in the lower lobe posteriorly, the upper part of the lobe and the upper lobes being hyperaemic and oedematous.

Heart.—The wall of the left ventricle showed cloudy swelling, and the cavity was dilated; valvular structures normal.

Abdomen.—Spleen enlarged, very hyperaemic, but fairly firm; kidneys hyperaemic; liver not enlarged, but on section some biliary staining and cloudy swelling. All over the cardiac end of the stomach the mucous membrane was hyperaemic, but

there was no ulceration. The pancreas appeared normal. The mucous membrane of the small intestine was deeply bile-stained throughout. Just below the caput caecum the mucous membrane was hyperaemic and haemorrhagic for 12 inches.

Brain.—The pia arachnoid over the parieto-occipital regions showed a large accumulation in the deeper sulci of a slightly opaque greyish fluid. The larger vessels of the meninges and throughout the brain substance were enlarged, and the tissue, both grey and white, was pinkish from hyperaemia. The spinal cord showed similar hyperaemia of its surface and substance.

A routine bacteriological, serological, histological, and physiological investigation is being undertaken, but the results are at present incomplete.

Although careful inquiry was made of the relatives, no evidence was forthcoming that the condition had a "food origin." Noteworthy features of the case were the sudden onset, the early appearance of stupor and extreme prostration, the multiplicity of signs pointing to central nervous system toxæmia, and the comparatively negative findings at section.

I am indebted to Dr. Archibald, medical superintendent, for permission to publish this case, and my best thanks are due to Dr. Buchanan, city bacteriologist, for the use of his notes made at the post-mortem examination.

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Reports of Societies.

INDUSTRIAL TUBERCULOSIS.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on May 24th, the President, Dr. G. S. BUCHANAN, in the chair, Dr. E. L. COLLIS (Director, Welfare and Health Section, Ministry of Munitions) opened a discussion on the incidence of industrial tuberculosis. Dr. Collis remarked that the etiological factors more or less intimately associated with industrial environment were: (1) Overcrowding, the aggregation in sufficiently close proximity to allow of spray infection by coughing amongst persons not inherently subject to an excessive incidence of tuberculosis; (2) the presence in an otherwise normal environment of an unusual number of cases of tuberculosis; (3) alcoholism, associated with industrial employment as "industrial drinking," whether by custom of the trade, or owing to conditions of heat or dust; (4) illness—that is, a lowered general resistance dependent upon long hours, imperfect ventilation, bad feeding, lack of rest and healthy recreation; (5) inhalation of injurious dust, which might be summarized as exposure to the inhalation of silica dust. Shoemakers illustrated the class where, save for the possibility of infection, no adverse influences, such as fatigue, low wages and malnutrition, alcoholism, bad housing, bad ventilation, or imperfect lighting, were more intense than in industries not suffering unduly from tuberculosis. A similar remark was applicable to the printing trades. The case of publicans and inn servants might typify the peculiar influence of alcohol as lowering the general bodily resistance, mortality being excessive for all causes. Tin miners showed the features of a group where a specific predisposing cause in the shape of exposure to silica dust was the important factor. The importance of contrasting these groups lay in the consideration that when it was desired to unmask the causes of an undue prevalence of tuberculosis it was necessary to know whether such prevalence were or were not associated with an unduly high mortality from other diseases. Were such an association found, then attention might be directed to some other influence which affected the issue; in the absence of such association, as in the case of shoemakers, the field of inquiry was narrowed. It was of interest to remark that the curve of age-incidence upon shoemakers was similar in form to that describing the experience of all occupied and retired males; the similarity being sufficiently striking to suggest that the influence at work, although more intense, was not different in kind from that responsible for tuberculosis incidence as a whole. On the other hand, the curves for publicans and tin miners were quite different both from the standard and from one another, suggesting a different

etiology, which, on other grounds, was usually admitted to be the case. Owing to the great difficulty, amounting in many cases to impossibility, of securing industrial incidence rates, it was advisable to utilize the method of proportional mortality, that is, to study the proportion of recorded deaths attributable to tuberculosis. It appeared to be a rule admitting but few exceptions that when the proportional mortality was high the absolute incidence was also excessive, and he (Dr. Collis) was disposed to agree with Hoffman's conclusion that this method, although admittedly imperfect, could render valuable service in the investigation of industrial diseases. An important caution should be given in connexion with the study of mortality records—namely, that, owing to change of occupation, mortality returns were not altogether trustworthy indices of industrial morbidity. In this connexion the classical investigation of Finlaison in 1853 and the more recent work of Watson merited special notice. No complete study of industrial morbidity had been undertaken in this country, and such a task would appear to await the advent of a Ministry of Health.

Captain M. GREENWOOD (Welfare and Health Section, Ministry of Munitions) desired to direct attention to two points. In the first place, the death-rate from tuberculosis among women had shown a slight but real increase since the outbreak of war, amounting to about 6 per cent. between 1914 and 1916. Dr. Stevenson had suggested that this increase might be attributable to the employment of women in industry, and had drawn attention to the fact that women over 45 did not participate in the change. He (Captain Greenwood) found that an application of the tuberculosis rates observed among employed women at Leipzig, and published by the German Imperial Statistical Department in 1910, to the English female population as distributed in industries before the war and again in 1916 (according to the Board of Trade's estimates) gave approximations very close to the observed facts; hence it seemed very probable that the industrial redistribution produced by the war was really the explanation of the change. In the second place, he suggested that the explanation of differential incidence of tuberculosis by an appeal to selection—namely, the argument that it was not so much the occupation as the type of recruit entering the occupation which determined the incidence—was insufficient to account for the phenomena. If a prediction of the phthisis rate at ages 35–45 in industrial occupations (excluding the silica groups and, of course, non-industrial and professional classes) were founded upon the death-rate from all other causes at the same age, and also upon the death-rate at ages 25–35 in the same occupations as observed in the previous decennium, it appeared that certain groups—namely, bookbinders, printers, shoemakers, tailors, and cabinet-makers—exhibited an exceptionally heavy phthisis mortality, not to be accounted for either by their death-rate from other causes or their mortality at earlier ages (so far as this could be measured by the previous decennial records). Although the method was open to some criticism, its application appeared to support the opinion that in the occupations named a special and peculiar tuberculosis problem needed solution.

Dr. BENJAMIN MOORE, F.R.S. (Medical Research Committee), questioned whether Dr. Collis had put sufficient emphasis upon the factor of low nutrition. The majority of occupations experiencing a very heavy incidence of tuberculosis were characterized by the stigmata of intermittent and badly paid labour. Apart from these, he thought it was possible to classify occupations, bringing into relation the nature of the product handled and the incidence of tuberculosis. He also desired to emphasize the necessity of close study of the actual factory conditions.

Dr. JOHN BROWNLEE (Medical Research Committee) did not consider that the problem of tin miners' phthisis was entirely explicable on the lines followed by Dr. Collis. Attention must also be directed to the general epidemiology of the disease. Tin mining was a localized industry, and the curve of incidence upon all inhabitants of the district was *sui generis*. He had studied the age incidence of phthisis as portrayed in the regional reports of the Registrar-General, and the result emerged that, epidemiologically, phthisis was not one disease, but certainly two and perhaps three diseases, each characterized by a special age incidence. The student of industrial phthisis would have to take into consideration these epidemiological aspects of the subject.

PHYSIOLOGY OF CHLOROFORM ANAESTHESIA.

A MEETING of the Section of Anaesthetics of the Royal Society of Medicine was held on May 7th, with Dr. J. BLUMFIELD, Vice-President, in the chair. After sympathetic reference had been made to the recent lamented death of the President, Mr. George Rowell, Dr. G. A. BUCKMASTER read a paper entitled "Some considerations on the physiology of anaesthesia by chloroform." Experiments were described that had been carried out with Dr. J. A. Gardner for ascertaining anaesthetic and lethal quantities of chloroform in the blood of animals narcotized and killed, the part played by the red corpuscles in the transport of the drug, and the rates of assumption and elimination of chloroform. It was found that as much as 94 per cent. of the drug may be carried by the red corpuscles, in the cell proteins of which it is probably absorbed. In experimental anaesthetization with known percentages of chloroform a primary and secondary danger point were recognized. When the first is passed the average chloroform content of arterial blood is about 27 mg. per 1,000 grams of blood at disappearance of reflexes in the case of cats and 31 mg. in the case of dogs. During anaesthesia the quantity slowly and steadily increases. Respiration ceases in cats with about 40 mg. and in dogs with 61 to 69 mg. The body weight, without fat, appears to be without influence on the percentage of chloroform in the blood necessary to produce anaesthesia. It is the percentage value of chloroform in the blood that is important, for this remained constant during complete anaesthesia in animals with (1) normal quantity of blood, (2) diminution through haemorrhage, (3) augmentation through transfusion, though the total quantity of chloroform rose and fell with the corpuscular richness and poverty of the blood. This percentage value must stand in relation to the solution pressure in virtue of which the drug enters the cells of the organism. A chart was shown illustrating the rate of assumption of chloroform by the blood during anaesthesia and the rate of elimination afterwards. Chloroform is neither decomposed nor oxidized within the body. It was shown that in the work of Nicloux the carbon monoxide actually found was produced during the analysis of the blood gases. The blood yields carbon monoxide during blood-gas analysis over potash. Ventilation of the lung during chloroform narcosis can be ascertained only by plethysmographic methods with an apparatus similar to that used by Haldane and Boycott. During the first three minutes the lung ventilation is diminished by 50 to 60 per cent. of its original value. From this some recovery occurs, but prolonged anaesthesia always diminishes the lung ventilation by a similar amount, 60 per cent. of the original value. Tables were shown giving comparisons of the total blood gases under chloroform and ether. The former drug markedly affects the gas content of the blood, the latter scarcely at all. The diminution in oxygen content of the blood in chloroform narcosis is not due to the diminished lung ventilation, but probably to the direct action of the drug on the red corpuscles. During complete anaesthesia the fall in oxygen is 40 per cent. The haemoglobin is therefore only partially saturated with oxygen during chloroform narcosis. The haemoglobin is, in fact, in the same state of partial saturation with oxygen that it would be with an oxygen tension to the alveolar air of only 45.5 mm. Hg, whereas the normal tension is 99.49. A discussion followed, in which Dr. A. G. LEVY, Professor A. D. WALLER, Mr. P. L. MUMFERY and others took part. Dr. O. MILLAURO demonstrated an improved foot key with rubber surface for use with gas cylinders, and Captains C. HENSEH and H. E. G. BOYLE showed apparatus for continuous administration of gas and oxygen and ether.

OVARIAN GRAFTING.

At a meeting of the North of England Obstetrical and Gynaecological Society, held at the Medical Institution, Liverpool, on May 10th, with Professor BRIGGS, Vice-President, in the chair, Mr. BLAIR BELL read a paper on the technique and value of ovarian grafting in the human subject. He insisted that grafts must be autophagic, small in size, and from the interior—follicles, as he pointed out, being unessential for the conservation of the uterine function. The operation was not indicated in women over 42, in women sexually inactive, or in cases

where conservation was at all possible. Grafts were stored in the utero-vesical pouch until the later stages of the operation, and were then embedded either in the abdominal wound, the drainage wound, or in the fundus of the uterus, according to the variety of case operated on. After-histories in a series of 20 cases were noted as regards (1) absence of menopausal symptoms, (2) persistence of menstruation, and (3) general health. The paper was discussed by Drs. DONALD, WALLS, BRIGGS, GEMMELL, and SUMNER. Dr. WALLS exhibited a specimen of fibroid of uterus undergoing cystic degeneration; Dr. BRIGGS a large ovarian fibroma, 11½ lb. in weight, with no degeneration; and Mr. BLAIR BELL a specimen showing red degeneration in a fibromyoma uteri sixteen years after the last pregnancy, associated with pyosalpinx; and a large myoma uteri of unusual appearance and with few symptoms in a young woman aged 25. Dr. CLIFFORD read notes on a case of ascites in successive pregnancies with albuminuria. Dr. BRIGGS described a case of acute abdomen during pregnancy, due to twisting of the pedicle of a small ovarian fibroma with small fibroma of the abdominal wall; and Dr. HENDRY a case of missed abortion carried two months over the full term.

Reviews.

ADAPTATION AND DISEASE.

ALL pathologists will welcome, as should also all biologists, the appearance of Professor ADAMI's Croonian Lectures on adaptation and disease in a volume in which are reprinted a number of earlier articles dealing with questions bearing on the theory of evolution.¹ Even if we may not always be in agreement with the learned author, he gives us much to think about and opportunity to clarify our minds. In the small space available here it is clearly impossible to do more than refer to the two main theses of the book, and, if difficulties are pointed out, they will, it is to be hoped, have the effect of sending readers to the book itself. A mere list of its contents would serve no good purpose.

One of these theses is that it is not true to say that no acquired conditions can be inherited. Few, if any, physiologists would be inclined to dispute this. Whether or not the germ plasma is susceptible to nervous action on the part of the organism that harbours it, it is impossible to believe that it is free from the influence of chemical factors contained in the liquid that surrounds it. Stockard's experiments on the degenerative changes produced by alcohol in guinea-pigs, effects still present several generations after exposure of the original animals to the vapour of alcohol, are given in detail in the book before us, and are conclusive. On the other hand, from this point of view it is not to be expected that mutilations of tissues which leave untouched other similar masses would have any effect on the germ plasma. I do not know whether Guthrie's work on the transplantation of ovaries in black and white fowls has been confirmed; but it also indicates an influence of the soma of the black variety on the germ plasma of the white variety, when transplanted into the former.

The other thesis—namely, that there is such a thing as direct adaptation—is likely to lead to more opposition. The question is one of great importance and the evidence must be carefully considered. I am bound to confess that the array of evidence brought by the author has failed to convince me. It may be due to failure to appreciate the complete meaning of the facts or to the influence of preconceived ideas; but I find it impossible to imagine how the incidence of a new force on an organism is more likely to result in a reaction which is favourable to that organism than the reverse. Whatever the reaction may be, it must be the result of the nature and properties of the reacting mechanism, and it may or may not be an appropriate one. If the former, it might perhaps be claimed as a direct adaptation; but surely the use of the word "adaptation" is misleading. Considerations of this kind have been put forward by Professor Parker of Harvard in the *American Naturalist*; vol. xlvii.

When we examine the evidence for direct adaptation, we find that it is of two kinds—either the development of new

¹ *Medical Contributions to the Theory of Evolution*. By J. G. ADAMI, M.D., F.R.S., F.R.C.P. London: Duckworth and Co. 1918. (Pp. 372; 7 plates, 20 figures. 18s.)

powers in successive generations of bacteria when exposed to new conditions, or the phenomena of immunity in the higher animals. In the former case, it seems difficult to exclude satisfactorily the intervention of favourable variations. We know that, in the absence of their favourite food, micro-organisms can utilize as sources of energy even such substances as paraffin, methane or hydrogen. Incidentally, it may be noted that this fact proves that food used for energy purposes does not become a chemical constituent of the protoplasm itself, any more than the petrol becomes a part of the motor. Now, are we certain that in cultures grown in a medium, which is normally so little acted upon that we say there is no action, there may not be a few individuals capable of such action in a small degree? If so, these would survive and the process might proceed according to the ordinary law of survival of the fittest. It may be possible to surmount this difficulty, but more convincing proof of adaptation would be given by results obtained on the same individual, by experiments on the lines of Abderhalden's "protective enzymes." Unfortunately, this observer has not yet shown the production of a new enzyme in response to the introduction of a foreign substance into the body. If an enzyme which is definitely known not to be present anywhere in the body were found to be produced, the results would be more to the point. On the contrary, more and more discredit is being cast upon Abderhalden's results even with foreign proteins, as in the much-advertised "pregnancy test."

The appearance of new diseases is a cognate problem, and it is discussed by Professor Adami in a very interesting manner. But here again some doubt may arise as to whether these diseases might not have been extremely rare and failed to come to the notice of any observers who were capable of appreciating their nature. It is true that examination of mummies and so on has not revealed their existence.

The evidence from the phenomena of immunity appears at first sight to be of a powerful kind. But it seems to me that much further knowledge is needed before we are justified in drawing such far-reaching conclusions as that of direct adaptation. Professor Adami is very scornful of Weismann's "ids" and "determinants," but, after all, are Ehrlich's "ambooceptors" and "complements" in much better case? Great as were the services of Ehrlich in the early days, I often wish that some competent investigator with no knowledge of the "side-chain theory," or any other theory, would take up the study of immunity reactions. In this connexion we may note that a view of the constitution of living matter akin to the side-chain theory and the "biogen" theory of Verworn is advocated in the book before us. May I venture to suggest to the author that there is not much difference between the standpoint of structural organic chemistry and that of the pure morphologist? Professor Adami rightly insists on the necessity of the dynamic consideration of life, and theories of the kind referred to are becoming less and less acceptable as our knowledge of the mechanics of the cell increases. Do "biophors" possess "receptors" for paraffin and methane?

With regard to the persistence of changes once set up, it is to me a matter of wonder that a morbid process ever gets right again, rather than the reverse.

This review may seem to be more critical than appreciative. My desire is to induce all of those interested in the difficult problems discussed by Professor Adami to read the evidence for themselves. They will find it put in an interesting and instructive manner. The biological significance of the problems raised must be my apology should it be thought that too great a preponderance has been given to difficulties.

W. M. BAYLISS.

THE SPLEEN AND ANAEMIA.

The value of combined work in medical problems, though generally recognized, is perhaps more commonly carried into effect in America than in this country. The results of this method are well shown in the recent volume on *The Spleen and Anaemia*,² by R. M. PEARCE, professor of

research medicine, E. B. KRUMBHAAR, the assistant professor of research medicine, and C. H. FRAZIER, professor of clinical surgery in the University of Pennsylvania. Not only do these writers contribute separate sections on the experimental, clinical, and operative aspects of the subject, but the account of the experimental work is a summary of investigations, directed by Professor Pearce, into the relation of the spleen to haemolysis, blood regeneration, and haemolytic jaundice, and carried out since 1912 by various collaborators, including J. H. Musser, jun., in the Research Department dedicated to his father. The results thus obtained have been published in some twenty papers, mainly in the *Journal of Experimental Medicine*.

The book before us deals with the influence of the spleen, as shown by its removal, on the red blood corpuscles, and not with the pathology and all the diseases of the organ. It is dominated by the results of experimental research, which are set forth in detail with full reference to the results of other investigators, and occupy more than half the volume. After experimental splenectomy the red blood corpuscles show increased resistance to haemolysis, and haemolytic jaundice and haemoglobinuria are less readily induced than in normal animals. As the hypothesis of a free haemolysin in the spleen is the basis for splenectomy in haemolytic anaemias, the available data are carefully considered, and experiments undertaken with splenic extracts failed to show the presence of a haemolysin in the spleen. Splenectomy is followed by a secondary anaemia, and it is suggested that the increased resistance of the red cells is not due to the absence of the spleen but is in some way, at least in part, associated with the anaemia. There is a post-operative leucocytosis of the polymorphonuclear type, the lymphocytes later showing a slight increase. Metabolism after splenectomy, both experimental and curative, is given detailed consideration.

In the clinical section Dr. Krumbhaar, after remarking that the term "splenic anaemia" should be either discarded or its use restricted, as it is loosely employed for a group of diseases, suggests the following classification with an eponymous nomenclature: Gaucher's disease or large-celled splenomegaly; Banti's disease, in which is included the form ordinarily called chronic splenic anaemia of adults, and in its final stage complicated by hyptic cirrhosis; von Jaksch's anaemia infantum pseudo-leukaemica, which is dismissed as in all probability not a condition but an atypical response of the infantile haemopoietic system to primary diseases of the blood; and the two forms of haemolytic jaundice, the acquired (Hayem-Widal) form and the congenital or familial (Chauffard-Minkowski). The first two are due to imperfect formation of blood, the last two, of course, to haemolysis. In the chapter on the indications for splenectomy it is pointed out that this operation should not be done for polycythaemia in which there is hyperplasia of the red bone marrow and the spleen acts as the chief agent in keeping the plethora within the limits compatible with life.

The question of splenectomy in pernicious anaemia is ably discussed; the reports of some of the early successes have not been confirmed by subsequent information, some of the cases may have really been examples of haemolytic jaundice, and under the heading of pernicious anaemia there may be included different types, some of which are and some of which are not benefited by splenectomy. But on the whole, though a cure cannot be promised, splenectomy is in many instances not only justifiable but advisable. The account of the operative procedure of splenectomy is well illustrated by figures. In conclusion, this volume is a valuable summary of recently acquired knowledge.

At a meeting of the Hamburg Medical Society last year the chief subject for discussion was the oedema frequently observed as a result of war conditions. It was regarded by one speaker as due to inanition, and provoked by absorption of excess of fluid in the war diet and by a reduction of the fat in the blood leading to damage to the capillaries of the skin. He compared the consequent oedema with that seen in chronic malaria and tuberculosis. Another speaker said that war oedema was most common in adult males between the ages of 50 and 70. Children were practically immune, but during the last year of the war he had found growth and development retarded between the ages of 12 and 14.

² *The Spleen and Anaemia: Experimental and Clinical Studies.* By Richard Mills Pearce, M.D., Sc.D., with the assistance of Edward Bell Krumbhaar, M.D., Ph.D., and Charles Harrison Frazier, M.D., Sc.D. Philadelphia and London: J. B. Lippincott Company. The date of publication is not given, but the preface is dated September, 1917. (Pp. 419; 16 illustrations, colour and black and white. 21s. net.)

BRITISH EQUIVALENTS FOR GERMAN MEDICAL SUPPLIES.

II.

It is not pretended that the products named in the previous article form a complete list of British achievements in chemical manufacture during the war. They have been given as indicating the spirit in which the manufacturers have approached an intricate problem. This spirit is not confined to the home country, for we learn that the Diarsenol Company of Toronto, Canada, has succeeded in making compounds to which they give the names diarsenol and neo-diarsenol, which are identical with the German salvarsan and neo-salvarsan. We are informed that the company has fixed an even higher standard than was advanced by German manufacturers, and that it has received a licence from the British Board of Trade on the same lines as the other manufacturers mentioned in the first instalment of this article. The Local Government Board has recently approved neo-diarsenol for the purposes of the Public Health (Venereal Diseases) Regulations, 1916. The price of the drug has been fixed, and it can be obtained from Mr. G. R. Brown, 15, Edmund Place, Aldersgate Street, E.C.1.

A number of other chemical firms, working on the same lines as those already described, have quite a long list of new medicinal chemicals to their credit. May and Baker, Limited, who, as already stated, are the agents in this country for arsenobenzol-billon and nov-arsenobenzol-billon, which are salvarsan and neo-salvarsan equivalents, also produce at their Battersea works adalin, a hypnotic designed to take the place of veronal, and also paraldehyde and xeroform.

A number of products, thirty or more, including salicylic acid, aspirin, calcium acetyl salicylate (soluble aspirin), digitalin, glycerophosphates, phenacetin, salol, as well as atropine, homatropine, hyoscine, and hyoscyamine, and their respective salts, have been manufactured by Boots Pure Drug Company, Limited, at Nottingham, since the war began, and are all preparations which were obtained either wholly or in part from Germany before the war. Boots are manufacturing, in addition, other synthetic drugs, such as chloramine-T, dichloramine-T, and halazone, the new antiseptic substances described by Dr. Dakin in our columns.

Not only with regard to drugs but also to medicinal waters, for which we relied to a great extent upon Germany and Austria-Hungary, the deficiency resulting from the stoppage of Continental supplies has been made up. A successful effort to substitute a British product for the German and Hungarian aperients has been made. Experimental borings at Harrogate have discovered a valuable spring, which Professor Percy Frankland, F.R.S., of Birmingham, has testified to be of a very high degree of organic purity. The water, bottled and standardized, has been placed on the market, under the name of Aquaperia, by Camwal, Ltd., of London. The same firm is manufacturing siphon tops and fittings of pure block tin, previously largely imported from Germany. An important article in which this country has become self-sufficient is the filter, thanks to the British Pasteur-Chamberland Company, the Fulham Pottery and Cheavin Filter Company, and other firms.

Turning to a totally different range of medical supplies, we find that the British manufacturer was able in a little time to adjust himself to an exceptional demand. Before the war the x-ray apparatus used in this country was to a considerable extent constructed in Germany. Some of the most popular x-ray tubes were German, and so far as apparatus for single-flash exposures was concerned, Germany had an almost exclusive market. She also had the field largely to herself in the construction of instruments for estimating exposure and dosage. During the two years previous to the war the total value of exports from Germany of electrical apparatus for medical and dental purposes was more than £400,000, and the United Kingdom was the third largest importer. In this country only two or three firms were actual manufacturers of x-ray apparatus; the remainder were importers of the apparatus from abroad, not only from Germany, but from France and America, and even the apparatus which was put together in this country was largely dependent on Germany for the material.

Since the war there has been considerable activity and

progress, all the more gratifying because among the few British manufacturers of this class of apparatus it has taken a definitely co-operative instead of a competitive form. A special section of x-ray manufacturers has been formed within the association representing the interests of the electrical trade as a whole, and the manufacturers in their effort to furnish a British equivalent for the German supplies have had not only the help of some noted physicists, but also the guidance and active support of a Government department. The Ministry of Munitions has interested itself in the whole question of x-ray tube construction, and the optical and glassware section of that Ministry has collaborated with a subcommittee of the manufacturers. A laboratory has been set up by the Ministry and equipped by the manufacturers with the object of carrying out research work for the improvement of manufacturing methods. The research has been largely occupied with a view to making in this country a suitable glass for the construction of tubes, and now everything connected with the x-ray tube can be produced here, including a satisfactory quality of tungsten. Originally the glass was of poor quality, gave blue instead of green fluorescence, and was very vitreous, but all the glass now made is remarkably good. The construction of the tube was the most difficult problem of all in the field of x-ray and electro-medical manufacture, but it has been surmounted, and, to mention only one firm, Cuthbert Andrews has placed on the market heavy-anode tubes made of British glass with all the characteristics of the best German glass. In the same way the manufacturers are turning out induction coils and transformers which are just as powerful and efficient as the instruments previously obtained from Germany, and apparatus for the single-flash exposure is now being constructed here from an improved design, as well as all the various accessories which go to form an x-ray unit.

One quite new industry so far as this country is concerned has sprung up under the stress of war conditions. This is the making on a large scale of fluorescent and intensifying screens. Before the war fluorescent and intensifying screens in platinocyanide of barium were chiefly of German production. One British firm, Watson and Sons, equipped a laboratory, placed it under the control of a well-known photographic chemist, Mr. Thorne Baker, F.C.S., and eventually established a works where grainless and rapid screens are now being successfully made, and more than replace the previous German screens in respect of quality and speed. Harry Cox and Company, Limited, also have placed on the market fluorescent and intensifying screens of very fine surface.

The same thing holds good of delicate instruments of precision, including some appliances for localization, and also measuring instruments. One of the instruments widely used for measuring the penetration of x-rays was known as the Bauer qualimeter, a unipolar electrostatic voltmeter connected to the cathode terminal of the tube. An application was made by Newton and Wright, Limited, to the Controller of Patents, to have the German patent revoked in their favour, and a licence was duly granted to manufacture. The instrument has now been made here for some time past, and a royalty paid to the Board of Trade for the working of an enemy patent.

Apart from instruments and appliances definitely associated with x-ray work, a good deal of electro-medical apparatus was, previous to the war, imported from Germany, and is now made in this country. Seeing that the more general apparatus of this kind (as distinct from some special items like those already mentioned) is made by a group of manufacturers who have pooled their knowledge and work together for the advancement of this young industry, little purpose would be served by specifying individual firms, but it may be said that the range of articles now manufactured here—and before the war largely imported from Germany—includes milliamperemeters for measuring currents passing into a patient's body; apparatus working both from batteries and mains for the production of faradization, galvanization, and electrolysis; various surgical appliances, such as cautery instruments, and the apparatus for producing the correct current for these instruments. The same is true of orthopaedic appliances for mechanotherapy, apparatus needed for baths and massage, and, not least, instruments for the production of ultra-violet light. The delicate mechanism necessary for

this last, involving the use of mercury vapour lamps, has been most successfully constructed over here.

Surveying the whole of this field, it may be said that practically everything in the nature of electro-medical apparatus is now made in this country. Furthermore, standardization is much easier when all apparatus is manufactured here and the manufacturers are in close association, than when part is manufactured here and part is imported.

Among surgical appliances generally, one instance of definite substitution may be noted. This is the "Record" hypodermic and antitoxin syringe, for the making of which S. Maw, Son and Sons have put down a special plant. These syringes are now being turned out in large quantities, and, it is claimed, are of a better quality than the former German-made article.

In the first part of this article it was stated that atropine, homatropine, and eserine, were probably exclusively of German manufacture before the war. Messrs. Burroughs, Wellcome and Co. inform us that they had made certain alkaloids on a commercial scale at an earlier date. Thus they commenced the manufacture and sale of pilocarpine and its salts in 1900, of atropine and its salts and of eserine and its salts in 1901, and of homatropine and its salts in 1905. In 1911 they were able to execute from stock of their own manufacture a single order for 176 oz. of eserine sulphate. At the outbreak of the war they had a stock of over 600 oz. of atropine and its salts of their own manufacture. The same firm manufactured the original quantities of emetine bismuthous iodide required by the Medical Research Committee for the investigation into the value of the drug in dysentery. The firm has since manufactured and issued this salt in large quantities.

THE MILITARY SERVICE (MEDICAL PRACTITIONERS) REGULATIONS, 1918.

THE Local Government Board and the Secretary for Scotland have issued identical regulations¹ with regard to applications concerning medical practitioners for exemption from military service. The regulations, which came into force on May 23rd, provide for the appointment of a special medical tribunal for England and Wales, and another for Scotland, to deal with all applications for the grant, renewal, or review of certificates of exemption to medical men of military age. It is the intention of the Director-General of National Service to approve the existing Central Medical War Committee and Scottish Medical Service Emergency Committee as the medical tribunals. As in the past, applications concerning members of hospital and medical school staffs in the metropolis will be referred to the Committee of Reference appointed by the Royal College of Physicians of London and the Royal College of Surgeons of England, whose recommendations will be binding upon the medical tribunal.

Power is given to the tribunals, with the approval of the Director-General, to appoint or recognize local professional committees to assist in the investigation of areas and of individual cases.

In dealing with applications, the tribunal may hear witnesses, and receive written statements, and the applicant has a right to be heard in person or through a representative, and to put relevant questions to witnesses.

Application for the grant or renewal of a certificate of exemption may be made on any of the following grounds:

(a) That it is expedient in the national interests that the practitioner should, instead of being employed in military service, be engaged in other work in which he is habitually engaged; or in which he wishes to be engaged; or, if he is being educated or trained for any work, that he should continue to be so educated or trained.

(b) That serious hardship would ensue if the practitioner were called up for army service, owing to his exceptional financial or business obligations or domestic position.

(c) Ill health or infirmity.

(d) Conscientious objection to combatant service.

Applications must specify all the grounds, whether occupational or personal, on which exemption is claimed, with a full statement of the reasons on which the claim is

based; they must be made in duplicate on the prescribed form, and must be sent to the appropriate medical tribunal. Where some other person applies on his behalf the practitioner must join in the application and sign the form. Applications must be made within fourteen days of the date on which individual notification is sent to the practitioner by the Director-General of National Service. Before applying for renewal or variation of a certificate, leave to apply must first be granted by the medical tribunal; in ordinary cases such request must be duly made and delivered within four days of the expiration of the certificate. The Director-General may require the medical tribunal to review the case of any practitioner holding a certificate. With the assent of the Director-General the tribunal may grant, renew, or vary a certificate without hearing the case, if satisfied that the grounds of application have been established. They will hear all other cases, four clear days' notice being sent both to the applicant and to the practitioner, where these are not one and the same person.

Regulation 24 lays down that "a certificate of exemption may be absolute, conditional, or temporary, as the medical tribunal think best suited to the case, . . . provided that—

A certificate granted or renewed on occupational grounds shall, and a certificate granted or renewed on personal grounds may, be subject to the condition that the practitioner shall undertake such professional service and under such conditions as the Director-General of National Service may, after consultation with the medical tribunal and in concert with any Government Department concerned, from time to time deem best in the national interests."

The importance of this proviso scarcely needs emphasis. In every case the decision of the tribunal will be communicated at once in writing to the applicant, to the practitioner, and to the Director-General. Where it is decided to grant a certificate this will be issued to the practitioner concerned; but if leave to appeal against their decision is given by the medical tribunal a certificate will not be issued or withdrawn pending the final decision of the case. Every certificate of exemption will state the ground or grounds on which it is granted, the date on which it will expire, if temporary, and the conditions, if any, on which it is granted; and in giving a certificate the tribunal may direct that the holder shall not be liable to join the volunteer force. The clerk to the tribunal may issue, on payment of a fee of 1s., a duplicate of a lost, destroyed, or defaced certificate. Power is given to rehear cases with the consent of the Director-General. Lastly, the regulations apply to voluntarily attested and enrolled medical men equally with other practitioners.

MEDICAL EXAMINATION.

The Director-General of National Service on May 22nd issued directions requiring qualified medical practitioners of military age—that is, those born after April 18th, 1862—to report themselves for medical examination on receipt of individual notice duly served on them. It is expressly stated, however, that a practitioner will not in any event be called up for military service until he has been sent by the Ministry of National Service a further notice specifying the time for the making of an application for a certificate of exemption, and until any application which may be made in accordance with the notice has been disposed of by the medical tribunal. Such application must be made within fourteen days of the date of sending such further notice, and no practitioner need take any steps to apply for exemption until such further notice is sent to him. The above directions were announced in the advertising columns of the JOURNAL last week, p. 26.

THE new building of the medical college of Cincinnati University was formally opened on February 25th. It was erected and equipped at a total cost of approximately £120,000.

THE Surgeon-General of the United States Navy has framed a scheme for increasing the accommodation in naval hospitals. Some 15,000 extra beds have been provided, and it is proposed to augment this number by 8,000 beds, together with 3,270 beds for the hospital personnel. The naval medical officers are in charge of two hospitals in France, each with 500 beds, and arrangements are being made to establish three naval hospitals in England, each with 1,500 beds.

¹ To be purchased through any bookseller, or directly from H.M. Stationery Office, at Imperial House, Kingsway, London, W.C.2; 28, Abingdon Street, London, S.W.1; 37, Peter Street, Manchester; 1, St. Andrew's Crescent, Cardiff; and 23, Forth Street, Edinburgh. Price 1d.

British Medical Journal.

SATURDAY, JUNE 1st, 1918.

MEDICAL PRACTITIONERS AND MILITARY SERVICE.

THE regulations governing the position of medical men under the new Military Service Act have now been issued, with effect from May 23rd, and their main provisions are briefly described this week at page 622. We believe that in the course of the next few days the Ministry of National Service will issue a memorandum to members of the medical profession explaining at some length the purpose of these regulations, and the procedure which is to be based on them. It is already almost a truism to say that the new Act—which raises the age of military service for medical men to 56—will affect, either directly or by a side wind, the work and life of every practitioner in the country, and it is important that all should study carefully the facts of the situation. We can only hope that the documents prepared for their guidance by Government departments will clarify rather than confuse the issue.

In the first place it is to be noted that the Central Medical War Committee and the Scottish Medical Service Emergency Committee, which have hitherto been so in all but name, are now made special medical tribunals for dealing with applications for exemption from military service on behalf of medical men; that the Committee of Reference keeps its name and its functions under the new regulations; and that power is given to retain the valuable assistance rendered by the local medical war committees. The grounds of exemption, though more precisely defined, and now including the plea of conscientious objection, are in substance those previously recognized by the professional committees. The status of the medical tribunal is in many respects that of an ordinary appeal tribunal, but the hearing of cases will follow the lines already laid down. An appeal on personal grounds against a decision may, however, be made to the Central Tribunal, with the leave of the medical tribunal, or on the recommendation of the Committee of Reference; but "it is not intended that cases shall come before the Central Tribunal unless important questions of principle are involved, or unless there is some other special reason why an appeal should be allowed."

With regard to the kind of exemption from military service which may be granted, the regulations include a special provision whereby exemption on occupational grounds shall, and on personal grounds may, be conditional on the practitioner undertaking such professional service and under such conditions as the Director-General of National Service may, after consultation with the medical tribunal and in concert with any Government department concerned, deem best in the national interests. This stipulation leads straight to the root of the whole matter, for it is evident that nothing short of national necessity could justify a measure which will at once be recognized as vocational conscription, howsoever cloaked in legal or departmental language. At the same time an official assurance has been given that "the regulation

in question will be administered with the utmost consideration consistently with the national interests, and that any arrangements under it will be made in full consultation with the medical tribunal." For the enlightenment of those who have not closely followed the subject, the case can be briefly stated. It is held, and with good reason, that the medical profession is in a special position, the effect of which, however, cuts both ways. Doctors are so much in request, both for military and for civilian service, that the needs of the country can only be met by a carefully considered distribution of the medical personnel. Hence the necessity for a special medical tribunal to hold the balance between military demands on the one hand and civilian claims and personal objections on the other. Hence also the differential treatment of the medical profession in respect of the age limit for military service, and the "conditional exemption" which is all that most doctors of military age can look for from their professional tribunals. These and other aspects of the new legislation were considered by Sir Donald MacAlister in his presidential address before the General Medical Council, which we report in the SUPPLEMENT this week.

The procedure to be adopted, and the principles which underlie it, will perhaps be made clearer in the following way: While all medical men up to the age of 56 are liable to military service, it does not necessarily follow from the terms of the Act that they must be employed as doctors, however desirable that may be. The question before the medical tribunal will be the same as that before ordinary tribunals—namely, whether the individual shall serve in the army or shall receive exemption on one of the statutory grounds—occupation, personal hardship, ill health, or conscientious objection. Unless a case is made out on one or more of these grounds the medical man becomes liable to join the army, the disposal of his services resting with the military authority. But since the present shortage of doctors makes it inadvisable that a medical man should be employed in non-medical work, the authorities do not propose to call up doctors for service in the ranks provided that they undertake to render medical service either in a civil or a military capacity if called upon to do so by the Ministry of National Service after consultation with the professional committee. Civil medical service is understood to mean work of a medical nature either in the district in which the doctor lives or at a distance, undertaken with a view to setting free a younger or otherwise more suitable practitioner for military medical service.

We understand that, in order to carry out such rearrangements as are necessary with the least disturbance and friction, the Ministry of National Service proposes at the expiry of fourteen days' notice to issue a certificate of protection to every medical man of the new military age in respect of whom an application has not been made on personal grounds within that period. The effect of this procedure will be that each practitioner receiving a certificate is left to continue his present work unless and until he is called upon to serve in some other way. If he considers that he should receive some other form of exemption within the terms of the regulations he must within fourteen days send to the clerk of the appropriate medical tribunal notice to this effect, in which case his application will be heard by the tribunal in due course. If, however, he decides to accept the certificate of conditional protection he will be left to carry on his present work until such time as it appears

necessary to call upon him to serve in some other direction, either as a commissioned medical officer, or by taking over the work of a neighbour or neighbours under some scheme of local arrangement, or by being transferred to some other district where there are doctors more suitable for military service but who cannot under present conditions be spared from civil life. The possibility that he might be called upon to serve with the army in a non-medical capacity need only be considered in the case of a doctor who, being deemed surplus for the medical needs of his area, is unwilling to accept one of the three forms of service indicated above.

If and when the need arises for utilizing his services in one of these ways, the practitioner will be able to appear before the local or central professional body and state his reasons for not being assigned to the new duties required of him, in the same way as has hitherto been adopted in regard to enrolled practitioners. It will be noticed that the professional bodies recognized as medical tribunals under the regulations are assigned two distinct though related sets of duties—namely, the duties pertaining to an ordinary tribunal constituted to deal with claims for exemption from military service, and the duties of a body advisory to the Director-General of National Service in dealing at a later stage with the cases of doctors who have received certificates of conditional exemption under the proviso to Regulation 24.

PROTEIN "SHOCK" THERAPY.

ALTHOUGH some forms of treatment formerly empirical have now been sanctified by an explanation of their mode of action, an interesting essay might still be written on cures due to treatment logically inefficient or even smacking of quackery. Thus at a laparotomy on an acute abdomen nothing particular is found or done, and yet the patient seems to improve because of, rather than in spite of, the somewhat vigorous interference. Possibly in such cases the surgeon has operated better than he knew and unconsciously remedied some mechanical factor, such as a twist or adhesion, or conceivably an accessory factor in the ritual—such as the infusion of normal saline—has modified a general infection or toxæmia responsible for prominent abdominal symptoms. In tuberculous peritonitis the benefit from a simple laparotomy is clear to every surgeon, but the *modus operandi* perhaps concerns him less than the incision.

For a considerable time the thoughtful practitioner must have been perplexed by the success which undoubtedly may follow the injection of some preparations, such as polyglandular extracts, or vaccines and serums, that are multiple both as regards their derivation and the diseases for which they are recommended. In 1906 Montgomerie Paton advocated on clinical grounds the oral administration of antidiphtherial and normal horse serum in the treatment of various infective diseases, and stated that the resistance of the organism to infection was thereby increased. A little later horse serum was advocated by E. C. Hort in gastric and duodenal ulcer in virtue of its antiautolytic action; later Hiss and Zinsser injected extracts of leucocytes in infectious diseases, and the nuclein treatment had a short vogue.

While the spirit of scientific medicine naturally views with suspicion therapeutic measures unsupported by reasoned exposition, it should always be ready to investigate with an open mind apparently haphazard methods of treatment so as to obtain a guide to future advance, for the germ of truth may remain hidden

under obvious empiricism or quackery unless sought for. The logical attitude of practically restricting treatment to those forms that are demonstrably specific, mainly due to Ehrlich's and Sir Almroth Wright's exact methods, is now orthodox, and is perhaps the reason why the numerous researches and papers, especially those by Jobling and Petersen¹ on the non-specific factor in the treatment of disease and protein shock therapy, have received comparatively so little notice. Typhoid fever has been treated by intravenous injections of typhoid vaccine, of chicken serum, and of protease, and by intramuscular injections of boiled milk; and all these medicaments have been followed by a crisis and great improvement in the condition of those patients. Acute arthritis has likewise been cured by intravenous injections of typhoid vaccine (Miller and Lusk), and also by similar injections of albumose. In Culver's hands gonococcal arthritis reacted equally well to meningococcal vaccine and to gonococcal vaccine. Even more recently Cecil² has given a careful account of 40 cases of acute arthritis treated by intravenous injections of typhoid or gonococcal vaccine. Thirteen cases of rheumatic arthritis rapidly recovered after typhoid vaccine (in 3 cases one injection, in 4 two injections, and in 1 three), 20 cases (17 rheumatic fever) required salicylates as well, and all but 3 showed improvement while receiving the vaccine. Seven cases of acute gonococcal arthritis showed gradual improvement under vaccine treatment (3 gonococcal vaccine, 2 typhoid vaccine, 2 both), but it is cautiously added that it was impossible to say how far the vaccine was responsible. He concludes that this method is undoubtedly efficient in many cases of acute arthritis, but as the reaction is severe, unpleasant, and may be dangerous if the cases are not carefully selected, it should be advised only after salicylates and other well established means have failed.

It seems generally agreed that the beneficial results obtained by these methods of non-specific treatment depend roughly on the occurrence of a good reaction with shivering, fever, and perspiration. These surprising results suggest, at any rate in the case of arthritis, that the vaccine acts in virtue of the foreign protein it contains and not specifically. Hence the conception of non-specific protein "shock" treatment, or, as the subtitle of an article by L. D. Smith expresses it, "Allergy, a therapeutic agent." According to Jobling and Petersen a reaction to injection of a foreign protein, such as is contained in a vaccine, causes changes in the tissue cells, especially of the haemopoietic organs, and in the blood—namely, leucocytosis and fluctuations in the ferment-antiferment balance; during the protein shock a condition (low antiferment and increased protease) obtains which favours proteolytic activity such as would hydrolyze the toxic bacterial products to their lowest non-toxic forms, whereas after the reaction the reverse condition (increased antiferment and low protease) holds good. It may be mentioned that Sir Almroth Wright³ found that the antitryptic power of the blood was increased after typhoid, streptococcal and staphylococcal vaccination, that this antitryptic power of the blood inhibits blood infection, and that vaccines may give some protection against diseases other than those they are designed to ward off.

In his most recent paper Petersen⁴ quotes the work of Friedberger, Matthes, and Vaughan, to the effect

¹ J. W. Jobling and W. F. Petersen, *Journ. Exper. Med.*, Baltimore, 1914-15; also *Arch. Int. Med.*, Chicago, 1917, xix, xx.

² R. L. Cecil, *Arch. Int. Med.*, Chicago, 1917, xx, 951-963.

³ A. E. Wright, *BRITISH MEDICAL JOURNAL*, 1915, ii, 632.

⁴ W. F. Petersen, *Arch. Int. Med.*, Chicago, 1917, xx, 715-724.

that in infection no intoxication occurs until the host becomes sensitized to the bacterial protein; and that if, when this refractory or incubation period is finished, the patient is desensitized as the result of protein shock, the fever and other symptoms disappear though the micro-organisms remain, as has been shown in the case of typhoid fever. In order to cover this therapeutic conception of seeking to change the reacting powers of the host instead of modifying or destroying the invading parasite, the term "ergotropie" has been coined by von Groer. The mechanism, application, and limitations of non-specific protein treatment, and especially its relation to vaccine therapy, require much more investigation before its adoption in practice can be set on a firm basis; and, in any event, this new knowledge will in no way impugn the value of established specific remedies such as antidiaphtherial, antitetanic, anti-meningococcic, and antipneumococcic (type I), serums, quinine, salvarsan, and emetine. Petersen, who is investigating the subject further, concludes meanwhile that the good results of protein shock therapy should not be ascribed to any one alteration in the reacting organism but to a series of factors—namely, antibody and ferment changes in the serum, leucocytosis, fever, sweating, increased flow of lymph through the thoracic duct, and the cellular changes which are no doubt important though as yet intangible.

THE ARMY MEDICAL SERVICE IN FRANCE.

It has been announced by the Secretary of the War Office that the Army Council has not considered it advisable to extend the period of service of Lieutenant-General Sir A. T. Sloggett as Director-General. This decision, which the official announcement states is due to the fact that Sir Arthur Sloggett has completed the period of his appointment and passed the age limit for service on the active list, will be received with great regret by those who have served under him in France and recognize the great success of his administration. His successor as Director-General Medical Services, British armies in France, is Major-General C. H. Burtchaell, a medical officer who has had wide experience in India, in South Africa, and at home. Sir Arthur Sloggett's career has been one of very great distinction. He was a student of King's College, London, of which he is now a Fellow, and entered the Army Medical Service in 1881. Three years later he was serving on the Indian frontier, and in 1896 was senior medical officer of British troops with the Dongola Expeditionary Force. He served in the Sudan in 1897-98 and was dangerously wounded at Khartoum, being shot through the chest in the cardiac region. He made a complete recovery and served with great distinction in South Africa. Afterwards he was P.M.O. of Home and London Districts, and of the 6th Division in India. He became Director-General of Medical Services in India in 1911, and passed from that appointment to become Director-General A.M.S. at the War Office on June 1st, 1914. Since October, 1914, he has been in France as Director-General Medical Services of the British armies in that country. His administration has been conspicuously successful, largely, as we have on many occasions pointed out, owing to his appreciation of the importance of scientific methods in the prevention and treatment of disease, and his sympathy with the views and aspirations of the medical officers from civil practice who have served under his command. His successor, Major-General Burtchaell, graduated at the University of Dublin in 1889, and entered the army in 1891. He was through the North-Western Frontier campaign in India in 1897-98 and was present at all the principal actions, including the Dargai Heights, being

promoted Major for his services in the field. He served throughout the South African war with Lord Methuen's command, being present at the actions on the Modder River and Magersfontein, and in 1902 was selected for appointment as principal medical officer to the South African Constabulary, a post he retained until 1905, when he rejoined the army. While serving on Headquarters Irish Command, 1907, he organized the experimental scheme of sanitary training for fighting troops, afterwards adopted for the army, and in the following year directed the medical service work of the first medical tour held in the British army. In 1910 he became Assistant Director-General, Army Medical Services, War Office, and continued to take special interest in arrangements for medical manoeuvres and tours. He has served as Assistant Director-General Medical Services in France since October, 1914. He was promoted Colonel in March, 1915, and temporary Surgeon-General in October, 1917. His promotion was made substantive in the following December. For his services in the present war he has been mentioned seven times in dispatches, and has been awarded the C.B., the C.M.G., and the Legion of Honour. During his service in South Africa General Burtchaell came in contact with the Dominion forces for three years, and his association with them in France, especially with the Canadians, dates from 1915. The Canadians went into action at Ypres for the first time, and a correspondent tells us that in a situation which was strange and difficult the Canadian Medical Service felt that it could rely implicitly upon General Burtchaell's experience and sympathy, and that that sympathy has ever since grown more close.

MEDICAL MAN POWER IN THE UNITED STATES.

From editorial articles in the *Journal of the American Medical Association* of April 20th and 27th it is interesting to note that the medical profession in America is going through the same stages in relation to the war as was the case in this country. Thus, at the outset the Association offered its services to the Government, just as did the British Medical Association nearly three years before. In each case the volunteers were at first sufficient to cover the immediate needs. Now, as we recorded a fortnight ago (p. 569), Surgeon-General Gorgas has made a request for 5,000 more medical officers, just as in March, 1915, Sir Alfred Keogh, the Director-General A.M.S., asked for 2,000. The American Association, like the British Medical Association, has a War Committee, which is taking up this call with energy and enthusiasm. The Surgeon-General desires that the 5,000 volunteers shall be secured without serious hardship to any "community, manufacturing concern, or other civil activity," and consequently the American Medical Association has begun to investigate the position in all parts of the country, so as to produce a survey which will "provide a basis for active, intelligent, co-operative effort." In contemplating the problem of supplying not only the immediate, but also the future needs, the War Committee deliberated on the advisability or necessity of calling for a "voluntary draft" of all medical men under 55 years of age. This would mean that every medical man in active practice would volunteer as a member of the Medical Reserve Corps and be subject to call for such military or civilian duty as he may be deemed best qualified to discharge and as conditions and necessities may require. In other words, a scheme of enrolment or "voluntary conscription" was mooted, but of wider scope than the enrolment scheme of the Central Medical War Committee, inasmuch as it included enrolment for civil work, and was applicable to men of a higher age. The American Medical Association has deemed this extreme measure unnecessary for the present at least, but the organization of such a scheme would have afforded excellent training for the work the Association will have to face if ever it becomes necessary in America to pass a Military Service Act in any way comparable to that which has been found necessary in Great Britain. Though the

number of medical practitioners in America is large—the Association itself can boast 81,000 members—there is reason why organization for civil as well as military necessities, such as is contemplated in this country by the Ministry of National Service, will be required at a relatively earlier date in the United States. For, unlike ours, the main American army is fighting some thousands of miles from its own country. The bulk of its hospitals must be in Europe, so that the proportion of doctors to troops must be considerably greater than with us. Finally, our contemporary asserts that “the time has come for every medical man under 55 years of age, who is physically qualified, to consider seriously for himself the question of his duty to his Government.” We have always held that no individual practitioner can possibly judge for himself the medical needs of the community in which he practises, or the hardship which he himself will suffer. For these reasons we are convinced that unless the war ends speedily the War Committee of the American Medical Association might have been better advised to take the matter in hand at once; it would at least have gained experience and much valuable information from the experiment. The magnitude of the work undertaken by the medical department of the American army during the first year may be judged from a few statistics. Thus the number of military hospitals in the United States has been increased from seven to fifty-three, with a bed capacity of 53,400, and in France from nothing to a bed capacity of 25 per cent. of the strength of the expeditionary force. The number of medical officers has been increased from 900 to 19,000, and that of nurses from 375 to 7,000. The laboratories have been increased from 112 to 650. The medical department has examined more than 2,000,000 men. The death-rate from disease has been 6.6 per 1,000, which is lower than the death-rate for men of the same age in civil life.

THE REGISTRATION OF UNIVERSITY ELECTORS.

The appeal now being made to graduates serving overseas to register as electors of universities, and the suggestion that relatives of such graduates as may not be following events at home, should obtain forms for them, carries an important reminder of the right of voting by proxy, which may be exercised at a general election if circumstances prevent the ordinary course being taken. The procedure for university elections is under the direction of the governing body of the university, but its operation has been very carefully defined in the new Act. Voting papers, as previously, take the place of ballot papers. In an election they can be delivered by the voters personally or by post. The form of the paper is set forth in the statute. It includes a declaration by the elector, and a declaration by a witness that the signatory is personally known to him. Provision is made under Section 36 of the Act that persons entitled to vote in university elections may do so by proxy, when their position is the same as that of persons entitled to vote by proxy in other parliamentary elections. To enable voting by proxy in elections other than those of universities a returning officer must prepare an “absent voters’ list”; but the registrar of a university is not required to do this—the right to vote by proxy is recognized as if such an absent voters’ list had been prepared; the fact that voters have to register—the electorate for the time being thus constituted—is obviously deemed sufficient to enable the issue by the registrar of proxy forms as they may be asked for from the roll he has thus obtained. The provision as to absent voters is set out in Clause 23, which in effect provides that an Order in Council may direct that voting by proxy by naval or military voters shall be permitted in any area on land abroad mentioned in the Order if it appears that “ballot papers” (in the case of university electors “voting papers”) cannot reasonably be returned before the votes are counted. The right to vote by proxy also applies,

in limited degree, to the merchant service and to fishermen. No person is allowed to vote for more than two absent voters unless this person be husband, wife, parent, brother, or sister of the elector. It is the duty of the registration officer (in the case of universities it is the registrar’s duty), on any application for a proxy paper, to issue it to the applicant or to some person on his behalf if satisfied that the person concerned is registered and entitled to appoint a proxy. This paper is to remain in force during the continuance of the present war or for a period of twelve months afterwards unless cancelled. A proxy paper may be cancelled by an elector who gives notice in prescribed form. But the one essential matter for the moment is to register. The method of voting—by voting paper by post, or by proxy paper, as explained—is determined later, according as circumstances may require.

ACTION OF ANTISEPTICS ON BACTERIAL TOXINS.

There is little evidence at present that antiseptics can exert a destructive action on bacterial toxins, and in a preliminary note on this question Taylor and Austin¹ have related experiments with the soluble exotoxin of *Bacillus welchii*, the virulence of which Bull and Pritchett standardized. Having obtained a standardized toxin, inactivated horse serum and the antiseptic to be tested were added, the latter remaining in contact with the toxin for five minutes before the mixture was injected into the pectoral muscles of a pigeon. The series of experiments showed that Dakin’s hypochlorite and chloramine-T solutions will protect pigeons against multiple fatal doses of the *B. welchii*, whereas phenol 0.25 per cent. has no such action. These observations are not recorded with the intention of advocating the use of an antiseptic in place of the specific antitoxin described by Bull and Pritchett; the authors hold that in human surgery the antiseptic treatment of an infected wound should be combined with specific serum therapy. This preliminary paper has a bearing on a wide conception, which is a division of antiseptics into two groups: (1) such as phenol, possessing bactericidal power but little or no destructive influence on the products of bacterial activity, and (2) such as the chlorinated antiseptics, attacking chemically both the bacteria and their products, and, by an alteration or disintegration of the molecules of the latter, altering their properties and rendering them inert. As Dakin pointed out, the chlorinated antiseptics effect this by their affinity for the amino group of the protein molecule.

GERMAN EXPERIENCES OF GASSING.

At a meeting of the Hamburg Medical Society last year Dr. Knack² gave an account of the symptoms observed in cases of gassing. In several the acute symptoms were followed by marked general weakness, bouts of coughing, scanty mucous expectoration, and dull dragging pain in the chest. The x rays showed increased pulmonary markings, as observed in chronic bronchitis, while old tuberculous foci were apt to be stirred up. Two patients had recently been received from the Western front suffering from the effects of an unknown gas, liberated by the explosion of gas bombs thrown at a distance of 80 to 100 metres. The gas had a musty smell, tasted sweet, and was invisible. Its action was so rapid that most of its victims had not time to put on their gas masks. Many soldiers had died in a few minutes, convulsed. He showed two soldiers who had been gassed. They were unconscious for some hours, and had suffered for several days from violent vomiting. The respiratory symptoms were insignificant. After about fourteen days the legs became painful, and the patients felt giddy and rolled about when walking. A moderate degree

¹ H. D. Taylor and J. H. Austin, *Journ. Exper. Med.*, Baltimore, 1918, xxvii, 375–381.

² *Deut. med. Woch.*, September 27th, 1917.

of polyneuritis was demonstrable; the reflexes were weak and the large nerve trunks were very tender. The x rays showed increased pulmonary markings—evidence of peribronchitis. Lymphocytosis of 46½ per cent. was found, but neither in the blood nor urine could any pathological chemical substance be found by spectroscopic or other tests. Both patients had been slightly febrile for a considerable time. Another patient had been unconscious for several days after being gassed and had developed paralysis of the left arm and paresis of the left leg. Babinski's sign was present. The paralysis soon passed off completely, but the man was insane for a long time, passed faeces and urine involuntarily, and had not completely recovered. In this case also the result of search for a chemical poison was negative; only a trace of bile pigment could be found in the serum. Though in this case, too, the composition of the gas was unknown, Dr. Knack observed that the mental disturbances and the paralyzes were suggestive of carbon monoxide poisoning.

THE REPORTED EPIDEMIC IN SPAIN.

THE new conditions produced by war both at the front and in the civilian population, especially from the altered circumstances of diet, hygiene, and occupation, have led to the appearance of a number of fresh diseases. This extremely interesting subject has naturally attracted much attention, and at the present moment the cases recently described as botulism, poliomyelitis, and lethargic stupor are being keenly investigated. As novelty has specially attracted the public since, and probably before, the time of the Athenians, there is obviously a temptation for the press to publish early accounts of new diseases. Thus in the *Times* of May 28th King Alfonso is stated to have fallen a victim to a new disease which has attacked approximately 30 per cent. of his subjects. The symptoms are said to be high fever, vomiting, pains in the chest, and diarrhoea. So far there have been no fatal cases. The *Daily Mail* of the same date speaks of "a mysterious epidemic," and the *Morning Post* of "this new and strange outbreak, the germ of which has not yet been discovered." Pending further information it seems not improbable that this acute catarrhal disease is what we are accustomed to speak of as "influenza," and that in Spain now the gastro-intestinal form is prominent. During the month of May there has been a severe outbreak of influenza in a certain district of this country, recalling in the extreme suddenness of its incidence the beginning of the epidemic of 1889-90. The papers also report an outbreak of influenza among the German troops as one of the reasons to account for the delay of the recent offensive. The reference in the *Times* to the "plague of 1889" is very probably a reporter's error for the pandemic of influenza in that year, for there was no bubonic plague then in Spain. We cannot help feeling that in the absence of any bacteriological proof, the extreme low mortality or its practical absence, and the possibility that the disease is gastro-intestinal influenza, render alarmist suggestions premature, and they do not seem to be countenanced by the medical profession in Spain. The question of a pandemic of influenza is a sufficiently serious one, and on the grounds of probability should be excluded before a scare of cholera is raised.

HEALTH OF THE TURKISH ARMY.

LAST autumn Dr. His¹ gave the Medical Society of Berlin an account of the health conditions of the Turkish army. The organization of the army medical service was, he said, based on the German model; most of the civilian practitioners serving in the army had received their medical education in the French Jesuit school or in the American college in Beirut, where one British and one American doctor were still working. The nursing staff

was recruited from Christians and Jews, as Mohammedan women had not yet undertaken nursing. Baths and other appliances for combating lice were provided at all the military centres. Tetanus and gas gangrene were rare, owing, His thought, to the powerful insolation of the soil. The Turk was far more subject than the German to relapsing fever; the disease responded satisfactorily to salvarsan unless complicated by severe jaundice or symptoms of dysentery. In Constantinople amoebic and bacillary dysentery were equally common; in Asia Minor and Palestine the dysentery was amoebic only. Emetine had maintained its good reputation, and abscess of the liver was rare. Salvarsan had proved beneficial in tertian malaria only, and even in such cases was inferior to quinine. Pappataci fever was particularly prevalent in Aleppo. Typhoid fever was rare; a septic paratyphoid A infection was more common. Paratyphoid inoculation had proved harmless and apparently successful. Typhus fever was frequent at the early stage of the war only, and Turks and Arabs had suffered from the same death-rate as the Germans (12 to 15 per cent.). Weil's reaction had proved of diagnostic value. Gangrene, which in 1915 had been a common complication of typhus, had become very rare, though the reason was not known. Vincent's angina was strikingly common, but only among the Turks; it yielded to local treatment with salvarsan. This drug also proved useful in pyorrhoea alveolaris and uoma. Scarcely two dozen cases of war nephritis were observed in the whole field of operations. "War oedema" resulting from a diet restricted to bread and olives disappeared when vegetables were added to the dietary. Nervous disorders of heart and stomach and the host of other neuroses were practically unknown in Turkey, a circumstance which Dr. His attributed to lack of compensation and provision for such cases.

PROFESSOR HARVEY CUSHING.

At a meeting, on May 25th, of the Royal College of Surgeons in Ireland, which was attended by the Lord Lieutenant, Mr. Walter Long, M.P., and the Lord Chancellor of Ireland, the honorary fellowship was conferred upon Major Harvey Cushing, the eminent professor of surgery in the University of Harvard, who from an early date has rendered great services to the British and now to the American armies in France. In acknowledging the honour, Major Cushing said that he recognized it as an act of friendship towards his own country. America had realized that there was an insane nation embroiling the world by unbelievable ambition, and using every unbelievable means to attain its end. America was not in favour of half measures, and the universal feeling of its people was that they were in to stay to the end. After saying that America's neighbour, Canada, also was in as a country, he continued, "You here in this beautiful land are the next people to us, and we expect you to be in as a country, and you certainly will." After paying a high tribute to the gallantry of the Irish regiments in the war, he expressed the hope that the time was coming when there would be in Ireland a period of national service to help towards the smoothing out of those difficulties which must arise in every country. Such a period would awaken in the people a sense of that devotedness which could only come to them through service rendered to their country. Professor Harvey Cushing was elected an Honorary Fellow of the Royal College of Surgeons of England in 1913.

GERMAN BOMBING OF HOSPITALS.

MR. BONAR LAW, when asked at the opening of Parliament to make an official statement as to the bombing of hospitals by Germans on the Western front, said that a raid was carried out on the night of May 19th-20th against Etaples, where are a large number of hospitals; over 300 casualties were caused to hospital patients. He added that a full report on the subject had not yet been received.

¹ *Deut. med. Woch.*, November 15th, 1917.

Perhaps it may be proper, or at least charitable, to suspend judgement, and not to attach too much importance to the statement of the captain of the Gothia which was brought down, to the effect that hospitals should not be placed near railways, and that if they were the consequences must be taken. The raid began at ten in the evening and lasted nearly three hours. A short interval about 11.30 is held to make it probable that two separate squadrons were employed, numbering between them over a score of machines. The dunes north of the village of Etaples are not exclusively given up to hospitals, but the hospitals occupy a compact area and are close together. It was over this area that the German aeroplanes circled, dropping bombs, setting quarters on fire, and causing many casualties as Mr. Bonar Law stated. The other military establishments in the neighbourhood which might have been legitimate objects of the raiders seem to have escaped, but upon this point no definite information is available. At the same time it must be remembered that strong evidence was advanced last October that the German airmen deliberately engaged in the bombing of advanced hospitals both of the British and French armies on the Western front. The French authorities were absolutely convinced of the truth of this charge, and the story as told by them left little room for doubt.

A MONTHLY REVIEW OF THE FOREIGN MEDICAL PRESS.

ONE of the tasks of the General Staff at the War Office during the war has been the issue of a daily review of the foreign press, the scope of which has been extended from time to time by the preparation of supplements dealing with special subjects. A monthly medical supplement, compiled by the Medical Research Committee, was added to the list in January last, and since then has been widely circulated through official channels for the assistance of naval and military workers, and particularly among the British and American Expeditionary Forces. It has been warmly welcomed by those entitled to receive it, but its usefulness has been limited hitherto by the fact that it has been inaccessible to many medical men to whom it would be of interest. This limitation has now been removed by the decision to place the medical supplement on sale, and the June and subsequent numbers will be obtainable from H.M. Stationery Office, either direct or through any bookseller, at the cost of one shilling.

The Croonian Lecture before the Royal Society will be delivered by Major W. B. Cannon, Professor of Physiology, Harvard, on Thursday, June 20th, at 4.30 p.m., the subject being the physiological basis of thirst.

Medical Notes in Parliament.

Ministry of Pensions.

THE first day of Parliament, when it reassembled on May 28th, was given to a discussion of the administration of the Ministry of Pensions.

The Minister, Mr. Hodge, in his opening statement, said that progress had been made in the organization of the department and that the staff had been largely increased. He took credit to himself for having recognized that the supervision of the work of restoration of disabled pensioners called for expert advice and that he had in consequence started a medical service department; since its staff had been completed the developments had been exceedingly great. Instead of concentrating the orthopaedic treatment in two or three centres the principle of decentralization had been adopted, and it was hoped to have an orthopaedic clinic in all towns, his view being that the more the facilities were brought to the door of the men, the more likely would they be to avail themselves of the opportunities. The Ministry was greatly indebted to many physicians and surgeons for the disinterested voluntary services

they had rendered not only in respect of orthopaedics, but also as regards those diseases which came more under the notice of the physician. Another department had been established for artificial limbs, including an experimental laboratory where all so-called new inventions could be exploited for the benefit of the disabled. The artificial limb makers of the United Kingdom had fallen in with the scheme, and were now prepared to make to the specification of the Ministry any limb which the Advisory Committee decided was the best. In regard to hospital accommodation, the Ministry was dependent upon the assistance of other Government departments. The Ministry was greatly indebted to the British Red Cross, and he regretted to have to differ from it with regard to the use of the Golders Green institution for shell shock cases. Down to the end of April the number of disabled men who had received pensions was 341,025, this number including officers and men of the army, and officers, warrant officers, petty officers, and men of the navy. The percentages of certain injuries were as follows:

Eyesight cases	...	...	2.8 per cent.
Wounds and injuries to legs necessitating amputation	...	...	2.6 "
Wounds and injuries to arms necessitating amputation	...	...	1.4 "
Wounds, etc., to legs not necessitating amputation	...	...	11.9 "
Wounds, etc., to arms not necessitating amputation	...	...	8.45 "
Wounds, etc., to hands not necessitating amputation	...	...	4.45 "
Wounds, etc., to head	...	...	4.0 "
Hernia	...	...	0.8 "
Miscellaneous wounds and injuries	...	...	5.55 "
Chest complaints and tuberculosis	...	...	11.6 "
Rheumatism	...	...	6.5 "
Heart disease	...	...	10.3 "
Epilepsy	...	...	1.0 "
Nervous diseases, shell shock, neurasthenia, etc.	...	...	6.0 "
Insanity	...	...	0.75 "
Deafness	...	...	2.0 "
Frostbite, including cases of amputation of feet or legs	...	...	0.9 "
Miscellaneous diseases, including Bright's disease, debility, gastric ulcer, varicocele, enteric, malaria, spinal disease, and appendicitis	...	...	18.36 "

The Ministry had endeavoured to set an example to other Government departments by employing disabled men, and now had between two and three hundred so employed. The armless men would probably be the greatest difficulty in the future, and out of seventy messengers employed by the Ministry, 55 were one-armed men. Mr. Hodge appealed to public authorities who required messengers to give the preference to one-armed men.

The subsequent discussion, which was interrupted by an attempt to count the House out, turned chiefly upon rates of pension. In his reply Sir A. Griffith-Boscawen again insisted that the amount of a man's pension did not depend upon his earnings; it was fixed simply and solely on the degree of his physical disablement. Medical boards were not authorized to ask a man what he was earning.

Registrars of Military Hospitals.—Major David Davies asked, on May 28th, whether, in order to utilize the services of doctors in the R.A.M.C. to the fullest extent, officers not belonging to the R.A.M.C. declared to be unfit for general service would be appointed as registrars of military hospitals and convalescent establishments. Mr. Macpherson replied that the duties of registrars of military hospitals included those of a purely professional nature, and it was not considered that such posts could be efficiently filled by officers other than those in the R.A.M.C.

ALTHOUGH the date for publication of the new electors' list under the Reform Act has been postponed from June 15th to June 29th, it is understood that every effort is to be made to secure that the Register comes into force on the date originally fixed—October 1st. In a recent debate in the Commons the President of the Local Government Board (Mr. Hayes Fisher) expressed grave doubts whether this could be done; but the word has now gone forth that the Register is to be available on October 1st. To make it at all satisfactory the local authorities will probably have to proceed with house-to-house inquiries in many cases to obtain the necessary information. The life of the present Parliament expires in July, and an extension of its existence by a short bill will again, of course, become necessary.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

TEMPORARY SURGEON A. L. PEARCE GOULD, R.N.

Surgeon Alfred Leslie Pearce Gould, R.N., attached to the Royal Marine Light Infantry, Royal Naval Division, was killed in action on Whit Sunday, May 19th, aged 31. He was the youngest son of Lieut.-Colonel Sir Alfred Pearce Gould, K.C.V.O., R.A.M.C.(T.F.), and was educated at Christ Church, Oxford, where he gained a classical scholarship, and graduated B.A., with first class honours in natural science, in 1909, and M.A., M.B., and B.Ch. in 1913; and at University College Hospital, where he won the Erichsen prize in practical surgery in 1913, and the Atchison scholarship in 1914, taking the M.R.C.S. and L.R.C.P.Lond. in 1913, and subsequently the F.R.C.S. in 1916, and filling the posts of house-physician and obstetric house-physician. He was appointed house-surgeon to Mr. Trotter, but the outbreak of the war prevented his entering upon this post. In 1916 he obtained the higher degrees of M.D. and M.Ch., and in the following year he was elected to a Radcliffe Travelling Fellowship of the University of Oxford. During the war he published several papers on clinical subjects.

The Director-General of the Medical Department R.N. states that Surgeon Pearce Gould's work was greatly appreciated in the navy, and that his loss will be very keenly felt both from the point of view of his professional capabilities and because he was such a cheery messmate.

Temporary Surgeon-General Rolleston, R.N., writes: Since the outbreak of war in August, 1914, when we were messmates at the Royal Naval Hospital, Haslar, I had seen much of Leslie Pearce Gould, and learnt to admire his sterling qualities as a straight, clean English gentleman. His life's motto might well have been, "Whatsoever thy hand findeth to do, do it with thy might," for both his work and play reflected this. Among the first to volunteer as a temporary surgeon on August 3rd, 1914, he had a varied experience; but when, after being invalided from the Mediterranean with enteric, he was established at the Royal Naval Hospital, Plymouth, in a post which gave his surgical talents full scope and opportunities, he soon began to feel that he ought not to have such a job when others were bearing the brunt and dangers of active service at the front. After some delay and consideration he asked to be transferred to the Royal Naval Division on the Western front, though it was pointed out to him that the work he could expect there was hardly likely to be so useful as that he was doing at Plymouth. It was impossible not to honour the motives dictating a step destined, as it turned out, to cut short so lamentably a life of the greatest promise. With a broad outlook on medical science he would have made a real physician, but he had already decided on a surgical career and had laid the surest foundations for the highest kind of success.

Accidentally Injured.

Surgeon Probationer G. R. Falcon, R.N.V.R.

Prisoner of War.

Surgeon H. C. Broadhurst, R.N. (temporary).

ARMY.

Killed in Action.

CAPTAIN ST. J. A. M. TOLHURST, N.Z.M.C.

Captain St. John Alexander Molesworth Tolhurst, New Zealand Medical Corps, was killed in action on May 12th. He was the youngest son of George Edmeades Tolhurst, of the Union Bank of Australia, Wellington, New Zealand, and was educated at the college in that city, and at Guy's Hospital, where he was captain of the Rugby fifteen. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1907, and graduated M.B. and B.S.Lond. in 1909. After acting successively as out-patient officer, house-physician, and assistant house-surgeon at Guy's, he returned to New Zealand, and went into practice at Wellington, where he was honorary physician to the hospital. He joined the New Zealand forces at the beginning of the war, and served in the New Zealand hospital ships *Mahana*, at

Gallipoli, and *Marama*, and afterwards with the 3rd N.Z.F.A., and with the New Zealand infantry. He was killed while working in an aid post.

Died of Wounds.

MAJOR J. B. METCALFE, D.S.O., M.C., A.A.M.C.

Major James Beverley Metcalfe, whose death from wounds we recorded in our issue of May 18th, was the son of the late Dr. Metcalfe of Norfolk Island, and was born on January 13th, 1888. He studied medicine at the University of Sydney, where he graduated with distinction M.B., Ch.M. in 1911. After a year as resident medical officer at the Royal Prince Alfred Hospital, Sydney, he started in private practice in Wellington, N.S.W. He was a great sportsman, and represented his university at football and tennis. Having joined the A.I.F., he proceeded to France early in 1916, and was awarded the M.C. for gallantry in the field in October of the same year, receiving his promotion to the rank of major on January 29th, 1917. After serving as battalion medical officer, and also in a field ambulance, he was appointed D.A.D.M.S. Australian Corps, and while acting in this capacity was wounded near Ypres in October, 1917. He proceeded overseas again at the end of last March, and was in charge of an advanced dressing station on the river Ancre on April 24th. In consequence of heavy shelling the dressing station had to be evacuated, but Major Metcalfe returned to dress a "casual," when two shells exploded, inflicting fatal injuries. For his gallantry on this occasion he received a posthumous award of the D.S.O. Major Metcalfe combined an artistic temperament with sound common sense, and was deservedly popular with his senior officers and the men who worked under him. Brave almost to rashness, he had administrative and professional abilities above the ordinary, and was a good soldier and a gallant gentleman.

CAPTAIN D. H. HALL, R.A.M.C.

Captain David Henry Hall, R.A.M.C., was reported as having died of wounds, in the casualty list published on May 24th. He was educated at Trinity College, Dublin, where he graduated M.B. and B.Ch. in 1915, after which he took a temporary commission in the R.A.M.C., and was promoted to captain after a year's service. He was attached to the Seaforth Highlanders.

Died on Service.

DR. R. W. SPENCE.

Dr. Reginald Westmore Spence died of blood poisoning, on service in East Africa, on May 19th, aged 31. He was the eldest son of Mr. Ernest Spence of Guildford, and was educated at Westminster Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1913.

Wounded.

Lieut.-Colonel D. Aherne, D.S.O., R.A.M.C.

Lieut.-Colonel W. H. Burney, R.A.M.C.

Major N. W. Kidston, R.A.M.C.(T.F.).

Captain R. J. Aherne, R.A.M.C. (temporary).

Captain L. H. H. Boys, R.A.M.C. (temporary).

Captain A. Buchanan, R.A.M.C. (temporary).

Captain H. E. Cresswell, M.C., R.A.M.C. (temporary).

Captain F. R. M. Higgs, R.A.M.C.(T.F.).

Captain H. Mendelssohn, Australian A.M.C.

Captain W. H. Morrison, R.A.M.C. (T.F.).

Lieutenant T. W. Shaw, R.A.M.C. (temporary).

Prisoners of War.

Captain J. B. Ball, R.A.M.C. (temporary).

Captain S. J. Darke, M.C., R.A.M.C. (temporary).

Captain W. J. Isbister, M.C., R.A.M.C. (temporary).

Captain S. V. P. Pill, R.A.M.C. (temporary).

Captain J. R. H. Ross, M.C., R.A.M.C. (temporary).

Captain J. Sullivan, R.A.M.C. (temporary).

Lieutenant E. M. P. Maitland, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Blurton, Gril Evers, Second Lieutenant Sherwood Foresters, younger son of Dr. Blurton, West Bridgford, Nottingham, reported missing on October 22nd, 1917, now known to have been killed in action on that date, aged 20. He was educated at Sedburgh School and Sandhurst, obtained his commission in October, 1916, and went to France in December of that year. He had previously been wounded.

Clare, Horace Townsend, Captain Royal Field Artillery, youngest son of Dr. Henry L. Clare, late Surgeon-General,

Trinidad, killed April 29th, aged 21. He was educated at Haileybury, entered Woolwich in 1913, and got his first commission on November 17th, 1914. He served in Gallipoli, in the 29th Division, till the evacuation, was mentioned in dispatches, and promoted to lieutenant in the R.H.A. He afterwards served in Egypt and in France, and took part in the long battle on the Somme in 1916, after which he was invalided. He returned to France in June, 1917, was wounded at Monchy-le-Preux, but returned to duty in October; was promoted to captain R.H.A. on November 1st, 1917, and to acting major R.F.A. on March 29th, 1918.

Dodgson, Edward Hughes, younger son of the late Dr. Dodgson of Cockermouth, died of wounds at a casualty clearing station on May 3rd.

Mitchell, E. P. H., Second Lieutenant Border Regiment, only son of Dr. Mitchell of Ambleside, was accidentally killed while flying abroad on May 7th, aged 20. He was attached to the Royal Air Force as instructor in aviation.

Swift, Neville Copley, M.C., D.S.O., Captain East Lancashire Regiment, youngest son of Dr. H. Swift, senior physician to the Adelaide Hospital, South Australia, died of wounds on March 28th, aged 23. He was educated at St. Peter's College, Adelaide, and served two years in the Australian militia, rising to the rank of lieutenant. He came to England in 1915, and, after a course of instruction at Sandhurst, obtained a commission in the East Lancashire Regiment. He was wounded in France in August, 1916, and again in 1917, and was awarded the Military Cross in December, 1917, when in command of a company with the rank of captain. In January, 1918, he gained a bar to the Military Cross while acting as major and second in command of a battalion, and was recommended for the D.S.O. He was wounded on March 27th while leading his battalion in a counter attack, and died the next day in hospital.

Wilkinson, Arthur W., Captain West Yorkshire Regiment, second surviving son of Dr. Wilkinson of Tynemouth, died from wounds received in action on April 18th. He was born in 1884, educated at Epsom College, and was practising as an architect in 1914 when the war broke out. He obtained a commission in the 9th Durham Light Infantry in 1908, but transferred in 1915 to the special reserves of the West Yorkshire. On July 1st, 1916, he was shot through the right lung, but recovered, and returned to France in 1917.

MEDICAL STUDENT.

Allardyce, George Gilmour, Second Lieutenant Australian Infantry, eldest son of Mr. George Allardyce of Rathgar, Dublin, died on May 18th at Somerville Hospital, Oxford. He was a second-year medical student at Trinity College, Dublin. His younger brother, William Swirls Allardyce, was lost at sea in December, 1916, as the result of a collision, while serving as a surgeon probationer.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

MENTIONED IN DISPATCHES.

THE following officers of the medical services are mentioned by Sir Douglas Haig in his dispatch dated April 7th, 1918, for distinguished and gallant services and devotion to duty between September 25th, 1917, and February 25th, 1918:

ARMY MEDICAL SERVICE.

Head Quarters Staff.

Lieut.-General Sir A. T. Sloggett, K.C.B., K.C.M.G., K.C.V.O. Major-Generals: C. H. Burchaell, C.B., C.M.G., Sir W. G. Macpherson, C.B., K.C.M.G., H. N. Thompson, C.B., C.M.G., D.S.O.

Surgeon-General M. W. O'Keefe, C.B. Colonel (temporary Surgeon-General) B. M. Skinner, C.B., C.M.G., M.V.O.

Colonels: H. A. Bray, C.M.G., R. W. Clements, D.S.O., W. E. Hudleston, D.S.O., Sir W. B. Leishman, C.B., F.R.S., S. Macdonald, C.B., C.M.G., F. J. Morgan, C.M.G., D. M. O'Callaghan, C.M.G., G. St. C. Thom, C.M.G.

Lieut.-Colonels (temporary Colonels): H. Collinson, D.S.O., R. S. H. Fuhr, C.M.G., D.S.O., J. S. Gallie, D.S.O., J. Grech, D.S.O., L. Humphry, C.M.G., E. M. Morpew, D.S.O., G. J. A. Ormsby, D.S.O., A. G. Thompson, D.S.O.

Lieut.-Colonels and Brevet Colonels: T. W. Gibbard, K.H.S. (temporary Colonel), A. J. Macnab, I.M.S.

Lieut.-Colonels: W. R. Blackwell, T. A. Granger, I.M.S., H. C. R. Hime, D.S.O., J. F. Martin, C.M.G.

Major (temporary Colonel) C. H. Lindsay, C.M.G. Majors (temporary Lieut.-Colonels): E. T. Potts, D.S.O., D. P. Watson.

Major (acting Lieut.-Colonel) P. Davidson, C.M.G., D.S.O. Majors: R. B. Black, D.S.O. (R. of O.), A. C. Turner.

Captains: L. G. Bourdillon, D.S.O., M.C., A. D. Child, (S.R.), K. K. Drury, M.C. (S.R.), T. I. Dunn, M.C. (S.R.), A. H. Heslop, D.S.O., J. G. McCutcheon, (S.R.), O. W. D. Steel, M.C., L. R. Tosswill.

Temporary Captains: J. Biggam, M. du B. Ferguson, R. E. Gibson, S. S. Greaves, M.C., H. G. Kilner, G. Rankine, M.C., R. H. G. Weston.

Consultants.

Temporary Major-Generals: Sir A. A. Bowlby, K.C.M.G., K.C.V.O., Sir J. R. Bradford, C.B., K.C.M.G., F.R.S., Sir B. E. Dawson, C.B., G.C.V.O., C. S. Wallace, O.M.G. Colonel E. M. Pilcher, D.S.O.

Temporary Colonels: O. W. Richards, D.S.O., T. Sinclair, C.B., Sir A. E. Wright, C.B., F.R.S.

Lieut.-Colonel (temporary Colonel) W. Thorburn, C.B. Majors (temporary Colonels): G. E. Gask, D.S.O., H. Mol. W. Gray, C.B.

Major (temporary Lieut.-Colonel) H. A. Ballance.

Major R. H. Cooper.

Captain (temporary Colonel) A. E. Webb-Johnson, D.S.O.

Captain (temporary Lieut.-Colonel) A. E. Watson, D.S.O.

Royal Army Medical Corps.

Lieut.-Colonel (temporary Colonel) J. A. Hartigan, D.S.O.

Lieut.-Colonels: A. E. Hamerton, D.S.O., J. Powell.

Temporary Lieut.-Colonels: O. G. Douglas, M.C., W. J. E. Eames, C.B., V.D. (Lieut.-Colonel A.A.M.C.), A. Martin-Leake, V.C., Guy N. Stephen.

Temporary honorary Lieut.-Colonel H. Cabot.

Majors (temporary Lieut.-Colonels): R. C. Hallows, T. E. Harty, D.S.O., W. J. S. Harvey, D.S.O., A. C. Osburn, D.S.O.

Majors (acting Lieut.-Colonels): O. G. Browne, D.S.O., J. Dalrymple, G. D. Gray, R. P. Lewis, C. D. Myles, H. O. Sidgwick, W. L. Steele, C. H. Turner, D.S.O., T. B. Unwin, W. J. Waters.

Majors: T. S. Coates, R. H. Cooper, J. E. Hoar, J. L. London, M. Sinclair.

Temporary honorary Major L. F. B. Knuthsen.

Captain (temporary Lieut.-Colonel) F. W. M. Cunningham.

Captains (acting Lieut.-Colonels): W. W. Boyce, C. Clarke, R. Hemphill, A. N. R. McNeill, T. B. Nicholls, J. J. O'Keefe, M.C., C. Scaife, E. W. Wade.

Captains: W. P. Mulligan, W. G. Mumford, E. Phillips, M.C., W. L. Webster.

Temporary Captain (temporary Lieut.-Colonel) O. D. Pye-Smith, D.S.O., M.C.

Temporary Captains (acting Lieut.-Colonels): R. E. Drake-Brockman, A. Jones, M.C., L. D. Shaw, D.S.O.

Temporary Captains: J. Alexander, A. S. K. Anderson, D.S.O., M.C., J. S. Arkle, C. C. Ansten, T. B. Batchelor, W. O. Blackham, A. D. Blakeley, C. F. Brady, G. M. Brown, J. P. Cahir, S. B. B. Campbell, T. H. Campbell, H. Caplan, F. E. Carr-Harris, D.S.O., M. T. Cassidy, A. W. S. Christie, C. J. W. Clayton, C. G. Colyer, J. A. Conway, M.C., G. M. Cowper, W. Crabtree, J. Crawford, J. Cruickshank, G. D. Eccles, J. A. Edmond, H. Emerson, M.C., C. C. Forsyth, D. S. Graham, H. B. Graham, D.S.O., A. Gray, C. Harris, F. W. Hird, L. C. Johnson, W. D. Kennedy, P. J. Lane, R. M. Lang, R. D. Lemon, G. A. Lilly, S. J. L. Lindeman, W. H. Lister, D.S.O., M.C., A. L. Lockwood, M.C., P. A. MacCallum, S. E. McClatchey, J. W. Macfarlane, M.C., R. McGrath, R. A. MacNeill, A. O. B. MacMurtrie, W. R. P. McNeill, A. F. Mavety, D. M. Morison, J. Morrison, H. H. P. Morton, G. E. E. Nicholls, F. E. L. Phillips, J. G. Pigott, J. A. Pringle, J. Proctor, C. R. Reckitt, W. G. Riddell, A. C. Rowse, C. Scales, D. S. Taylor, G. W. Twigg, W. Warburton, W. W. Wells, C. R. Whittaker, D. R. Williams, R. L. Williams, M.C.

Temporary honorary Captain H. Nockolds.

Lieutenant (temporary Captain) G. R. Dudgeon, M.C.

Temporary Lieutenant J. S. Clark.

Quartermasters and honorary Majors: H. J. F. Audus, E. J. Buckley, J. Greco.

Quartermasters and honorary Captains: F. C. Cross, C. A. Figg, (acting Major) J. T. Packard, E. B. Senior, F. Wilson.

Temporary Quartermasters and honorary Captains: B. G. Brook, T. W. Jent.

Quartermaster and temporary Lieutenant V. A. Bell.

Quartermasters and honorary Lieutenants: H. B. Lee, H. Steele.

Temporary Quartermasters and honorary Lieutenants: E. Kerstein, M.C., P. le Poidevin, J. B. Mackay, H. Miller, E. B. Snowden.

Royal Army Medical Corps (S.R.).

Captains (acting Lieut.-Colonels): C. J. A. Griffin, S. Miller, M.C., K. D. Murchison, D.S.O., A. T. Pitts, R. T. C. Robertson, D.S.O.

Captains: W. R. Blore, C. F. Burton, W. B. Cathcart, E. M. Cowell, T. G. Fleming, F. H. Goss, R. A. Greenwood, T. F. Hegarty, F. Jefferson, J. I. Lawson, W. McK. H. McCullagh, D.S.O., M.C., G. H. C. Mold, C. M. Page, H. G. Trayer.

Royal Army Medical Corps (T.F.).

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Major (acting Lieut.-Colonel) A. Callam.

Major T. A. Barron.

Captain and Brevet Major (temporary Lieut.-Colonel) O. H. S. Frankan.

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Captain (temporary Major) E. Knight.

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Mallace, R. P. Pollard, H. H. Robinson, M.C., F. E. W. Rogers, S. Scott, J. M. Smith, W. Stobie, A. C. Watkin.

Temporary Captain L. Blake.

Quartermaster and honorary Captain C. W. Braithwaite.

Quartermaster and honorary Lieutenant T. Priest.

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Canadian Army Medical Corps.

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Majors: W. J. W. Close, A.A.M.C., D. M. Embleton, A.A.M.C., W. J. Stack, A.A.M.C., W. Vickers, A.A.M.C.

Australian Army Medical Corps.

Lieut.-Colonels: E. T. Brennan, M.C., T. P. Dunhill, W. E. Kay, B. Quick, H. C. Taylor-Young, W. G. D. Upjohn.

Majors (temporary Lieut.-Colonels): A. F. Maclure, V. O. Stacy.

Majors: F. L. Bignell, E. A. Brummitt, A. L. Buchanan, A. R. Clayton, A. T. Dunlop, T. C. C. Evans, E. L. Hutchinson, D.S.O., F. N. le Messurier, D. S. Mackenzie, A. McKillop, P. A. Maplestone, D.S.O., A. V. Meehan, W. A. Morton, R. J. Taylor.

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Honorary Captain P. Smith.

Quartermasters and honorary Captains: J. A. Anderson, H. Hazlett, R. C. Rutter.

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Majors: H. M. Buchanan, E. L. Marchant, E. A. Widdowson.

Captains: T. W. J. Childs, J. Mitchell.

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Major C. M. Murray.

Captain H. R. Lawrence.

INDIAN MEDICAL SERVICE.

Lieut.-Colonel J. B. Jameson.

Major (temporary Lieut.-Colonel) E. O. Hodgson.

Majors: D. H. F. Cowin, E. A. C. Matthews.

AMERICAN MEDICAL CORPS.

Temporary honorary Major V. H. Kazanjian (Harvard General Hospital).

The list also includes a large number of warrant and non-commissioned officers and privates of the R.A.M.C. and of the Colonial medical services, together with numerous members of the nursing services.

Scotland.

THE SCOTTISH CHURCHES AND VENEREAL DISEASE.

ON May 23rd Dr. David Newman of Glasgow addressed a meeting of ministers of the Church of Scotland and the United Free Church on the subject of venereal disease. He said that the reasons why venereal disease demanded attention specially at the present time were: (1) That marked progress had been made in recent years in combating the ravages of the disease by exact diagnosis and effective treatment; (2) now that the report of the Royal Commission was in the hands of the public it was recognized by all who had a knowledge of the subject that it was high time that the whole question was pushed forward and a determined attempt made to control one of the greatest scourges that affect mankind; (3) in the past it had been a constant experience that after all wars there was a formidable increase in venereal disease. In Glasgow a local centre of the National Council for Combating Venereal Disease had been formed, and was carrying on active work. Attention was called by Dr. Newman to the immediate and remote effects of these diseases. If public opinion was not on the alert to use every measure to combat the evil, it would become a danger as great as the war itself. The question of prevention was mixed up with that of prompt and effective treatment. A clear and carefully considered scheme of instruction must be arranged—one for girls, another for boys—in regard to sex teaching and personal hygiene. The value of games and the occupation of the mind on healthy subjects was dwelt upon. From the moral aspect many men were faint-hearted, saying the disease was a necessary evil, and that it was impossible to put a stop to immorality. But the word impossible had been deleted from the vocabulary of medicine and surgery. Could not the Church do the same? Since the report of the Royal Commission was published many leaders in the Church had joined the National Council for Combating Venereal Disease, and had taken an active part in promoting its objects, but the great body of the clergy had not had the facts brought before them. While it was clearly the duty of the doctor to cure and prevent disease it was equally the duty of the Church to face the question with courage, and aid in lifting the whole subject to a higher sphere by purifying the thoughts of the rising generation. The medical profession was warring against the disease; the Church had to teach that unchastity was a serious sin in itself, quite apart from the danger of contracting disease, and passing it on as a hateful gift to the next generation.

DR. ELSIE INGLIS.

At the Royal Scottish Academy, Edinburgh, on May 27th, under the presidency of the Lord Provost, Prince George of Serbia formally presented to the Scottish nation a bust of the late Dr. Elsie Inglis, the work of Mestrovic, the Serbian sculptor. In accepting the gift, Mr. R. Munro, Secretary for Scotland, eulogized Dr. Inglis's noble work in Serbia. The bust is executed in bronze, and is considered both an excellent likeness and an admirable work of art. M. Yovanovich, Minister Plenipotentiary for Serbia, spoke of the great work accomplished by the Scottish Women's Hospitals, of which Dr. Elsie Inglis was the moving spirit, and expressed the gratitude and admiration felt by the Serbian people towards the women of Scotland.

England and Wales.

WARD FOR DISABLED PENSIONERS.

A PENSIONERS' ward at the David Lewis Northern Hospital, Liverpool, was formally opened by Colonel Sir Robert Jones, C.B., F.R.C.S., on May 25th. The ward contains twenty-eight beds, to be devoted entirely to pensioners requiring special treatment. The main object is to restore disabled soldiers so as to enable them to earn their own livelihood, and as far as possible resume their former civil occupation. An out-patient department is to be developed for electrical treatment and remedial exercises. This undertaking by the Northern Hospital will relieve the congestion of the Alder

M. BILDT, Swiss Minister at Rome, recently gave £2,000 to the Italian Red Cross. The Minister of Siam gave £200.

THE French Government has established sanatoriums, each with two hundred beds, in all colonies of the French West Africa group (Senegal, Upper Senegal and Niger, Guinea, Côte d'Ivoire, Dahomey and Gaboon). These institutions are intended primarily for the reception and gratuitous treatment of sick native soldiers from the French armies, especially those suffering from curable tuberculosis. A dispensary for consultations and for gratuitous home treatment is to be established in the most important centres of the West African colonies and French Equatorial Africa.

Hey and Highfield hospitals, where the recent cases requiring orthopaedic treatment are received. Sir Robert Jones aptly remarked that a crippled soldier discharged too soon from the hospital became a "focus of discontent." The aim of the present undertaking was, he said, to prevent such a misfortune by carrying out further treatment to enable the patient to become fit for re-employment and once more independent. Such measures were imperatively required, and he felt proud that Liverpool was among the first cities to found such an institution for disabled soldiers.

Correspondence.

ADAPTATION AND DISEASE.

SIR,—In July last year a controversial correspondence between Dr. J. G. Adami and Sir Ray Lankester was published in your periodical. I heard something of it at the time, but recently Dr. Adami has published his Croonian lectures on adaptation and disease, with other matter, in book form, and has reprinted the correspondence as an appendix in the volume. This correspondence originated in a severe criticism by Sir Ray Lankester of the substance of Dr. Adami's lectures, and of the manner in which the subject was treated. The volume has recently come into my hands, and as one who has taken some part in the investigation and discussion of adaptation and its evolution, I desire to make some comments on the arguments of both the medical and the zoological writers.

Dr. Adami uses the term "academic" in an unusual sense, and applies it with an unfavourable meaning to men who have made important original contributions to science. Academic does not, as generally used, mean "more concerned with tradition than discovery," but simply the pursuit of pure knowledge as distinct from its practical application. The medical man who investigates the action of different conditions upon bacteria is quite as academic as he who studies the development of a starfish; the former only ceases to be academic when he applies his discoveries in a particular treatment of disease. Sir Ray Lankester is well known to have shown himself a brilliant and original morphologist, who in his time has dislodged a good many traditions. He has not, however, concerned himself with the investigation of evolutionary problems, and in this branch of biology is perhaps open to the charge of retaining too great a respect for tradition, in particular the Darwinian tradition. It is rather difficult to understand definitely what view Sir Ray takes with regard to the influence of external conditions. He states that he has always maintained that "specific variation" may be induced by external influences. If a specific variation is due to external causes—and it can scarcely be specific unless it is hereditary—it follows that Sir Ray has always maintained that acquired characters may be transmitted by heredity. Yet the last paragraph of his first letter states that it is widely admitted that no case of such transmission has been demonstrated, and seems to imply that he agrees with Weismann that acquired characters are not inherited. Discussion, however, of evolutionary phenomena under the general terms of specific variation and acquired characters belongs to a bygone period. At the present day we require physiological details and concrete examples.

With the general tendency of Dr. Adami's views I am in agreement. His criticism of Bateson's extraordinary theory that no new characters have ever arisen, but that all possible characters were originally contained in the protoplasm of the primordial ancestral forms is perfectly sound, but that does not justify him in descending to ridicule. A great part of Dr. Adami's argument is concerned with specific changes produced in bacteria by conditions of life, but that does not in the least bear on the question how modifications of the somatic tissues in the higher animals can be inherited by the offspring. With this latter question Dr. Adami deals, but he gets no farther than the conclusion that influences from without affecting the organs of internal secretion may through their hormones influence the germ cells, so that acquired metabolic disturbances are inherited. How does this help us to understand the evolution of the horse's foot or the bat's wing? Dr. Adami has the audacity to claim priority

with respect to the publication of a hormone theory of heredity, and to place my name in a footnote, together with those of Heape, Bourne, MacBride, and Dendy, no one of whom, I believe, had published anything of importance on the subject prior to 1908, when my own theory was first printed. According to this note we have "since enunciated" the conclusions reached by Dr. Adami in 1901. He reprints in this volume the paper to which he refers, from the *New York Medical Journal* and *BRITISH MEDICAL JOURNAL* of that year. The relevant part of this paper is under three headings in the latter portion of it: (1) The non inheritance of acquired mutilations. This need not detain us, as it is negative. (2) The indirect transmission of acquired diathesis. The local lesion is not inherited, but the disease may lead to altered condition of the blood, which may affect the germ cells and so influence the offspring. This, as further explained in the paper, is not inheritance in the morphological sense at all, but simply poisoning of the germ cells. (3) The direct transmission of acquired constitutional states. The examples given are occasional inheritance of acquired immunity, and greater susceptibility to a disease in the offspring of parents who have suffered from the disease. None of these conclusions throw any light on the problem of the evolution of structural adaptation by the inheritance of somatic modifications. My theory of the evolution of secondary sexual and adaptive characters by the inheritance of somatic modifications was published in the *Archiv für Entwicklungsmechanik* in 1908, and was based on the discoveries of the physiologists concerning the action of hormones. It certainly owed nothing to the vague medical generalities of Dr. Adami.

With regard to the other zoologists considered by Dr. Adami worthy with myself of mention in a footnote, and there accused by him of ignoring his claim to priority, my knowledge of their relation to the doctrine of chemical action in heredity is as follows: Of Heape's share in the matter at the present moment I know nothing. Bourne expounded the idea in an address to the British Association some time later than 1908, and, when challenged on the subject honourably acknowledged my claim to priority in a letter to *Nature*. Dendy put forward the theory in very general terms in his book on *Evolutionary Biology* in 1912, four years after the publication of my paper. The case of MacBride is the most remarkable. In his *Embryology of the Invertebrates* (1914) he referred to hormones or internal secretions as the probable agents by which somatic changes could affect the reproductive cells, and attributed the suggestion to Professor Langley. When I informed him that I had published a detailed theory on the subject in 1908, his reply was that he had not been aware of my prior publication. This reply was the more remarkable because Professor Langley had published nothing on the subject, but had merely conveyed his views to MacBride in conversation.—I am, etc.,

J. T. CUNNINGHAM.

London Hospital Medical College, May 9th.

THE FORMATION OF SEQUESTRA.

SIR,—I have recently made a study of sequestra from the purely radiological standpoint, and believe that I have often seen split-off fragments of bone throw out a fringe of callus and live to be reunited to the parent bone. I found it difficult to understand why some of these detached fragments should live and others die. It seemed evident that neither persistence of blood supply nor adherence of periosteum was a valid explanation, and in an article awaiting publication in the *Archives of Radiology* I have suggested that those fragments die which are exposed directly to bacterial toxins, while others escape by being shut off from the septic area by other tissues. Sir Kenneth Goadby's article (*BRITISH MEDICAL JOURNAL*, May 25th, p. 581) confirms the first part of this surmise, but I am surprised at his statement that "bone fragments split off at the original injury invariably become sequestra."—I am, etc.,

Newcastle-on-Tyne, May 25th.

T. L. BUNTING.

REMOVAL OF FILARIA LOA FROM THE EYE.

SIR,—It may interest readers to know that five years ago a man suddenly appeared before me late at night and abruptly asked, "Can you cut out a worm from my eye?" Having said "Yes," I was told it was a filaria, probably

female, as he felt another in his body, and that he had had one before some years back, having got this one in the Argentine.

I put him close under the electric light and saw distinctly the wriggling form of the worm working towards the inner side under the translucent pink of the eyelid. I caught the tail up together with the skin with a pair of "bull-dog" forceps. The worm in its struggles straightened out, enabling me to cut down upon its head, which I seized with another pair of forceps, and, releasing the first pair, wound the worm out complete by twisting the front part round the forceps. Dr. Harford, of Livingstone College, Leyton (where I then lived) confirmed the man's opinion that it was a female *lar*.

I have the worm and should be pleased to let any one skilled in the life-history of these creatures inspect it.—I am, etc.,

HARDING H. TOMKINS, M.R.C.S.

Parkfield, South Ealing Road,
Ealing, W 5, May 25th.

FAMILY HISTORY IN LINGUAL CANCER.

SIR,—I am interested in the subject of cancer of the tongue and am anxious to ascertain whether there is a family predisposition to the disease, such as occurs in some other forms of cancer.

Will any of your readers kindly tell me whether they know, at first hand, of (a) cancer of the tongue occurring in more than one member of the same generation of a family, (b) in successive generations of the same family—that is, father and son, (c) whether in the rarer case of lingual cancer in women the disease has occurred in families with a markedly cancerous history.—I am, etc.,

London, W., May 25th.

D'ARCY POWER.

EXCISION OF WOUNDS AND FLAIL LIMBS.

SIR,—It is time a note of warning was sounded as to the excessive excision of the wounds in compound fractures. Several cases have lately come to this hospital with flail legs and arms from undue removal of bone fragments. Where more than two inches of femur have been excised firm union seems improbable. The end results of these are likely to be less satisfactory than of cases with extensive comminution, some sepsis (controlled by Carrel-Dakin treatment), and sequestrotomy of necrosed fragments at a late period. Doubtless many of the wound excisions prevent dangerous sepsis and save limbs and lives. It is the happy medium for which I plead.—I am, etc.,

A. NEVE, F.R.C.S.E.,

War Hospital, Dartford, May 27th.

Major R.A.M.C.

A MINISTRY OF HEALTH.

SIR,—The scheme of the British Medical Association's pamphlet assumes naturally that the doctor knows that his duty is to cure a patient as soon as possible and to persuade a patient to carry out his instructions. The accusation that the scheme of the Association is humdrum and unimaginative might with greater aptness be applied to Dr. Veale's ideal of state control. As to voluntary hospitals, one would have thought that the results of state control, as seen during the present war, would have sufficed to prove how unsatisfactory it is in its practical working. I for one should be indeed sorry to see our voluntary hospitals handed over to the care of the state. State control could not shorten the waiting list. Your space is precious, otherwise I should have liked to have dealt with Dr. Veale's contentions in detail. Fortunately, we are not all so melancholy as your correspondent.—I am, etc.,

Bedford, May 25th.

S. J. ROSS.

The Services.

TERRITORIAL DECORATION.

THE Territorial Decoration has been conferred upon the following members of the R.A.M.C.(T.): Lieut.-Colonels W. A. Benson, J. P. Bush, C.M.G., W. K. Clayton, T. Frankish, A. M. McIntosh, J. Oldfield; Majors A. Butler, R. Emmett, F. L. Fennell, A. Fowler, C. W. Miller, D.S.O.; Quartermaster and honorary Major J. Dunn; Quartermaster and honorary Captain A. J. H. Knights.

Obituary.

LIEUT.-COLONEL JAMES FORBES BEATTIE, R.A.M.C.(ret.), died at Inverness, Aberdeenshire, on March 27th, aged 76. He was educated at King's College, Aberdeen; he graduated M.A. in 1860 and M.D. and C.M. of Aberdeen University in 1863; he entered the army as assistant surgeon on September 30th, 1863, and retired as brigade-surgeon-lieutenant-colonel on May 21st, 1890. He served in the Ashanti war of 1873-74 (medal); in the Afghan war of 1878-80, where he took part in the defence of Kandahar (medal and clasp); and in the Egyptian war of 1882, when he was present at the battle of Tel-el-Kebir (medal and clasp and Khedive's bronze star).

SURGEON-MAJOR EDWARD LOUIS MCSHEEHY, R.A.M.C. (retired), died at Wimbledon on May 1st, aged 84. He was educated at Queen's College, Cork, and at the R.C.S.I. Medical School in Dublin, and took the M.D. of the Queen's University of Ireland in 1856, and the L.R.C.S.I. in the same year, and subsequently the M.Ch. in 1866 and the F.R.C.S.I. in 1867. He entered the army as assistant surgeon on May 27th, 1857, became surgeon on May 27th, 1869, and surgeon-major on March 1st, 1873, retiring on May 28th, 1877. He served in the second China war of 1860, receiving the medal, and was a J.P. for the county of Surrey.

Medical News.

THE Medical Defence Union announces in our advertisement columns this week that an agreement has been entered into with the Yorkshire Insurance Company, whereby for an annual premium of 7s. 6d. an indemnity insurance can be effected for £2,500 against legal costs and damages in adverse actions at law in which the defence has been undertaken by the Union.

AT the annual meeting of the Kent Branch of the British Medical Association, to be held on Wednesday, June 12th, at 3.30 p.m., at the Technical Institute, Tonbridge, the president, Dr. Claude Wilson, will give an address on the significance of cardiac murmurs.

AS a recognition of the long service of Lieut.-Colonel Charles Brook, late R.A.M.C.(T.F.), the General Officer Commanding-in-Chief has been pleased to appoint him honorary consulting surgeon to the 4th Northern General Hospital, Lincoln.

A FAIR in aid of the Elizabeth Garrett-Anderson Memorial will be held at the London (Royal Free Hospital) School of Medicine for Women, 8, Hunter Street, W.C.1, on Saturday, June 8th, from noon to 9 p.m.; admission 1s.

THE late Dr. Henry Maudsley left £60,718 net.

DR. W. C. BURNS of Raasay has been appointed a Justice of the Peace for Inverness-shire.

THE Royal Dental Hospital, Leicester Square, has received an additional donation of £100 from the Worshipful Company of Grocers.

DR. AND MRS. HENRY MATURIN of Hartley Wintney, Hants, recently celebrated their golden wedding, and were the recipients of a public presentation.

A DISCUSSION on disinfection in public health work will be opened by Dr. W. G. Savage, M.O.H. Somerset County Council, at a meeting of the Royal Sanitary Institute at Taunton on Friday, June 14th, at 11 a.m.

MISS EDITH HELEN BARRETT, O.B.E., M.B., honorary secretary of the Australian Branch of the British Red Cross Society, has been appointed a Commander of the Order of the British Empire.

PROFESSOR UHLENHUTH has come to the conclusion that under favourable conditions the *Spirochaeta icterogenes* may multiply in water and other media outside its human host.

THE Council of the Carnegie Foundation, at a meeting recently held in Rome, decided to give £4,000 towards the erection of a sanatorium for tuberculous Italian soldiers.

THE Local Government Board has issued a revised edition of the list of sanatoriums and other residential institutions (H.M. Stationery Office; price 1d.) approved by the Board under the National Insurance Act, 1911, for the treatment of persons suffering from tuberculosis, and resident in England, excluding Monmouthshire.

THE General Officer Commander-in-Chief of the French Forces in Italy mentioned H.R.H. the Duchess Elena d'Aosta (née Princess Hélène Louise Henriette de France) in the Order of the Day, and decorated her with the War Medal in recognition of her work with the Italian Red Cross and the active assistance she has given to medical units of the French army in Italy.

PROFESSOR J. G. ADAMI, F.R.S., M.D., and Dr. Amand Routh will speak on the subject of antenatal and neonatal factors in infant mortality at the conference to be held at the Central Hall, Westminster, on July 2nd and 3rd, during National Baby Week. Dr. Truby King, C.M.G., who will lecture on the hygiene of infancy, has undertaken the section dealing with infant physiology and comparison with baby plants and animals at the Educational Exhibition to be held from July 1st to 6th. Mrs. H. B. Irving and the St. Pancras School for Mothers will exhibit a model infant welfare centre; Dr. Eric Pritchard and the St. Marylebone Health Society will give instructions in infant feeding; the Midwives Institute has undertaken a section dealing with the expectant mother; the Association of Infant Welfare and Maternity Centres will demonstrate mothercraft; and Dr. H. C. Cameron will assist in the section devoted to diseases of infancy.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR OF THE BRITISH MEDICAL JOURNAL, *Atiology, Westrand, London*; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS NOTES, ETC.

TREATMENT OF MENINGITIS.

CAPTAIN H. M. CADE, R.A.M.C., officer in charge Cerebro-spinal Fever Laboratory, Ipswich, writes with reference to the treatment of meningitis as follows: I have seen many cases occurring in children and young soldiers where the characteristic clinical signs of meningitis have been present, where on lumbar puncture a clear fluid, increased in quantity and tension, has been procured, but where the fluid on examination has proved to be of normal character. May not Mrs. Fysh's three cases of recovery been of this type, that is, not cases of meningitis at all?

My excuse for taking up valuable space is to point out the great value of early lumbar puncture in all cases of, or suspected cases of, meningitis. By adopting this procedure not only will the diagnosis be cleared up, but also, if the case is one of meningitis, the nature of the invading organism will be determined. Lumbar puncture is the most useful therapeutic agent at our disposal in the treatment of meningitis. It relieves the intracerebral pressure and drains away toxins.

In cerebro-spinal fever (the meningococcus is the commonest pyogenic organism causing meningitis) anti-meningococcal serum given intrathecally has markedly lowered the mortality-rate. Even in the next common form of suppurative meningitis, namely, pneumococcal, a serum such as Lane's can be tried by the spinal route. This method will give better results than the unsatisfactory and retrograde procedure advised by Mrs. Fysh under the title "iodine treatment."

NOTE ON TREATMENT OF ACUTE GAS CASES.

DR. THOMAS D. LISTER (Consulting Physician for Lung Cases to the Prince of Wales's Hospital) writes: A method which I introduced at the Prince of Wales's Hospital for Officers (Great Central Hotel, Marylebone) last summer, of steam-spraying the air passages with Dobell's solution, I have now supplemented when necessary by using a fine oily nebula with cocaine 2 grains to the ounce, such as is given by the aeriser of Messrs. Oppenheimer with their No. 9 nebuline compound. This is used after the mucous membrane has been washed by the spray of Dobell's solution, or after coughing, and seems to afford relief. The addition of 1 per cent. cocaine and 1 in 10,000 adrenalin to a 2½ per cent. solution of boric acid also affords great relief to the eye conditions as a drop—a temporary measure which may be repeated.

THE FEAR OF SMALL-POX.

IN the *Revista de Medicina y Cirugia practica* of May 14th there is a story which illustrates the inhumanity which the fear of infectious diseases may produce among ignorant people. Stories of similar cowardice on a larger scale are told of Milan, Marseilles, London, and elsewhere in our own country during the great epidemics of plague which occurred in the middle ages, and down to the beginning of the eighteenth century. But that small-pox should still cause such terror, even in a backward country like Spain, must cause sad reflections to believers in human progress. In an outbreak of that disease which occurred in January last at Villavendimio (Zamora) the wife of the sacristan of the village was attacked. Her husband could find no one to help him in giving her the necessary attentions till the poor law medical officer, Dr. Fernando Perez Rodriguez and the parish priest, Don Felix Cabago, took it in turns to tend the patient. When she died the doctor, after giving directions for the disposal of the remains, returned to his other duties. Later on, meeting with the priest, he learnt that the body was still where they had left it, as the husband had failed either by entreaties or by liberal offers of money to find any one to help him in taking it to the cemetery. Thereupon they laid out the body, procured a coffin, and carried it to the cemetery, where they helped the gravedigger to bury the poor woman decently. The devotion of the doctor and the priest has aroused such admiration that a widely endorsed petition has been forwarded to the proper authority, asking that the Cross of Beneficence should be conferred on them.

PETROL FOR SCOTTISH PRACTITIONERS.

IT appears that some medical practitioners in Scotland do not order their allowance of petrol from local dealers until the close of the month, with the result that the necessary supplies may not reach the dealer's premises in time for them to issue the current month's quantity. In order to secure prompt delivery practitioners should send in their vouchers as early as possible in each month. Those who experience difficulty in this matter are invited to communicate with the Clerk of the Scottish Committee of the British Medical Association, 155, St. Vincent Street, Glasgow.

CERTIFICATES TO PROSTITUTES.

WE learn from a report in the *Folkestone Herald* of May 11th that during the hearing of a charge of soliciting against a prostitute the chief constable stated that the woman had in her possession "a certificate from a local doctor stating that he could find no trace of venereal disease on her. He presumed she kept that to show the men she accosted." This he thought was a new system. The chairman of the bench, in passing a sentence of fourteen days' imprisonment, accompanied by a recommendation for expulsion, said that it "seemed strange that a local doctor should give these certificates to prostitutes." In the next case, in which the charge was similar, the chief constable said that this woman also had a certificate from a local doctor, and the magistrate's clerk remarked that the certificate was given on the same day as the last case. From the facts as stated in the report before us we are inclined to agree with the chairman.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

"VIS VERITAS" writes: Permit me to endorse all that "An Old Member" of the "Medical Sickness Society" writes concerning the injustice done to old members who rallied to its support in its early days. Formerly we used to get a small bonus every year, but this was stopped in order to give us a larger one on retiring from benefit. Now it appears we are to get nothing. I am inclined to think that the whole affair is *ultra vires* and might be contested.

THE HUMAN AND THE EQUINE FOOT.

MR. T. S. ELLIS (Gloucester) writes: In my narrative of the result of an accident to my own foot, given in the JOURNAL of May 25th, p. 608, there is an unfortunate slip. A sub-astragaloid dislocation involves a displacement of the bones in front of the astragalus and not of the astragalus itself.

THE appointments of certifying surgeons to the following places are vacant: Canterbury (co. Kent); Bishop's Waltham (co. Southampton); Gadgate (co. Lancaster).

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THE UTILIZATION OF THE MUSCLES OF A STUMP TO ACTUATE ARTIFICIAL LIMBS:

CINEMATIC AMPUTATIONS.*

BY

V. PUTTI, M.D.,

PROFESSOR OF ORTHOPAEDIC SURGERY IN THE UNIVERSITY OF BOLOGNA, AND DIRECTOR OF THE RIZZOLI (ORTHOPAEDIC) INSTITUTE OF THAT CITY.

It affords me the greatest pleasure to place before the British medical profession the facts as to what has been called cinematic amputation. I feel this all the more because I am thoroughly convinced of the enormous advance which the conception of cinematization will bring about in the treatment of disabled men, and believe that all that concerns this new current of ideas, as well as the store of facts related to them, ought to be placed at the disposal of the world at large.

In briefly reviewing the fundamental theories of plastic motors, and pointing out the vast field thus thrown open to the activity of orthopaedic surgeons and mechanical engineers through the practical application of these theories, I venture to express the hope that our efforts may prove welcome to all those who have hitherto had no opportunity of studying this important scientific innovation.

Whilst in Italy the tireless work of propaganda undertaken by Dr. Giuliano Vanghetti, the original exponent of these theories, has led to their full discussion and close study and to many experiments, and whilst both German and Austrian scientists have been actively working to obtain the most practical application of these same theories, the medical literature of France, England, and America contains very few, if any, allusions to the subject.

In the space at my disposal I must content myself with outlining the fundamental principles upon which the theory is based, pointing out, as briefly as possible, the various ways it can be put into actual practice, and making a short statement as to the method of operation and the results.

The possibility of utilizing the functional resources of the stump so as to convey movement to the artificial limb was an idea that came to Dr. Vanghetti first in 1896, at the time of Italy's second expedition into Abyssinia, when soldiers that had been taken prisoners by the native forces under the Negus were cruelly tortured and mutilated.

From that time onwards Dr. Vanghetti wrote and published innumerable articles, wherein he developed his theory on what he had now named "cinematic amputation." In them he described very fully the origin of his idea and the various methods by which it could be practically applied. Unfortunately for the speedy acceptance of this most novel and useful idea, Dr. Vanghetti, though his originality, cleverness, and ability are indisputable, is not a surgeon, but a physician, and for this reason was unable to put his theory into practice. He was therefore forced to resign himself to endless delays before he succeeded in convincing surgeons of the great value and practical possibilities of his theory and obtaining their co-operation, which was indispensable to any adequate test. This was the principal reason why, prior to the war, the cases of cinematic amputations did not number more than twenty.

THE PRINCIPLES OF CINEMATIZATION AND OF "PLASTIC MOTORS."

Dr. Vanghetti has given the name of "cinematic plastics" or "cineplastics" to any kind of bloodless or operative plastics that tends to economize, restore, or substitute those muscular masses that can be employed to impart direct and voluntary movement to an artificial limb.

The word "cinematization" was formerly used to indicate the cineplastic operation; it was subsequently applied to every kind of cinematic artificial limb, and finally to the active and early mobilization of such muscles as are involved in cineplastic operation.

Every moving entity obtained cineplastically, whether bloodlessly or operatively, is called a "plastic motor."

* Professor Putti, Professor Pellegrini, and Captain Pieri (Italian Royal Army Medical Corps), delegates to the Inter-allied Conference on the after-care of discharged sailors and soldiers, read papers and gave demonstrations on cinematic amputation and cineplastics in the section of the Conference on surgical treatment. Subsequently, Professor Putti summarized the present position of the subject in an address to the Royal Society of Medicine, the substance of which is here reproduced.

Plastic motors are based on the following general principle: In an amputation or disarticulation, actual or antecedent, the tendon and muscle, provided they have the necessary physiological protection—skin, vessels, nerves, etc.—can generally be used in cinematic prosthesis, on condition that the formation of an artificial point of attachment, to be protected in a similar manner, is available. Cinematization can be effected, or prepared, at the time that the primary amputation is made; it can also be done on stumps that have already healed.

Plastic motors may vary as to their number, position, shape, and function.

Without entering into too detailed a description of the numerous varieties of plastic motors, I will limit myself to stating that, at the present day the most elementary, and, up to now, the most commonly used are, as regards shape, the *clava* (*clavus*, a peg) and *ansa* (a loop) motors, and those obtained by means of the canalizing, or tunnelling, of the muscular masses.

As regards number, the motor may be single, double, or multiple; in function it can be either *unimotor* or *plurimotor*.

When the motor is made to execute two opposite movements in succession, it is called *alternative*.

According to the position they occupy, motors are either *terminal*, when placed at the extremity of the stump, or *extraterminal*, should they be placed in the continuity of the stump.

Down to the present time the upper limb has been more frequently cinematized than the lower, but the number of successful cases of cinematization of the lower limbs is daily increasing.

APPLICATION OF THE PRINCIPLES.

From what I have said, it will be evident that the application of cinematization entails essentially a radical upheaval of all preconceived notions as to the ordinary methods of amputation.

Principles observed in the performance of amputations according to prosthetic criteria have already caused a revolution in modern surgery, but they must again be subjected to modifications in order to ensure the preservation of the greatest possible amount of the original bone and of the residual motor masses and integuments, for these must be used for the preparation of the plastic motor.

In cases where it is practically impossible to perform primary cinematic plastic operations, as, for instance, at the first-aid dressing stations in the full stress of battle, the surgeon can, at any rate, always so operate as to prepare the ground for a future cinematization of the stump. Skin flaps, muscular insertions, various bone and tendinous fragments and segments of limb, which would seem utterly superfluous under ordinary circumstances for the preparation of ordinary stumps, must be recognized to be of the greatest value in view of the future cineplastics.

In order to prevent the possible loss of these elements and of these materials whilst the stump is undergoing the process of healing, it is advisable to take certain special technical precautions to avoid the retraction of the softer tissues; this ought to be done, however, in such a way as not to hinder the ordinary dressing of the wound.

When the inflammation has decreased, and further complications are no longer to be feared, the time has come for the actual cinematization, that is to say, for the preparation of the plastic motor or motors. A plastic motor, in order to fulfil the purpose with which it is made, must conform to the following requirements:

1. It must possess every requisite for withstanding a firm, resisting, and painless grip, and also a traction force that, in not a few instances, may be high.
2. It must be provided with a sufficient amount of muscle masses capable of functional movement to guarantee the accomplishment of the task that will be demanded of them.

The primary conditions for obtaining the first requisites are:

1. That the motors be covered with skin in perfect condition, well nourished, and possessing a normal degree of sensibility.
2. That, with regard to its shape and dimensions, the motor be of a size suitable for the fastening of the hooks, rings, and rods, that are destined to transmit the functional movement to the artificial limb.

The "Clava" Motor.

The movement masses must be sought for, and obtained from amongst those which the stump still possesses. Such masses as from their anatomical structure and physiological disposition produce broad, strong, and dissociated contractions, are the best adapted to the task. In the choice and distribution of these masses the fundamental principles of the physiology of movement must be thoroughly observed and respected.

As the tendon is the element best adapted for the transmission of muscular contractions, it should be largely employed for the formation of plastic motors. Should the tendon be missing, the muscles must be utilized either by including muscular bundles within the terminal motors, or by tunnelling the muscular masses in order to obtain the extraterminal motors.

The antagonistic force, indispensable to all active movement, must be provided either by the stump itself through the formation of two motors with elements belonging to muscular groups of opposite action, or by the artificial limb by means of elastic resistance in the opposite sense to that given by the plastic motor.

With a view to gaining both space and integument it may be advantageous at times to shorten slightly the bone or bones of the stump, and to excise superfluous muscular masses. This, however, can only be done when the bone is sufficiently long to allow it.

In order to provide such materials as may be missing *in loco*, recourse may be had to the numerous methods that modern plastic surgery places at our disposal, as, for instance, skin, muscular, aponeurotic, or osseous transplantations. Arthroplasties, with the interposition of an aponeurotic flap, may be utilized so as to render mobile those stump segments which, through stiffness and ankylosis, have become unusable. By these same means a new joint can be created in the continuity of the stump, thus giving the plastic motor the power to develop a leverage action.

The cinematization of the thigh stump enables us to solve one of the most difficult prosthetic problems—that of gaining active power over the knee-joint. With the ordinary artificial limbs the knee extension is obtained either by means of springs or of elastics, quite independently of the will of the patient, or else through straps put on the stretch by auxiliary movements of the trunk and shoulder. In some cases we have carried out successful experiments by cinematization of the quadriceps femoris; then the stump itself can control the voluntary extensor movement of the knee, and restrain the flexor movement.

As a result of cinematic plastics we are now able to utilize certain stumps which hitherto have always been held as incapable of functional movement, such as, for instance, carpal stumps, very short stumps, and disarticulation stumps.

The surgeon who, in the case of shoulder disarticulation, succeeds in sparing the deltoid and pectoralis major, in covering these muscles with skin, and in finding means of creating a point of attachment, may be congratulated on having preserved for the benefit of the mutilated man a precious functional capital.

With regard to the difficult problem of utilizing short forearm or short leg stumps, the solution will be enormously facilitated through the preparation of points of attachment that correspond to the insertion of the biceps and patella tendons.

[In order to illustrate the fundamental principles of cineplasties, Professor Putti demonstrated a number of plaster casts of amputated stumps, in which he had prepared different kinds of plastic motors. The first cast was of the stump of a forearm with two terminal motors; one of these had been formed with the tendons of the flexor muscles, the other with the tendons of the extensor muscles. It was a case of disarticulated wrist, and the stump was already completely healed. After excising about an inch and a half of the radius and of the ulna, two cutaneous flaps were prepared, each of which served to cover the two principal groups of tendons in the forearm, that is to say, the flexor and extensor tendons. Professor Putti thus obtained two plastic motors like clumsy fingers, of which one was controlled by the flexor, the other by the extensor muscles.]

Two points of attachment must be provided in these two "fingers," in such a way as to ensure the transmission of

their contractions to the artificial limb, with a view to giving movement to the hand. This I obtained by means of metal rings covered with vulcanized rubber placed at the base of the fingers, and gradually tightened; to them the artificial motors of the hand were attached. The stump thus became capable of giving flexor or extensor movements to the artificial hand.

In cases in which it is not possible to obtain sufficient material for the construction of two motors, we must limit ourselves to the preparation of a single motor, the antagonistic movement being provided in the artificial limb by a spring or an elastic.

The "Ansa" Motor.

Another type of plastic motor is that known as the *ansa* motor. In the case from which the cast exhibited was taken, after shortening sufficiently the radius and the ulna, I prepared the tendons of the flexor and extensor muscles, and gathered them together in such a way as to form a ring or loop, which I afterwards covered with skin. Whenever the disabled man contracts either of the two muscular groups, this ring, or loop, displaces itself alternately either in a flexor or in an extensor sense, and the contractions are transmitted to the artificial limb.

The plastic motors so far described are formed of the soft parts of the stump. In order to give greater consistency to the motors they can be provided with a bony support.

ILLUSTRATIVE CASES.

The stump in the first case demonstrated is from a case of disarticulation at the wrist. I formed a para-epiphyseal pseudarthrosis, excising from a third to a fourth of an inch of bone from the shafts of the radius and of the ulna and then interposing a double flap of fascia and of muscle. I was thus able to obtain an artificial wrist having all the movements with which, normally, the wrist is provided, for the muscles and tendons that cause these movements had been, for the greater part, preserved.

I performed a similar operation on the stump of an arm. Having detached a fragment of bone from the extremity of the humerus at the height of about one inch, I interposed a muscular flap between the severed section of the bone. Thanks to the neo-arthritis, the stump is capable of flexor and extensor movements, for into the piece of severed bone the muscular bodies of the biceps and of the triceps are still inserted.

I believe that these cases sufficiently show the principal types of terminal motors. As regards their preparation, it is nearly always necessary, as I have said, to sacrifice a certain quantity of the stump's original bone. But plastic motors can be obtained without compromising the length of the bone. This is achieved by directly tunnelling the muscular bodies.

In the forearm stump I prepared the group of the flexor superficialis, preserving its normal cutaneous envelope. By a plastic operation I next covered with skin the space comprised between the superficial flexor and the deep flexor, thus creating a canal completely lined with skin. During the period that the wound was healing I maintained this canal open constantly by means of a rubber tube. Once the cutaneous wounds had healed, I inserted a metal rod covered with vulcanized rubber in place of the rubber tube. This little rod serves as point of attachment for the cords used to convey movement to the artificial hand. Following each contraction of the flexor muscles, this small rod displaces itself in a proximal sense, and thus actuates the fingers of the hand.

Arm and thigh stumps are better adapted to this style of cinematization than are those of the forearm. I show casts of two stumps of the lower third of the thigh in which I prepared a canal running horizontally and to the full depth of the quadriceps a little above its insertion into the patella. Into the canal I introduced a skin flap folded back over itself in such a way that the cutaneous surface was turned towards the lumen of the canal. The tunnel thus formed is entirely lined with skin, and can withstand, without risk of damage or pain, the presence of the metal rod that serves for the transmission of the extensor movement to the artificial leg.

At the first glance it may appear strange that these mechanical attachments can be so easily tolerated. Experience has proved, however, that if the plastic motor is well placed, if the skin that covers it is healthy, if the

wounds are absolutely healed, neither the rings nor the rods cause the slightest harm. When the *clava* motor is sufficiently long, and its head is large enough, the ring surrounding the neck of the *clava* need not be tightened to such an extent as to interfere with the blood supply of the motor. Moreover, each ring is provided with a screw by means of which the disabled man can himself regulate the pressure.

The disabled men get so accustomed to the metal rod that they leave it in place even at night. The rod must, however, be removed once every twenty-four hours, in order to clean it with alcohol and oil it with vaseline. I have observed that the skin within the canals gradually acquires the property of throwing off sebaceous substances in greater quantities than normal, thus providing for the oiling of the canal.

FUNCTIONAL RESULTS.

Another point deserving consideration is the sensibility of the plastic motors. Professor Amar has made some most interesting physiological researches, showing that the superficial and deep sensibility, and the muscular sense of the stumps, which at first—that is, shortly after the amputation—are greatly altered, not only recover in time, but eventually attain a degree of sensibility superior to the normal, provided the stump is put through the proper functional training. I have observed that the same thing happens with cinematized stumps. One of my patients, on whom I operated over a year ago, is now able to note with considerable exactitude the difference in the size and weight of the articles which he seizes with his artificial hand.

The functional results that can be obtained from a plastic motor depend upon numerous factors, but especially on the cinematic powers of the muscular masses of the stump, on the manner in which the surgeon has found it possible to utilize them, and upon the functional use the motor undergoes. To give a clear conception of the amount of work that a plastic motor can do I may state that amongst the cases operated upon by me the power of the motors ranges from 10 kilogram-centimetres at the lowest to 100 kilogram-centimetres at the highest. For a motor to be of practical use it must be contracted not less than one inch. In the case of a hip stump, I have obtained one motor that contracted to the extent of two and one-fifth inches, lifting a weight of forty-four pounds.

I have only described the principal types of plastic motors. The genius and the ability of the surgeons will find here a vast field of action. Naturally, it is not possible to treat all amputated stumps in this manner. Those that best lend themselves to it are those that include healthy muscular masses, that retain normal innervation, and that possess an ample contractility. Stumps with rigid or ankylosed joints, covered over by skin that does not glide easily, being adherent or creased by a scar, do not supply satisfactory plastic motors. The age, and moral and intellectual condition of the patient are also important. The best age is from twenty to thirty years. Disabled men of insufficient mental development, or those who are not likely to be willing to follow with patience and assiduity the necessary functional training of the stump muscles, ought not to be operated upon.

It is to be understood that cinematization does not invariably require operations with the knife. There are stumps already formed which are endowed spontaneously with cinematic resources that, wisely employed, can be utilized for transmitting movement to the artificial limb. I will content myself with mentioning the wrist and forearm stumps, in which rotary movements are preserved, and the arm and forearm stumps, that possess a terminal hood having a development and contractility sufficient to ensure a good grip.

CONSTRUCTION OF SUITABLE ARTIFICIAL LIMBS.

Whatever type of plastic motors may be chosen, it is an essential condition for their efficient utilization to their full value that the artificial limb be adapted in a manner suitable to their power, their number, and their shape. This question of cinematic prosthesis is so vast and still so new that it deserves a special study to itself. It is now undergoing gradual development and will bring about a substantial reform in ordinary constructive methods. The surgeon, the physiologist, and the mechanic must all

collaborate intimately in this work, as only by means of the perfect fusion of these three can we obtain new methods of a really scientific character that will answer modern requirements and replace the empirical systems that have been followed up to now in the manufacture of artificial limbs.

[Professor Putti demonstrated specimens of artificial limbs especially constructed for cinematized stumps. Among others three hands, of which two were made for stumps with a single plastic motor; in one the contraction of the motor is used for opening the hand, which was kept closed by means of a spring; in the other the motor closed the hand. The third hand was made for a stump with a double motor; the movement of closing and opening the fingers was wholly controlled by the two motors. He showed also appliances representing various types of artificial limbs for forearm stumps, and continued as follows:]

The construction of the artificial limb is greatly simplified by the possibility of utilizing the intrinsic powers of the stump. The mechanical contrivances hitherto used for moving the fingers are most elementary; the cords, the levers, and the springs used for conveying movement to the hand by utilizing the movements of the elbow and of the shoulder can now be completely done away with, and the disabled man rendered able to open or close the fingers in any position of the limb. Even workmen's tools can be used in a practical way by the cinematized stump, and a special pincer shaped like a parrot's beak has been devised for the use of workers in metal.

RESULTS.

As to the ultimate results of the cineplastic method, no final judgement is as yet possible for though the idea was conceived over twenty years ago, cinematization has been applied on a larger scale only since the beginning of this war.

The very few cases of operations of this type performed prior to the war—almost exclusively by Italian surgeons—had afforded sufficient proof of the soundness of methods, but they had not provided enough material to enable us to judge with regard to their practical usefulness. Only since the beginning of the war, when the necessity of giving practical aid to the vast and tragic army of disabled men came to the fore, were our surgeons convinced of the expediency of testing the principles and methods of cinematic surgery. We are yet at the very beginning of this new scientific movement, and the surgeons of all allied nations have not as yet contributed to it.

The German surgeons have followed Sauerbruch's example, and, although they have created an admirable scientific organization, they have limited themselves to the repetition of a single type of plastic motor. Consequently, in analysing the results obtained by them, we can form but a partial judgement of the practical value of cinematization. The number of operations performed by Italian surgeons is probably inferior to those done in Germany, but the variety of the motors experimented upon by us is certainly greater.

It is easily understood that, for the moment, it would be impossible to make a synthesis of such a variety of facts. I therefore believe that it will prove of greater benefit, in discussing the results that have been obtained through cinematization, to consider the question solely and exclusively from the point of view of my own cases.

These number about fifty examples of cinematization of the upper and lower limbs, either primary or secondary; plastic motors of various types were formed, and in each case an artificial limb was applied. The functional value of the motors was studied by dynamographic and dynamometric methods, whilst their practical capacity was tested in the actual use of the artificial limb.

At the Instituto Rizzoli I have at my disposal a large workshop for the construction of artificial limbs, so that I have been enabled to study cinematic prosthesis as well; this, as I have already said, constitutes one of the most important sides of this complex question.

CONCLUSIONS.

The researches that have been made in the Institute have brought me to the following conclusions:

1. The practical results that have been obtained through cinematization have convinced me that the hopes aroused by the principles and methods of the modern theory of

plastic motors are thoroughly well grounded. Cinematic plastics are entitled to be placed amongst the most brilliant of the discoveries of orthopaedic surgery, deserve to be accepted with perfect confidence, and to be tested on a large scale by all those whose aim it is to restore to the disabled man his functional activity.

II. The preparation of plastic motors is a well-defined surgical act that must be performed in accordance with its own special methods, which have already stood the test of experience.

III. From a physiological point of view plastic motors have been proved capable of giving both the quality and quantity of action of which the muscular masses that stimulate the said motors are capable. Yet, practically considered, plastic motors will yield the full measure of their value only if the artificial limb is perfectly adapted to their shape and their strength.

IV. As the principal aim of cinematization is to attain the vitalization of the artificial limb, it is essential that the surgeon and the artificial limb maker should work in harmony, in order to solve satisfactorily this most interesting but difficult problem.

Demonstration of Moving Pictures.

Professor Putti exhibited a number of moving pictures to illustrate the results of cinematic amputations. They included arm and forearm stumps with plastic motors, and demonstrated very well the power the man had over single or double (flexor and extensor) plastic motors. In other cases terminal "ansa" motors of the forearm were shown, and the power of the patient to lift a weight demonstrated. The films showed both the bare stumps and the same men fitted with artificial arms and hands. Two other films showed cases of cinematization of thigh stumps, plastic motors being obtained by tunnelling the quadriceps femoris. The patients were also shown wearing artificial legs. The ease with which they could raise the limb with the knee in extension, and the advantage the plastic motor gave in walking were clearly shown.

THE RELATION BETWEEN HEAT-STROKE AND MALIGNANT MALARIA.

(Preliminary Note.)

BY

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HAVING been intimately connected with the study of heat-stroke and malaria throughout the record heat in Mesopotamia during the summer of 1917, I feel bound to record certain conclusions to which I have been forced as a result of observation.

That there is a close relation between the two conditions is beyond question; and this paper is written (in full consciousness of its heterodoxy, and in confident anticipation of much adverse criticism) in order tentatively, and with all humility, to suggest that heat-stroke as a

clinical entity is non-existent, and is nothing more than a symptom, on a hot day, of malignant tertian malaria.

One of the clinical pictures with which one soon became familiar was that of a thick-necked, middle-aged man, who would be admitted to hospital, in the cool of the evening, still unconscious, and with a temperature of about 108° F. In his own camp, about middle day, this man would have been seized with sudden headache, vertigo, and unconsciousness—sometimes with violent maniacal delirium. He would have been treated locally by means of cold sponging, and perhaps an ice-pack—for this year (1917) there has been no shortage

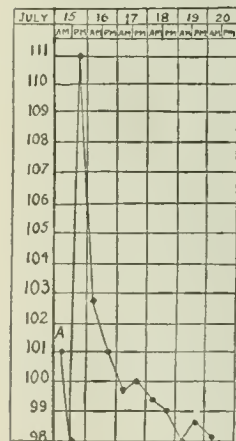


CHART 1.—A, On admission.

of ice—and he would have been transferred to hospital as soon as ever the heat of the day were over. (It were certain death to attempt to transfer such a case before 4 in the afternoon at the earliest, with a maximum shade temperature of 125° F., such as we had

in July of this year.) Such a case would, on admission, be taken direct to the heat-stroke station and treated symptomatically in the usual routine manner—by means of venesection, infusion, rubbing with ice, and copious ice enemata.

Another common picture was that in which the heat-stroke "super-vened" upon another disease. And in this the characteristic thick-necked, middle-aged, rather alcoholic type was conspicuous by its absence. This time the patient would be already in hospital suffering from some quite other complaint—sandy fever, dysentery,

even malaria itself. And there was no type that one came to recognize as being especially associated with this form of heat-stroke. The patient would feel the heat a great deal in the early afternoon—might even beg one to give him "something to make me sweat, sir," and was almost

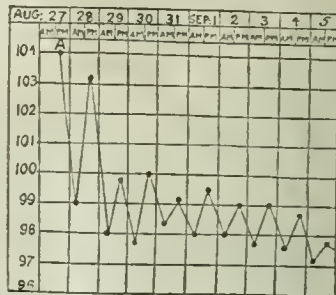


CHART 2.—A, On admission, 6 p.m., the temperature was 103.2°; it did not rise above normal after September 5th.

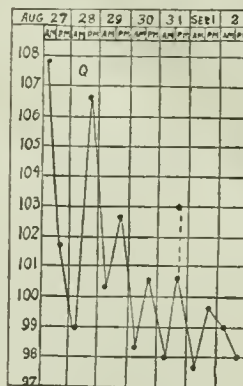


CHART 3.—Q, Quinine gr. x, thrice daily.

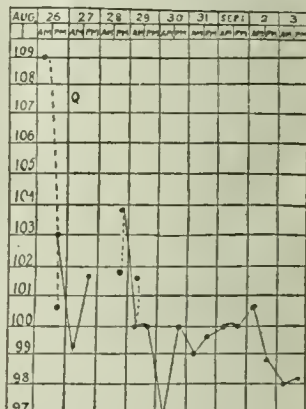


CHART 4.—Q, Quinine gr. xv, thrice daily.

invariably constipated. One afternoon he would become very restless in bed, and in a very short time unconscious, with a rectal temperature of 108° or 109° F.

This year there were two formidable heat waves—the one in July and the other in August (1917). It was not

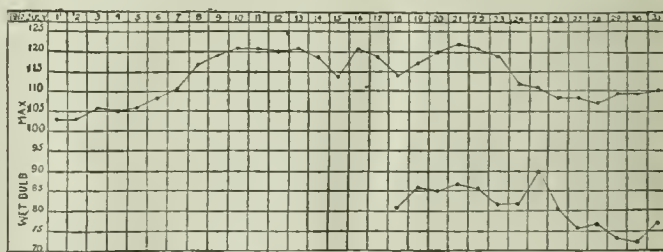


CHART 5.—July, 1917.

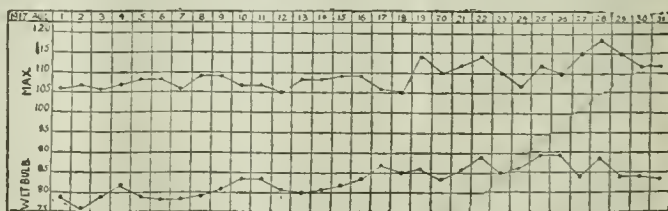


CHART 6.—August, 1917.

until the second of these that it became the custom in this hospital to make an immediate routine examination of a blood film for the presence of malaria parasites. In view of the very high percentage of heat-stroke cases whose blood was found to contain the parasite of malignant

tertian, it became the practice during the second heat wave (even before receiving the laboratory report) to administer an intramuscular injection of 8 or 9 grains of bihydrochloride of quinine.

The mortality during July was as high as 25.65 per cent.; that during August, when quinine was always administered immediately, was only 11.76 per cent. This, to my mind, is the most striking factor pointing to malignant malaria as being the primary cause of hyperpyrexial heat-stroke. For it was not until the second heat wave that quinine was given as a routine, and during this period the death-rate fell by well over 50 per cent.

Starting with the physiological assumption that there is a heat-regulating centre, it is reasonable to suppose that one of the symptoms of an infection with the parasite of malignant tertian malaria is the intoxication of this area. It readily follows that, when once the heat-regulating apparatus is upset, the body must naturally assume, as nearly as possible, the temperature of the atmosphere. Thus it is a fallacy to suppose that heat-stroke supervenes if one stops sweating. The truth is, on the contrary, that a patient ceases to perspire because he has got heat-stroke, because he is suffering from paralysis of the heat-regulating centre, due to intoxication by the parasite of malignant tertian malaria.

The clinical charts 1 to 4 will serve to illustrate the marked hyperpyrexia which has been observed even in cases which have recovered, and which have appeared mentally to be none the worse for their illness. All the charts are of cases which were regarded as "heat-stroke," in which were observed the classical symptoms described as being those of heat-stroke, and yet in the blood of each and every case were found the characteristic ring forms of the *Laverania malariae*, the parasite of malignant tertian malaria.

Charts 5 and 6 show the maximum dry and wet bulb thermometer readings for July and August, 1917.

BASAL LEPTO-MENINGITIS RESEMBLING BOTULISM.

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WOLVERHAMPTON.

WHILE so much interest is being aroused by cases which resemble botulism, it may be well to record the particulars of the following case, which for a few days was thought to be that disease:

F. P., a girl aged 5 years, was admitted under my care on May 14th, 1918. There was a history of ten days' previous illness; she had seemed drowsy, and had vomited repeatedly for the first two days. For a month previously she had been feeding on "porridge, bread, sausages, chitterlings, and ham."

On admission, the temperature was 99° F., the pulse 100, and respirations 20. She was drowsy, but by no means comatose, and realized her surroundings sufficiently to "want to go home." She was very irritable, and complained of pain in the head and back. There was no paralysis; the eyes were kept closed, though she could open them; the pupils were dilated. There was very slight head retraction, but Kernig's sign was absent. The tongue was very foul, and the breath fetid. The bowels had not been open for at least four days previous to admission. She was incontinent of urine. Castor oil was administered without effect.

On May 15th calomel gr. $\frac{1}{2}$ was given hourly for twelve hours, with the result that the bowels were open three times the next day, when she seemed more wideawake and sat up in bed, but was still very refractory and resistive so that the reflexes could not satisfactorily be determined.

On May 17th the respirations assumed a Cheyne-Stokes character, combined with marked slowing—at midday they were only 7. This continued for three days, the respirations never rising above 16 till the evening of May 19th, when they were 20. I performed lumbar puncture in the afternoon; the cerebro-spinal fluid came away under greatly increased pressure; it literally shot out; about 28 c.cm. were removed. Immediate microscopic examination showed it to contain fresh red blood corpuscles, presumably the result of the puncture. The fluid was sent to a pathologist, who discovered no other abnormality in it.

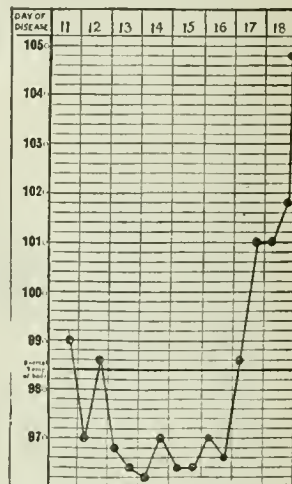
On May 18th there was low delirium; respiration continued slow, the tongue still furred, the head still a little retracted, the pupils still somewhat dilated, and Kernig's sign still absent. There was left-sided facial palsy with inability completely to raise the left upper eyelid. The knee-jerks were absent. At times the child cried out, but not with

a typical meningeal cry; at others she lay "as if dead," as the sister put it. From this day onward hexamine in 5-grain doses was given three times a day.

On May 19th she seemed a little improved. Both eyes were well opened, and the facial palsy was much less marked. The mouth was still dry, but she took milk much better. She lay quieter, and her forehead, which hitherto had been constantly wrinkled into a fixed frown, was placid. During the night of May 19th-20th some blood-stained mucus came from the nose and mouth. The stench was horrible.

On May 20th she was incontinent of urine and faeces; her brow again assumed the frowning expression, and she cried out continually. The pulse was running and somewhere about 200.

On May 21st the discharge from the nose and mouth continued. The heart was failing, the pulse was still running, about 200, the respirations were 62, and she was deeply cyanosed. Kernig's sign was still absent. At 10 p.m. the chest was full of coarse râles, and there were generalized convulsions. She died a few minutes later, with a temperature of 104.8° F. A morning and evening temperature chart is attached. The four-hourly chart was no further help.



Post-mortem Examination.

The pia mater showed general hyperaemia, whilst over the base of the brain, especially over the optic chiasma, pons, and front part of the medulla, the meninges were swollen, oedematous, and jelly-like. There was no definite pus, though between some of the convolutions there seemed to be a little turbid fluid. On section the brain showed no gross naked-eye changes. The other organs were healthy.

The signs and symptoms which were thought to point to botulism were vomiting, transient facial palsy, transient ptosis, absence of spinal paralyses, drowsiness, absence of temperature, and constipation with dryness of the mouth and nose.

THE EARLY AND EFFECTIVE REDUCTION AND FIXATION OF GUNSHOT FRACTURES OF THE FEMUR.

By O. HERBERT WILLIAMS,
CAPTAIN (TEMPORARY MAJOR) R.A.M.C.(T.F.).

THE adoption of the Thomas splint in the treatment of compound fractures of the femur caused by gunshot wounds has done much to alleviate the suffering resulting from the injury, has saved many lives and limbs, and has led to much improved functional results.

From the casualty clearing station at the front to the general hospitals at the base there is every facility for the application of the splint and the carrying out of the principles which its use entails. In front of the casualty clearing station, however, these facilities are not forthcoming, and the full value of the splint has not been obtained owing to the difficulty of applying simple and efficient first-aid extension.

At the regimental aid post the use of extension by adhesive strapping or glue and calico bandage, applied to the skin, is out of the question; nor is it advisable, having in view the fact that an anaesthetic will have to be administered and an operation performed at the casualty clearing station, to adopt these measures at a field ambulance.

The ideal method of procedure, then, would be to employ so simple a method of extension that it can be applied at, or as near as possible to, the spot where the casualty occurs; and which is at the same time easy and rapid of application, efficient, and need not be changed till the patient is on the operating table at the casualty clearing station.

Before describing any method in detail, it may be well to devote a little time to the following considerations.

(a) *Evacuation and the Time Required to Carry a Casualty along a Trench System.*

Usually the first point at which effective measures can be taken in the treatment of these cases is at the regimental aid post, which is generally situated at the rear portion of a system of trenches. Most of the casualties, however, occur some distance from this point, and the route to be followed to reach it may be over shell-pitted ground and through narrow, tortuous, angular, and congested trenches. To carry a casualty over a few hundred yards of such difficult route may take as much or even more time, and involve much more jolting and jarring of the limb, than would his conveyance in a motor ambulance over, say, five miles of moderate road. Evacuation along a trench system, then, is a matter of great importance and merits serious consideration.

(b) *Difficulties Peculiar to the Injury Itself.*

A fractured femur, of all injuries, is the one that presents most difficulty in transport, unless some effective measures are taken with this object in view. The lower limb, forming as it does a large proportion of the body weight, becomes a large, heavy, and particularly unwieldy mass, which rolls about helplessly, causing most agonizing pain and damage to tissues in the region of the fracture. The upper limb is less bulky and unwieldy, and if injured and helpless the other limb can come to the rescue. This not being the case with the lower limb, early and effective splintage becomes all the more imperative.

(c) *The Seriousness of the Injury.*

From the point of view of mortality, it should be placed in the same category of urgency as a brain injury or perforating abdominal wound. It requires very little consideration to convince oneself of this. The largest bone in the body is shattered; the missile and the fragments of bone, with their imparted momentum, tear up powerful and massive muscles; even if the main vessels escape injury, there must inevitably be a considerable amount of haemorrhage which escapes out of the wound or infiltrates the tissues, causing the limb to become tense.

(d) *The Importance of Applying Extension at the Earliest Possible Moment.*

The early complications responsible for the high mortality in these cases are shock and gas gangrene, and they occur in about equal proportions. At no section of the line of evacuation do the causes of these complications act with greater intensity than they do during the regimental

stretcher-bearer's "carry" to the regimental aid post. There is gross shortening, with lateral and rotary deformity; the spasm of powerful muscles and the rolling of the limb cause the fragments to grate one upon the other, and vessels and nerves may be wounded. Muscles are prodded and lacerated by sharp fragments; and infective material that has been introduced becomes much more

intimately incorporated with the injured tissues. A process of mechanical devitalization takes place during this period that no subsequent measures that may be taken can retrieve.

First-aid Considerations.

From the foregoing considerations it is obvious that more

effective first-aid measures must be taken in front of the regimental aid post, and should, whenever possible, be carried into effect at the place where the casualty occurs. Such measures as tying the injured limb to the sound one, or making extension and counter-extension to the poles of the stretcher are certainly serviceable, but they are far from being effective in the sense of complete extension and immobilization. The measures taken, then, will have to be carried out by the regimental stretcher-bearer, and under difficult conditions. They must therefore be simple, effective, and rapid of application.

As has already been indicated, the main difficulty lies in the application of extension, and to overcome this difficulty the brace described below is suggested.

THE EXTENSION BRACE.

The brace, which is intended for application over the boot, is made of strong webbing in the form of two Y's, one of which lies on each side of the boot (Figs. 1 and 2). The diverging limbs of the Y's merge into each other so as to form an anterior or dorsal strap in front of the ankle, and a posterior or heel strap behind the ankle. On one side they are fastened together by means of a stud. The stem of each Y forms a loop to which strong cloth strapping is stitched.

Details of Construction.

Strong webbing, similar to the webbing of a small box respirator, 2 in. wide, is used. It is cut into four pieces, two of which are 10 in. long to form the anterior and posterior straps, and two of which are 12 in. long to form the loops (Fig. 3).

The ends A of the anterior and posterior straps are sewn together at an angle of 90 degrees, and the loop is sewn to this junction in such a way as to bisect the angle, and form with strap an angle of 135 degrees (Fig. 4).

Of the ends B, that of the anterior strap is sewn to one end of the loop strap at an angle of 135 degrees, and that of the posterior strap to the other end of the loop strap at a similar angle. A metal stud is placed at the anterior strap-loop junction, and a corresponding stud slit is made at the posterior strap-loop junction. The stud slit must be in line with the loop strap. It is important that the anterior and posterior straps be not longer than 10 in., otherwise the brace does not maintain so effective a grip on the boot.

Three feet of strong cloth strapping, 1½ in. wide, is stitched to each loop to form extension straps.

The advantages of the brace are that:

1. It allows of strong and efficient extension being made with a minimum of discomfort.
2. There is no possibility of it coming off, as the

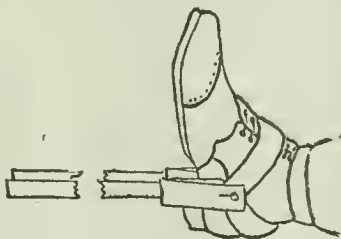


FIG. 1.

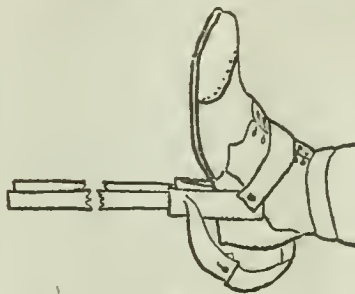


FIG. 2.

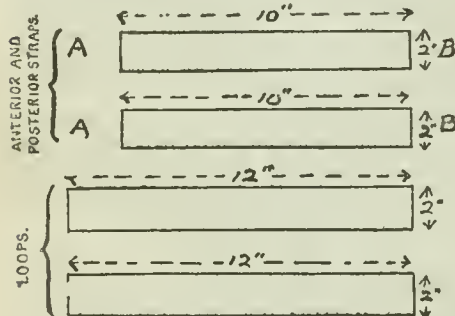


FIG. 3.

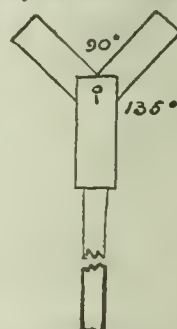


FIG. 4.

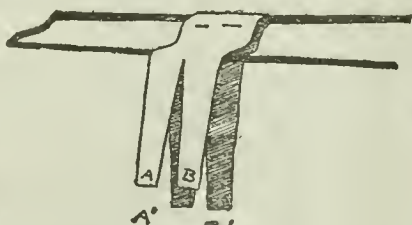


FIG. 5.

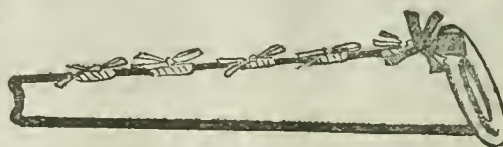


FIG. 6.

greater the extending force the tighter and more secure the grip.

3. There is no constriction of the ankle or pressure on the malleoli.

4. The foot is maintained at right angles to the leg, and the limb cannot roll.

5. It can be put in position in two seconds.

6. When not in use, it can be compactly and securely fixed to the splint and so be always available.

I have submitted this brace to Colonel Sir Robert Jones, O.B., and he has expressed his approval of it.

The Slings.

The slings are made of strong calico bandage and five are required for each splint.

To make a sling, take a piece of strong calico bandage 4 in. wide and about 40 in. long. Each piece is doubled on itself and the loop so formed fixed to the inner bar by safety pins or stitching (Fig. 5). The free ends are split into tails of equal width for a distance of about 10 in. and serve for tying to the outer bar. When in use the tail A is tied to A' and B to B'. Three of the slings are supporting, and are placed under the ankle, knee, and thigh respectively; two are fixing, and are placed one above and one below the knee. The latter prevent flexion of the knee and rolling of the limb.

All Thomas splints in advanced medical units should be prepared for immediate use by having the brace compactly fixed to the junction of the ring and inner bar, and the slings fixed, rolled round, and tied to the inner bar, as depicted in Fig. 6.

Application of the Splint.

When the splint is about to be applied the brace is taken off, the slings unrolled and left to hang by the inner bar. One stretcher-bearer applies the brace over the boot and with it extends and rotates the limb into its correct position; this having been done extension is maintained by steady traction on the brace (Fig. 7).

No. 2 stretcher-bearer then passes the splint over the brace and boot, No. 1 still maintaining extension, first with one hand then the other, so as to allow of this being done (Fig. 8).

Being satisfied that the ring of the splint is well

up into the groin and pressing against the tuber ischii, No. 1 ties the extension straps of the brace to the foot of the splint as described below, and depicted in Fig. 9, A, B.

Pass both extension straps over the bars, cross underneath and then round the bars again to the U loop at the

foot of the splint. The straps must pass round the U loop in opposite directions, and be secured by a single knot. One strap is then passed under the crossing (Fig. 9, A), up between it and the sole of the boot, and tightened till the necessary extension is made. The free ends of the straps are now tied off at the U loop. The applied strap then assumes the appearance represented in Fig. 9, B.

The supporting slings are now tied, commencing with the one remote from the wound. This means that the ankle support is tied first and then the knee or thigh support according to the site of the injury. Lastly, the fixing slings are tied above and below the knee (Fig. 10).

The application of the splint only has been described above, and the question of dressings has been left out, in order to simplify the description and because at this stage, unless bleeding is considerable, dressing is of secondary importance to reduction and fixation.

Whether or not the wound should be dressed before the patient is conveyed to the regimental aid post will depend on

many factors, such as the number of casualties to be collected, the amount of shelling that is going on at the time, the superficial extent of the injury, and lastly, the amount of haemorrhage.

Except in the last contingency, the dressing should be done last, as it can be done more effectively and with less pain and detriment to the patient after extension and fixation have been secured. Access for dressing is obtained by cutting open the trousers over the site of the wound; the dressing having been applied, it is secured by a bandage passing over the bars of the splint. In this way, should a second dressing be necessary, it can be done without disturbing the extension and fixation.

The patient can now with relative ease be lifted on to the stretcher. The projecting end of the splint is supported on a block of wood, brick, or article of equipment to keep the heel off the canvas.

On arrival at the regimental aid post a suspension bar is fitted on to the stretcher to replace the improvised support, the extension brace is further tightened if necessary, and, should it be deemed advisable, a Jones's gutter-splint or a piece of Gooch splinting is inserted under the ham by loosening the supporting slings, one at a time, and retying them.

The various measures for the prevention of secondary

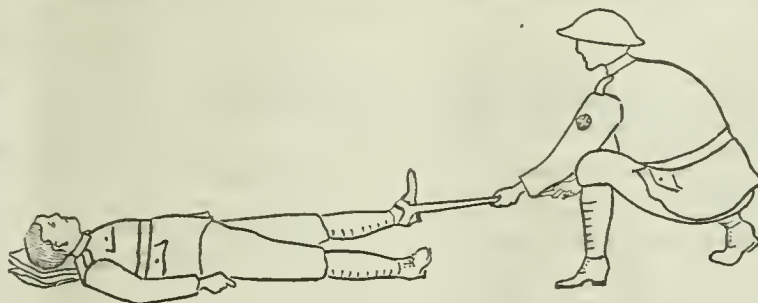


FIG. 7.—Traction applied to brace.

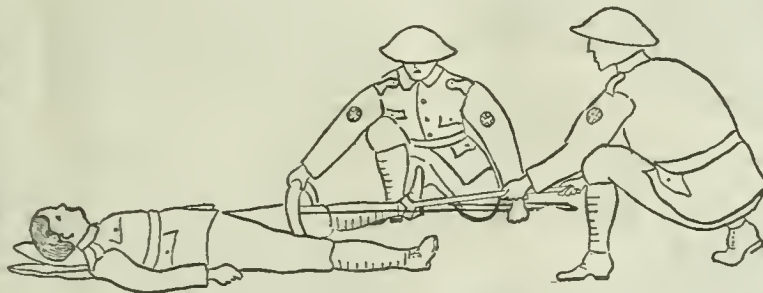


FIG. 8.—Introduction of splint.

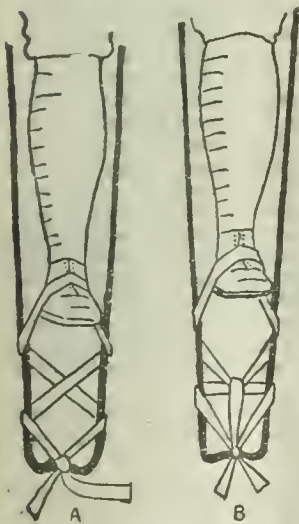


FIG. 9.

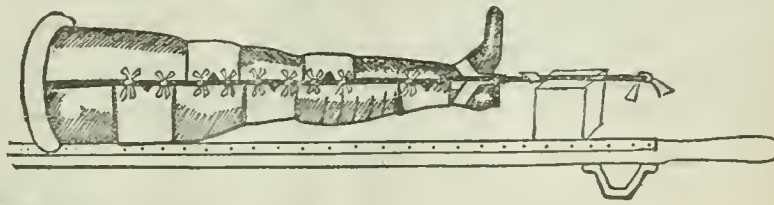


FIG. 10.

shock are not within the scope of this paper, and mention only will be made of the importance of conserving the body heat by properly adjusted blankets; the application of warmth by hot-water bottles, hot bricks wrapped in sacking, or petrol cans and rum jars filled with hot water; the provision of hot drinks, the administration of a

hypodermic injection of morphine, and, lastly, speed in evacuation.

In order that a prepared splint may be within easy reach of any part of a trench system in which it may be required, it is suggested that they be taken to the front line; and that one at least should be kept in each stretcher-bearer's dug-out. As each case with a splint is brought to the regimental aid post, a prepared splint is given to the bearers to replace it.

CONCLUSIONS.

In conclusion, the following points may be emphasized:

1. The extension brace provides a standardized, simple, and effective means of extension, which is more rapid of application than any improvised method.

2. The Thomas splint, prepared as described, forms a complete armamentarium for "putting up" a fractured femur and does away with the necessity of carrying accessories. It is therefore well adapted for taking to the front line trench.

3. By having the fracture reduced and the limb extended and immobilized before the casualty is carried to the regimental aid post, the process of mechanical devitalization that takes place during this period more than any other in the line of evacuation is reduced to a minimum, and will lead to much improved functional results and reduce the mortality.

I have to thank Captain Edmund Price, R.A.M.C., for the figures illustrating this paper.

AGGLUTINATION IN THE DIAGNOSIS OF DYSENTERY.

BY

LIEUT.-COLONEL C. J. MARTIN, F.R.S., A.A.M.C.,

CAPTAIN P. HARTLEY, R.A.M.C.,

AND

SISTER F. E. WILLIAMS, A.A.N.S.

THE VALUE OF AGGLUTINATION IN THE DIAGNOSIS OF DYSENTERY CAUSED BY *B. DYSENTERIAE* SHIGA AND THE MANNITE-FERMENTING GROUP OF DYSENTERY BACILLI RESPECTIVELY.

DURING the later months of 1917 we tested the agglutination titre of all patients who were suffering or had suffered from dysentery. The examinations were made between the tenth and thirtieth day from the onset of the illness. We also tested the serums of 214 control persons who had not had dysentery, and who had no recollection of having suffered from diarrhoea during the past two years.

Our observations are divided into three groups, as shown in Tables I, II, and III.

Method.

The method employed was that recommended by Major Dreyer, namely, keeping equal volumes of the emulsions and progressive dilutions of the serums in a bath at 55° C. for four and a half hours and reading after fifteen to thirty minutes. The emulsions employed in the first series of our observations were supplied from Professor Dreyer's laboratory at Oxford. A degree of agglutination which could be comfortably seen with the naked eye against a black background corresponding to Dreyer's "standard agglutination" was taken as the end point. The results are expressed in terms of Dreyer's standard agglutinin units¹ by taking into account the factor on the bottle representing the relative agglutinability of the particular sample according to its behaviour with some arbitrarily selected serum.

The results obtained are set out in the following tables:

TABLE I.—Observations on the Serum of Patients from whose Stools Dysentery Bacilli were isolated.

Total number of positive Flexner cases, 151.

Number yielding 5 units	...	79 = 52 per cent.
" " 7 "	...	76 = 50 "
" " 10 or more units	...	58 = 38 "

Total number of positive Shiga cases, 13.

Number yielding 5 units	...	13 = 100 per cent.
" " 7 "	...	13 = 100 "
" " 10 or more units	...	13 = 100 "

TABLE II.—Observations on the Serum of Patients who had Suffered from Dysentery but from whose Stools Dysentery Bacilli were not recovered, nor *E. histolytica* found.

Total number of cases of clinical dysentery, 342.

Flexner:

Number yielding 5 units	...	76 = 23.4 per cent.*
" " 7 "	...	70 = 21.5 "
" " 10 or more units	...	40 = 12.3 "

Shiga:

Number yielding 5 units	...	17 = 5.0 per cent.
" " 7 "	...	17 = 5.0 "
" " 10 or more units	...	11 = 3.0 "

* The 17 Shiga cases have been deducted from the total of 342 in calculating the percentages.

TABLE III.—Normal Persons.

Total number of normal serums examined, 214.

Flexner:

Number yielding 5 units	...	23 = 10.0 per cent.
" " 7 "	...	17 = 8.0 "
" " 10 or more units	...	5 = 2.5 "

Shiga:

Number yielding 5 units	...	7 = 3.3 per cent.
" " 7 "	...	6 = 2.8 "
" " 10 or more units	...	4 = 2.0 "

The "Y" emulsion issued by the Standards Laboratory at Oxford was not agglutinated by the serum from patients of this epidemic except in a few cases (see Table IV below).

TABLE IV.

Group of Cases Examined.	No. of Cases Examined.	Agglutination with "Y" Emulsion.	Per Cent.
Positive Flexner cases ..	102	2	2.0
Clinical dysentery cases ...	172	6	3.5
Normal persons	52	—	—

The serum of normal persons may contain agglutinins to *B. dysenteriae* Shiga and to dysentery organisms of the Flexner-Y group in amount sufficient to cause confusion in diagnosis.² Ledingham and Penfold³ (1915) concluded from their observations that agglutination by dilutions of 1 in 50 in the case of *B. dysenteriae* Shiga and 1 in 200 in that of the Flexner-Y group was significant. An extensive series of observations was undertaken by Ritchie⁴ in 1916 in order to determine the degree of agglutination occurring with the serum of normal persons. He investigated the serum of 792 men and women, none of whom, as far as they were aware, had suffered from dysentery. Ritchie used suspensions of living organisms in his experiments, incubated the mixtures of organisms and diluted patient's serum in air at 37° C. for two hours, the result being read off on the microscope stage, using a $\frac{3}{8}$ in. objective. He found that 4.6 per cent. of the cases examined agglutinated the Shiga organism at 1 in 64, and considers that complete agglutination in a dilution of 1 in 64 and above should be regarded as diagnostic. With *B. dysenteriae* Flexner he found that 30 per cent. of the cases examined gave agglutination at a dilution of 1 in 128, and concluded that complete agglutination in a dilution of above 1 in 128 should be looked upon as diagnostic, but in a dilution of 1 in 128 or lower cannot be relied upon for diagnostic purposes.

Our experiments on the serum of 214 normal persons differed from those of Ritchie in several important respects:

1. Dreyer's standard agglutinable cultures, selected on the grounds of their relative insensitiveness to the serum of normal persons, were used.

2. The standard agglutinable cultures used were formalized, which reduces considerably the agglutinability of dysentery bacilli.

3. The macroscopic method, as recommended by Dreyer, was used.

Using this different technique we found that 10 per cent. of the persons examined contained 5 agglutinin units, 8 per cent. contained 7 agglutinin units, and 2½ per cent.

contained 10 or more agglutinin units to *B. dysenteriae* Flexner. The figures for *B. dysenteriae* Shiga were as follows: 3.3 per cent. contained 5 agglutinin units, 2.8 per cent. contained 7 agglutinin units, and 2 per cent. contained 10 agglutinin units.

Our results, set out in the preceding tables, confirm those of Dreyer, and indicate that, using his method, the presence of 10 or more agglutinin units per cubic centimetre of serum is, for all practical purposes, diagnostic of an active bacillary dysenteric infection caused by the bacillus agglutinated, and that the presence of 7 units is highly suspicious of dysenteric infection. The error introduced on account of the reaction of the serum of normal persons to the standard agglutinable cultures used amounts to 2½ per cent. in the case of *B. dysenteriae* Flexner, and to 2 per cent. in the case of *B. dysenteriae* Shiga infections.

Our group of cases due to infection by *B. dysenteriae* Shiga is small, but it is to be noted that in every case of proved Shiga infection the patient's serum agglutinated the standard agglutinable culture used, and this agglutination was always complete in the highest dilution of the patient's serum tested. As far as our observations go, the results indicate that in the case of infections due to *B. dysenteriae* Shiga determination of the agglutinin content of the patient's serum constitutes a valuable method of diagnosis.

This is, however, far from the case with patients infected by members of the mannite-fermenting group of dysentery bacilli. We tested the serum from 151 cases of dysentery from whose stools bacilli of this group had been isolated, and found that in only 58 did the patient's serum contain 10 or more agglutinin units, that is, less than 40 per cent. of the persons who had recently been infected by a member of the Flexner-Y group exhibited an agglutinin content in the serum of 10 or more units. The low proportion observed might have been due to the fact that in many patients the infection was very mild and the agglutinins produced so small in amount that they were not demonstrable; but in the light of the well ascertained fact that there is a family of mannite-fermenting dysentery bacilli, it appeared more likely that some patients had been infected by one member of the group and others by another.⁶ That this latter view is the correct one is suggested by the results of the experiments set out below, which were carried out to investigate this point.

Three strains of *B. dysenteriae* Flexner which had been isolated during this year's epidemic were grown on ordinary nutrient agar for eighteen hours, the growth washed off and emulsified in normal saline, and formalin added to make a concentration of 1 per cent. The formalized emulsions were placed in an ice chest for a week. At the same time a similar formalized emulsion was made from a strain of *B. dysenteriae* Flexner which we obtained from the Lister Institute, and also an emulsion of *B. dysenteriae* Y, which we obtained from the same source.

The agglutinating power of the serum of 40 patients, from the stools of each of whom mannite-fermenting dysentery bacilli had been isolated, was determined against each of the above emulsions and also against Dreyer's standard agglutinable culture (Flexner). The patient's serum was tested at dilutions of 1 in 20, 1 in 40, and 1 in 80 against each of the above strains of *B. dysenteriae* Flexner. It is not possible, of course, to express the results obtained in terms of standard agglutinin units.

In addition to the above series of 40 "positive Flexner" cases, a second series of serums from 40 normal persons was examined in precisely the same way. The mixtures of diluted patient's serum and dysentery emulsions were heated to 55° C. for four and a half hours, and read from fifteen to thirty minutes afterwards.

The "Y" strain used was a direct descendant of Hiss and Russell's original "Y." On being tested against forty samples of normal serums it was found to give standard agglutination at a dilution of 1 in 40 or over in 13 cases—that is, in 32.5 per cent. The figures obtained for this "Y" emulsion have accordingly been excluded from the tables given below, in which the results of these experiments are expressed.

TABLE V.—The Agglutinating Power of the Serum of 40 Patients from whose Stools *B. dysenteriae* Flexner had been recovered, Tested against Five Different Strains of *B. dysenteriae* Flexner.

Dysentery Emulsion Used.	Number giving Standard Agglutination at 1 in 20 or over.	Per cent. giving Standard Agglutination at 1 in 20 or over.	Number giving Standard Agglutination at 1 in 40 or over.	Per cent. giving Standard Agglutination at 1 in 40 or over.
Dreyer's standard agglutinable culture	19	47.5	16	40.0
Flexner (Lister Institute)	20	50.0	11	27.0
No. 16	18	45.0	15	37.5
No. 65	15	37.5	10	25.0
No. 86	19	47.5	10	25.0

TABLE VI.—The Agglutinating Power of the Serum of 40 Normal Persons Tested against Five Different Strains of *B. dysenteriae* Flexner.

Dysentery Emulsion Used.	Number giving Standard Agglutination at 1 in 20 or over.	Per cent. giving Standard Agglutination at 1 in 20 or over.	Number giving Standard Agglutination at 1 in 40 or over.	Per cent. giving Standard Agglutination at 1 in 40 or over.
Dreyer's standard agglutinable culture	3	7.5	1	2.5
Flexner (Lister Institute)	1	2.5	—	—
No. 16	4	10.0	3	7.5
No. 65	4	10.0	3	7.5
No. 86	2	5	—	—

Of the 40 positive serums tested (Table V)—

- 11 failed to agglutinate any of the 5 emulsions used;
- 29 agglutinated one or more of the 5 emulsions used;
- 2 serums agglutinated all 5 emulsions;
- 4 serums agglutinated 4 emulsions only;
- 3 " " " 3 " " "
- 7 " " " 2 " " "
- 13 " " " 1 " " "

Of the 13 serums which agglutinated one strain only—

- 4 serums agglutinated Dreyer's standard agglutinable culture only;
- 3 serums agglutinated No. 16 only;
- 3 serums agglutinated No. 65 only;
- 3 serums agglutinated No. 86 only.

Reference to the figures given in the two preceding tables shows that of the five strains of *B. dysenteriae* Flexner used, Dreyer's standard agglutinable culture gives the most satisfactory results. Yet, even when this strain is used, only 40 per cent. of the cases, from each of which dysentery organisms of the mannite-fermenting group had been recovered, gave a positive result. If the patient's serum is tested against a number of strains, the number of cases giving a positive result increases.

Patient's serum tested against:	Number giving Standard Agglutination at 1 in 40 or over.	Per cent. giving Standard Agglutination at 1 in 40 or over.
Dreyer's standard agglutinable culture only	16	40.0
Dreyer's S.A.C. and Flexner (Lister Institute)	17	42.5
Dreyer's S.A.C. and Flexner (Lister Institute) and No. 16	22	55.0
Dreyer's S.A.C. and Flexner (Lister Institute) and Nos. 16 and 65	26	65.0
Dreyer's S.A.C. and Flexner (Lister Institute) and Nos. 16, 65, and 86	29	72.5

S.A.C. = Standard agglutinable culture.

That is, if the serum of patients who have recently suffered from infection by a member of the Flexner group of dysentery organisms be tested against five strains of the group, the percentage giving a positive result is nearly twice as great as the positive findings when only one strain is used; and it is reasonable to suppose that the number

yielding a positive result would be still further increased if the patient's serum were tested against a still greater number of locally isolated strains.

In conclusion we express our indebtedness to Captain B. G. Klein, R.A.M.C., medical officer in charge of the dysentery wards, for his kind co-operation.

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¹ Major G. Dreyer and Captain A. C. Inman: The agglutination curve and its importance in the diagnosis of typhoid and paratyphoid infections, *Lancet*, 1917, I, p. 367. ² See Lentz, *Handbuch der pathogenen Micro-organismen*, Kollé and Wassermann, 1913, p. 947. ³ Ledingham and Penfold, *BRITISH MEDICAL JOURNAL*, 1915, II, p. 704. ⁴ J. R. Ritchie, On the agglutination reaction of the typhoid-dysentery group with normal sera, *Lancet*, June 24th, 1916. ⁵ C. J. Martin and F. E. Williams, *BRITISH MEDICAL JOURNAL*, April 14th, 1917.

POST-OPERATIVE PULMONARY EMBOLISM DUE TO THE CONDITION OF THE BLOOD.

BY

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OPERATING surgeons all over the world are greatly indebted to the writers of the two very interesting articles on post-operative thrombosis and embolism which appeared in the *BRITISH MEDICAL JOURNAL* on March 9th and 23rd. With every word in these two articles I most heartily agree—with one exception, and that is, instead of putting the quality of the blood last on the list I would put it first.

Early in my professional career I came under the influence of Sir William Hingston, who pointed out to me the great demands of the human system for water. The kidneys, the skin, the bowels, and the lungs are all calling for it to enable them to carry on their functions. These apply equally to men and women, but in the case of nursing women lactation makes a large additional demand. Some years later I listened for an hour to the scholarly presidential address of Dr. Mathew D. Mann of Buffalo before the American Gynecological Society, in which he pointed out that many of the aches and pains from which women suffered would not have afflicted them if they had been water drinkers. Since then I have seen many women operated on at the Mayo Clinic for gall stones who would never have had them if their bile had not been a super-saturated solution of biliary salts, ready to throw down crystals on the slightest pretext; and I have removed in women many stones from the kidneys and ureters which were due to supersaturation of the urine with solid matter that would never have been formed if the specific gravity of the urine had been kept down. Early in my career as an abdominal surgeon, as well as in consulting obstetrics, I came to the conclusion that the tragic deaths from pulmonary embolism, which at that time were much more frequent than they are now, both after operations and confinements, were due principally to a hyperfibrinous condition of the blood, and all these years I have taken great and laborious pains to see that all these patients were allowed to drink freely.

To this fact more than to anything else do I believe that it is due that I have not yet seen a death from pulmonary embolism following any of my own operations, nor after any of the confinements that I have attended.

The other factor is one to which Colonel Symonds has done a service by calling attention. He says: "Is it necessary to keep the parturient woman on her back for days together?" From his experience after abdominal operations he is inclined to think that early movements of the limbs and frequent changes of position would diminish the number of cases of embolism. My answer is that not only is it not necessary, but positively harmful. The heavy uterus falls backwards and ceases to drain; adhesions form between the ends of the tubes and the peritoneum, and the woman is sometimes never quite well again. We should not only permit, but even urge, the patients to have their position changed frequently during the first few days and to move their limbs freely as soon as they are able to do it themselves. I have always told women after confinement to lie any way they like—right side or left side, or even on the face—rather than on the back. Most important of all is it to sit up on a chamber in bed three or four times a day to pass water and move the bowels.

Sir William Hingston, who knew the habits of the Iroquois Indians thoroughly, told me that they were almost absolutely free from the accidents of childbirth common to their white sisters, which he attributed to their not going to bed at all, but continuing the march with the papoose on their back after a few hours' rest.

The only cases of pulmonary embolism in which I have been even remotely interested occurred in the wives of two medical friends in other cities who had had ideal confinements and afebrile recoveries, and yet who died without any warning on the twelfth and fourteenth days at the moment when life seemed at its happiest; another in the wife of a lay friend, who made a perfect recovery, and died suddenly on the fourteenth day. As Colonel Symonds points out, the nurses trained twenty years ago are in favour of the dorsal position for ten days and very little movement; and I may add they were bitterly opposed to the patient being allowed cold water or fresh air for fear of a chill, and sunlight for fear of ophthalmia neonatorum. Our nurses trained to day are taught that air, water, and sunlight are the great enemies of microbes, and that chills mean fever due to microbic infection. A closed and darkened room generally means a hot room, causing profuse perspiration, which, with lactation, would make the blood less liquid and more liable to clot in the veins. Lying on the back for ten days, with the blood getting daily more clottable, is a very good way to bring about thrombosis and death by embolism when the patient begins to move about.

While it is important to carry out all the suggestions of Dr. McCann and Colonel Symonds, I feel sure that some other factor has been operating silently in their favour, and that is that doctors are urging women to drink water, and nurses are more and more getting in the way of allowing them to do it. It must be in the experience of every accoucheur that what every woman craves for most is a drink, cold preferred. Elderly women who have had large families have assured me that the most unpleasant part of their confinement was the awful ten days of immobility on the back, and, next to that, the thirst. Medical friends who have been operated on have assured me that their greatest desire was a drink of hot tea, and acting on their suggestion I always prescribe it as soon as the patient comes out of the anaesthetic, whether they are vomiting or not. If the first cupful comes up it at least washes out the stomach.

Getting up several times a day to answer the calls of nature will not only ensure drainage of the uterus and vagina, but that and sitting up in bed for meals will prevent the stagnation of the blood, which Colonel Symonds points out is one of the factors in thrombosis. Many practitioners fear to allow the patient to sit up on a chamber for fear of all kinds of things happening—that the uterus may drop out of the body, that it may drop inside out, becoming inverted, or that there will be tremendous haemorrhage; but these are all bogies.

Another friend, Joseph Price, who was assistant to Lawson Tait, told me that he always placed his patients on their right side with their knees drawn up after abdominal sections, and as soon as they were able he allowed them to move about freely in bed, and to stretch and bend their legs frequently. Lawson Tait's idea was to relax the tension on the abdominal stitches, which were silkworm gut and through-and-through.

Pulmonary embolism is fortunately very rare, only 47 deaths having occurred from it at the Mayos Clinic in 63,000 operations. In former days, when the accident was more frequent, it was the custom to prepare the patient by drastic hydragogue catharsis for a day or two before. Then, again, haemorrhage was more frequent and more abundant; also the operating rooms were kept at 80°, so that the patient lost a large amount of water by the skin, while vomiting from the anaesthetic prevented replacement of the lost water. For this last reason I believe that the chances of embolism would be greatly lessened if a rectal enema were given by the slow method at the rate of 20 oz. of beef-tea or salt solution for every half-hour the operation lasts. If given at a temperature of 105° F. it would practically do away with shock and sub-normal temperature. I constantly resorted to it while in charge of Lady Wemyss's Hospital in France, with great benefit, as I reported in this *JOURNAL* two years ago, and I am glad to see by recent reports that it is being more

generally used in the hospitals over there. The reservoir should lie on the foot of the bed or operating table with the patient in the inverted position, so that the water has a fall of only a few inches from the reservoir to the rectum.

Conclusions.

1. Have the full normal proportion of water in the blood before operating.
2. Replace by the rectum the amount of liquid lost by vomiting, catharsis, sweating, haemorrhage, and urine, either during the operation or immediately after it.
3. Encourage the patient to move the lower limbs freely, if not during the first two days at least during the next ten.
4. Give the patient abundance of water between meals and during the night; it may be hot or cold, sweet, sour, or salty, in the form of lemonade, barley water, weak tea without milk, or beef-tea; a jug and drinking cup with spout should be left within reach so that it may be taken when wanted without waiting for the nurse to come.
5. Speedy operating lessens embolism because it means less haemorrhage, and less sweating and less loss of water from the system.
6. Round-pointed needles with flat eyes are much less likely to cause haemorrhage than ones with cutting edges, and should alone be used in the abdomen.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF ORIENTAL SORE.

AMONGST Indian troops in Mesopotamia, between the months of November and March, it is common to find sores which are chiefly distributed on the extensor aspect of the limbs and face. These sores are characterized by an irregular spreading raised edge, which is often undermined, vascular, and anaesthetic; by a base formed of pale oedematous granulations, slimy in appearance and slightly purulent; and by the chronic condition of the lesions, which may take months to heal. A crust often covers the sore, and at a hasty glance may be mistaken for a dry scab. On pressing the scab beads of pus appear at its edges. The sores are found to contain *Leishmania tropica*, chiefly situated in the undermined edge. They have been treated with hot fomentations, dilute carbolic and mercurial lotions, pure carbolic acid, powdered potassium permanganate, eusol, eupad, and injection with kerosene oil, with merely palliative effect.

The following method of treatment, employed in the ulcerating stage, was originated by Major W. R. J. Scroggie, I.M.S., who has kindly given me permission to publish the results. It has been in use during two winter seasons in a considerable number of cases.

Any undermined edge is cut away, and the surface of the ulcer is cleaned with carbolic lotion, and, if necessary, fomented to remove crusts and discharge. It is then covered with powdered corrosive sublimate obtained from the blue 8½-grain tablet. It is necessary to powder especially at or under the edge, where the chief infection lies. Care must be taken that the surrounding sound skin is free of powder. A dressing of dry gauze is then applied. Two hours later a hot fomentation is applied, and another at the end of two more hours. For the next two days hot fomentations twice a day are used until the sore presents a clean, bright red, vascular base, with a level or slightly sloping edge. The effect of the perchloride is to permeate every interstice of the wound, and in particular to destroy the infected margin. A short time after its application considerable pain ensues, which may last for twelve hours, but is not sufficient to require morphine. It is necessary to watch the temperature, as occasionally a dry blue scab is formed with pus pent up beneath. This must at once be raised to give exit to discharge. As a rule, fomenting keeps the surface sufficiently moist to allow of drainage of pus. When the surface of the wound is clean, new skin extends from the edges, and gradually covers the wound surface. With a daily dressing of 1 in 2,000 perchloride solution or eusol uninterrupted healing occurs, the time taken depending upon the size of the ulcer and varying from twelve days to six weeks. The scar is smooth and level with the surrounding skin, unlike the raised and

thickened scar produced by the use of antimony tartrate ointment.

If the above treatment were systematically carried out from the time of diagnosis, it is possible the length of absence of patients from their units would be materially shortened. In civil life these sores may be borne with little discomfort and interference with daily work, but in the exigencies of military service they form a real cause of ineffectives and their prolonged stay in hospital.

W. S. EVANS,
Captain R.A.M.C. (Temp.).

PERSISTENT VITELLINE DUCT IN TWINS.

Mrs. C. was delivered of female twins on April 5th, 1913. The first was a footling, the second a vertex, presentation. There was one sac of membranes. A troublesome prolapse of the cord in the first case may possibly account for the difference in degree of the two cases.

In appearance there was nothing unusual about the cords, which were dry and off on the ninth day. On the tenth day a few drops of bile were observed on the pad of the first born, continuing daily at that amount morning and evening. No faecal matter appeared. The stump of the cord, which was dry and firmly healed, presented in the mesial line, subcentrally, a well marked triangular orifice, which would take a No. 3 catheter. The intestinal orifice must either be very small or protected by a valvular position.

Three days afterwards there was a minute trace of bile on the pad of the later twin, and the umbilicus showed an even more manifest orifice situated similarly.

There has been no constitutional disturbance, but a slight degree of icterus has been present all through in both cases.

In Norris and Dickinson's *Textbook of Obstetrics*, vol. i, p. 118, it is stated that:

The connexion of the yolk-stalk or vitelline duct with the intestinal canal rapidly becomes less conspicuous, and by the end of the fifth week the yolk-stalk has but slight connexion with the gut. The position of the juncture of the vitelline duct with the intestinal tract varies greatly, but usually corresponds with a point within the small intestine from 40 to 60 centimetres (16 to 24 inches) from the ileo-caecal valve. When the usually atrophic cord is replaced by a tubular recess, the persistent portion of the duct constitutes Meckel's diverticulum, a structure of interest. The vitelline duct may remain pervious throughout its intra-embryonal extent, resulting sometimes in congenital umbilical fistula.

That the condition should occur in twins must be uncommon, but not to be marvelled at when one calls to mind that these are likely to be homologous twins, so that the vitelline ducts of each developed from common parent blastodermic cells, and inherited in equal degree the tendency to persist.

Kingstown.

J. R. GARRETT, M.D.

THE TREATMENT OF PERNICIOUS ANAEMIA.

I THINK it may be of interest to record a case of pernicious anaemia treated by intramuscular injections of salvarsan cream. My patient, a woman aged 39, had suffered from pernicious anaemia, showing all the usual blood changes and general signs and symptoms, for over two years. In spite of several temporary remissions the disease steadily progressed, and in November last she appeared to be dying. The liver reached to the umbilicus, and there was a loud haemic murmur over the heart. The usual blood changes were present and the haemoglobin content 15 per cent. I gave her an injection of 0.2 gram salvarsan cream (prepared from "Kharsivan" brand salvarsan by Messrs. Allen and Hanbury) into the muscle of the buttock (as suggested in the *BRITISH MEDICAL JOURNAL* in 1912 and 1913), repeating the same dose in a fortnight, and another of 0.3 gram a fortnight later. The result was really extraordinary. Within a few weeks she regained her usual healthy colour, the liver returned to its normal size, the haemic murmur disappeared, and the haemoglobin content rose to 85 per cent. She is now, six months after commencing the injections, apparently in normal health. Whether the recovery is permanent I cannot say, but a line of treatment followed by such remarkable results in such a hopeless disease is worth recording, and I hope that this brief note will lead to its further trial.

London, W.

R. THORNE THORNE, M.D.

Reports of Societies.

THE ROLANDIC AREA IN THE INSANE.

THE ordinary quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland was held on May 28th, when Lieut.-Colonel D. G. THOMSON, R.A.M.C., was in the chair. Dr. JOHN TURNER gave an account, illustrated by a number of fine drawings, of researches into the Rolandic area in the insane. The anterior lip of the fissure of Rolando, that part of the cortex termed ascending frontal, was characterized, histologically, in its upper two-thirds by the presence of very large nerve cells which, from their size and the peculiarities of their structure, lent themselves readily to the study of pathological changes. Physiologically, this region represented the chief executive station of the brain—that whence the greater part of the nervous currents passed on their way from the brain to the muscles. Insanity was not only disorder of motive in conduct, but also disorder in execution, as was vividly exemplified in dementia praecox, though all forms of mental disorder were characterized by mannerisms and affectations of speech and behaviour. He thought it probable that if there were anatomical changes in insanity they would show themselves in this region. He had been impressed with the peculiar form of Betz cell found in the brain of the insane, and in 1914 compared the picture as seen in the cortex of the insane with that in a corresponding area from a series of brains of persons dying in two large London hospitals. In the cases from the ordinary hospitals he found the prevalence of what might be called the insane type much less marked. He now presented a study of the configuration and micrometry of the cortex in the Rolandic area for the purpose of ascertaining whether there was deficiency or atrophy in the depth of any of the laminae in the different forms of insanity. A further object was to ascertain whether the particular form of Betz cell described was maintained in the areas controlling the muscles of the remaining part of the lower extremities, of the upper extremities, or of the face. In addition, he attempted to correlate differences in the internal structure of the Betz cells with symptoms. Having described in detail the technique employed, he divided the cases which he had examined into three classes: (1) All cases of acquired insanity, (2) cases of dementia praecox, (3) imbeciles, whether suffering from epilepsy or not. The second class he particularized; dementia praecox he regarded as denoting more a temperament than a disease, including therein inefficient of all kinds, not alone those within asylum walls, but all whose nervous system was of deficient durability and therefore liable to break down under comparatively slight stresses. Though some of these persons made a decent livelihood, and some seemed to be of quite average ability, they yet possessed what Adolf Meyer termed the hall-mark—namely, a constitutional inability to meet their difficulties in an adequate manner. He set out his conclusions under the following four heads:

1. Anomalies in the form of the Rolandic fissure, and in the arrangement or architecture of its cortex, occurred more frequently among the insane, especially among subjects of dementia praecox, and imbeciles, than in normal individuals.
2. There appeared to be distinctive characters in the two sexes.
3. Micrometric studies indicated sexual differences in the width of the laminae; they failed to afford any clue to a solution of the problem of the pathology of insanity.
4. A study of the Betz cells he believed to be of very real assistance in the matter. The undue proportion of the axonal type in the insane enabled a glimpse to be obtained of the anatomical basis in a large number of cases. He regarded this type of cell as one of defective structure, and probably of deficient durability, and that the evidence favoured the view that it was an innate defect due to arrested development. The presence of this type in greater or less number he regarded as a rough index of the stability of any given brain; other things being equal, a brain with a high percentage of these cells would more readily break down than a brain with a low percentage. On this view, the brain of the precocious dement

was the most unstable of all, and, relatively, more so in females than in males. This he considered to be in accord with clinical experience.

Reviews.

RADIO-THERAPEUTICS.

THE second volume of the new edition of KNOX's book on *Radiography and Radio-Therapeutics*¹ deals with the second subject. The general arrangement is practically the same as in the first edition, but the 130 pages of that edition have been extended to slightly over 200, and a large number of illustrations added. An introductory chapter deals mainly with the action of radiations upon tissues, both normal tissues and morbid growths; it is illustrated by a series of photomicrographs which demonstrate very fully the changes produced by both x rays and radium.

In discussing the question of the so-called "selective action" of radium on cancer cells the author suggests that the word "selective" is badly used, and points out that all living cells are influenced in varying degree according to the resistance of the particular cell in question. Thus, young and actively growing cells are more readily influenced than mature cells, and cells of new growths approximate in structure and power of resistance to the actively growing cells of a tissue. "Selective absorption" of radiations by the tissues is a better term, and this is applicable to all forms of radiation.

The dangers attendant on the use of x rays and radium are discussed under the headings of acute and chronic dermatitis, late manifestations, and sterility, with reference both to operators and to patients. We are fully in agreement with the suggestion that there is a possibility of danger to an operator from the secondary radiations from the protective materials applied to his own person. The ordinary x -ray proof gloves worn on the hands of those workers who have already had some amount of dermatitis may be a source of danger rather than protection.

The chapter on x -ray therapeutics is comprehensive. Starting with a description of methods of protection, the necessary x -ray generating apparatus is described in detail, and following this is a very useful and full account of the various methods of estimating dosage. Filtration is an important subject; the writer expresses his conviction that the results obtained when using aluminium filters have been better than with boiler felt or other materials. An interesting table of the comparative values of different filters is given.

The various conditions—skin, growths, uterine fibroids, and so on—in which x -ray treatment is indicated are set out, and the application of the method to ringworm is well described and illustrated. In discussing the x -ray treatment of exophthalmic goitre the opinion is expressed that it should have a trial in all cases, even when operation is contemplated; but in, at any rate, the acute cases it must be combined with rest in bed, dietetic and drug treatment.

Phillips is responsible for the description of the physics of radium in a chapter which is simple, easy to understand, and practical. The preparation of radium emanation, and the manner in which this slowly decays in strength, are especially good.

This is followed by a chapter on the practical application of radium to disease and the various methods of using it, and the forms of applicators indicated in various conditions and sites. The illustrations of this chapter are valuable. The combined use of radium and x rays in the treatment of malignant disease gives the author an opportunity of contrasting the possibilities of the one and the other. It is suggested that in some instances it is advantageous to alternate their use. The war has been responsible for an additional chapter, and Cole's work on the value of radiations in the plastic surgery of the face and neck is very striking. The cases of keloid scars following on bad wounds of the face and neck show, as is demonstrated by many illustrations, very remarkable cosmetic results.

¹ *Radiography and Radio-Therapeutics*. Part II. *Radio-Therapeutics*. By Robert Knox, M.D. Edin., M.R.C.S. Eng., L.R.C.P. Lond. Second edition. London: A. and C. Black, 1918. (Sup. roy. 8vo, pp. 387 to 606; 100 figures, 15 plates. 15s. net.)

Dr. Knox is to be congratulated as having produced a book far in advance of any other which has appeared on these subjects. The letterpress is clear and concise, and practical to the last degree. Nothing of any importance has been omitted. The many illustrations, without exception, are very fine and well chosen. As a whole—that is, the two volumes together—it should remain the standard textbook in the English language for many years to come, useful alike to medical practitioners, to specialists in x-ray and radium work, and to students.

MEDICAL DISEASES OF THE WAR.

As anticipated in the review of Dr. A. F. HURST'S *Medical Diseases of the War*² in our issue of March 17th, 1917, a second edition has soon been required, but the present volume is much more than a revised edition, for it is over twice the size, and has increased correspondingly in price. The original chapter on war neuroses has been expanded into eleven, and as Part I of the work occupies nearly half the volume. These chapters show the author's growing experience at Netley and elsewhere, especially as regards the difficult subject of treatment; they now contain a classification of functional disorders in soldiers which it was previously considered inadvisable to attempt. Clearly and attractively written, this work breathes the atmosphere of practical experience and accurate thought, and at the same time the conclusions of Crile, Mott, Buzzard, and others are brought before the reader. Babinski's condemnation of the doctrine of hysterical stigmata, such as anaesthesia and restriction of the field of vision, which he considers are always due to suggestion by the examining medical man, is endorsed by Dr. Hurst. While admitting the existence of Babinski and Froment's reflex paralysis, he considers that the distinction between it and hysteria is much less clearly defined than these authors assume; thus, at first the symptoms may be reflex but subsequently become hysterical from auto-suggestion, and further, some cases of reputed reflex paralysis may be really local tetanus.

The use of hypnotic suggestion is fully discussed, but its limitations are indicated, and it is admitted that it is generally not the most satisfactory treatment for hysterical contractures, gaits, or speech defects. In the diagnosis between organic and hysterical or simulated deafness almost all the tests formerly recognized have been discarded, the only criterion regarded as trustworthy being the presence of normal vestibular reactions in hysterical deafness and their loss in the organic form.

The new chapter on tetanus contains a good account of the localized form, of which head tetanus was the only variety recognized before the war. A fatal case of anaphylaxis due to injection of antidysenteric serum is mentioned, and with regard to its prevention in the serum treatment of tetanus Besredka's plan of giving it under general anaesthesia is recommended. It is interesting to note that Major Hurst does not consider that in diminishing the exaggerated reflex excitability of the central nervous system in tetanus magnesium sulphate has any advantages over drugs, such as chloroform, which have none of the dangers attending the injection of the magnesium salt.

Although malaria played such an important part in the Salonica campaign it is not specially considered, but perhaps this may be a feature of a further edition which may be confidently predicted for this excellent work.

NOTES ON BOOKS.

*Hints for R.A.M.C. Officers*³ is a modest little work which many newly joined medical officers will find helpful during the first few weeks of army life. The main duties of a medical officer in charge of troops at home are clearly indicated, and useful guidance is given through the maze of army technicalities and regulations as to correspondence and reports. We have seldom seen so many misprints, or such an elaborate index, in so small a work. Under the heading of "kit," we note with amusement that "the greatcoat has been suspended for the duration of the war."

¹ *Medical Diseases of the War*. By Arthur F. Hurst, M.A., M.D. (Oxon.), F.R.C.P., temporary Major R.A.M.C. Second edition, revised and enlarged. London: Edwin Arnold. 1918. (Demy 8vo, pp. 319; 6 figures. 12s. 6d. net.)

² *Hints for R.A.M.C. Officers*. By Ramcorps. Edinburgh: W. Bryce. 1918. (5½ x 4½ in., pp. 56. 1s. net.)

Any sound guide to exposure of the deep vessels by safe routes which give ample access, will be welcome to all war surgeons, not only those who need to make such incisions for dealing with actual haemorrhage, but also those at the base hospitals who have to operate upon arterial haematomata and aneurysms. MM. FIOLE and DELMAS have written a little book⁴ up at the front and have found on the spot an artist to enhance the value of their descriptions. The authors have by no means lost reverence for Farabeuf and indeed are not trenching on his preserves, for he gave us the classical directions for ligature of sound vessels in their continuity; they are dealing with the exposure of bleeding vessels in the midst of infiltrated, blood-obscured tissues, and offer a means of isolating the very bleeding point without undue damage to intervening structures, in such a way that blind grasping of a bleeding area in forceps—which has befallen every one to his discomfort—shall be unnecessary even in emergency. It is not to be thought that even the modes of access here suggested are simple, and it is certain that they should be practised on the cadaver, to ensure freedom in their employment at the moment of need. The book is to be heartily commended for general study forthwith.

⁴ *Découverte des Vaisseaux Profonds par des Voies d'Accès Largues*. By J. Fiolle and J. Delmas, Chirurgiens à l'Automobile Chirurgical, 21, Paris: Masson et Cie. 1917. (Demy 8vo, pp. 128; 34 figures. Fr. 5).

THE MEDICAL PROFESSION UNDER THE MILITARY SERVICE ACT.

In our last issue (p. 622) we gave a short account of the regulations which have been made with regard to applications concerning medical practitioners for exemption from military service, and of the procedure contemplated under these regulations. By the time these words are in print it is expected that an explanatory statement by the Ministry of National Service will be in the hands of every doctor now in civilian practice. In the meanwhile we have received various inquiries from medical men who are in doubt as to how they stand. Our reading of the position is broadly as follows:

Every doctor of military age will be approached in the first instance by the Ministry of National Service, which will offer him a "certificate of protection" from military service under the conditions stated in the proviso to Regulation 24 (see BRITISH MEDICAL JOURNAL, June 1st, p. 622, second column). If he is not satisfied with the terms of this certificate he may, within fourteen days of receiving notice from the Ministry, lodge an application for exemption with the appropriate medical tribunal (the Central Medical War Committee, and the Scottish Medical Service Emergency Committee have been recognized as Medical Tribunals). The tribunal will in due course hear his case and adjudicate on it, giving him four clear days' notice of the hearing. The tribunal may refuse exemption from military service, or may grant absolute, temporary, or conditional exemption. Where the ground of exemption is occupational the tribunal will be enabled to grant conditional exemption only, the condition being that the doctor, if not required for medical service with His Majesty's forces, shall give his service to the civil community in such manner and under such conditions as the Minister of National Service, after consulting the appropriate professional committee, deems best in the national interest. The principles by which the Committee of Reference will be guided may be gathered from the terms of the communication from it printed below.

An appeal may be allowed to the Central Tribunal (the general tribunal for the whole kingdom) from the decision of the medical tribunal (or the Committee of Reference) on any application on personal grounds—that is, on the grounds of serious hardship, of ill health or infirmity, or of conscientious objection. But such appeal may be made only with the leave of the medical tribunal or on the recommendation of the Committee of Reference.

The usual form of exemption granted by a medical tribunal will be subject to the conditions laid down in the proviso to Regulation 24. But since the protection certificate issued by the Ministry of National Service will be subject to the same conditions, the position of a doctor who has accepted a protection certificate and of one who, having made application to the medical tribunal, has received conditional exemption, will, in the majority of cases, be the same.

From this point onwards the central professional committee ceases to act as a statutory tribunal, and becomes an advisory body to the Minister of National Service respecting the use to be made of those doctors who have received either conditional protection or conditional exemption as the case may be. The country will be investigated area by area, the local committees assisting the central committee. A doctor who is not satisfied with the duties proposed to be assigned to him will have a right to be heard by the central committee, just as an enrolled man has had in the past, and the grounds of objection will presumably be much the same as those which have been held to be valid in the past, though they are not, and never have been, precisely defined.

With regard to the terms and conditions of substitution medical service, we understand that this is receiving close consideration. It is obvious that no effective procedure can be laid down until the financial basis has been settled. The question has been asked: To what body could a doctor apply for liberation if his health broke down in substituted practice? The only answer seems to be that those who put him there must be responsible—namely, the Ministry of National Service—in consultation with the medical tribunal, and in concert with any Government department concerned. This, and many other points, will have to be settled at an early date.

In a circular (R. 196) addressed by the Secretary of the Local Government Board to the Central Medical War Committee, the Committee of Reference, and the Central Tribunal, dealing with the new regulations, special reference is made to Regulation 24, which provides that any exemption on the grounds of occupation shall, and any exemption on personal grounds may, be conditional on the medical practitioner undertaking professional service under conditions laid down by the Director-General of National Service after consultation with the medical tribunal, and in concert with any Government department concerned. Upon this the circular says:

The demand for medical practitioners for military and civilian service is so great that it is only by a carefully considered distribution of the available medical men that the requirements of the country can be met. This has been recognized by the medical profession itself in resolutions passed by their representatives. It is because of this special position of the medical profession that the provision referred to above has been made; and it is because of this special position, also, that the profession is granted a special tribunal drawn from its own members.

The President of the Local Government Board is assured that the regulation in question will be administered with the utmost consideration consistently with the national interests, and that any arrangements under it will be made in full consultation with the medical tribunal. The circular concludes as follows:

Mr. Fisher realizes that the task before the medical tribunal and the Committee of Reference is a formidable one, but their members have already gained wide experience in the work. The country generally, and not only the medical profession, are indebted to them for their services; and it is noteworthy with what general satisfaction the performance of these services has been received. They are justified, therefore, in approaching with confidence the work which lies before them.

With regard to applications concerning medical practitioners made to ordinary local appeal tribunals which were pending at the date (May 23rd) when the regulations for medical men came into force, it is provided that if the case has already been referred to the professional committee and a recommendation has been made, it shall be decided by the appropriate medical tribunal in accordance with the previous regulations. If, however, a recommendation has not been made, the case is to be referred to the medical tribunal, to be decided as if it were an application under the new regulations.

In a memorandum (R. 198) issued to ordinary local and appeal tribunals, the Local Government Board points out that such tribunals will not in future deal with any application concerning a medical practitioner, whether an original application for a certificate of exemption, or an application for the renewal or review of a certificate already granted. Such applications are to be made directly to the appropriate medical tribunal, in accordance with the special regulations relating to medical practitioners.

REDISTRIBUTION OF HOSPITAL STAFFS IN LONDON.

We have received from the Committee of Reference the following notification as to action proposed to be taken by the Minister of National Service:

The Minister of National Service has approved a recommendation of the Committee of Reference that, in order to provide more doctors for service in the army whilst at the same time safeguarding the interests of the civil community, the hospitals in the London area shall be arranged in groups and that a sufficient staff of doctors shall be reserved to maintain the medical service of each group.

It will be recognized that many physicians and surgeons are now serving at hospitals in various parts of London involving long journeys, waste of time, and, consequently, loss of energy, and that at the same time there are others both of military age and over that age who are capable of doing and willing to do more hospital work than they are now doing.

It is proposed in the first place to ask every member of the staff of a hospital to supply the Committee of Reference with a detailed statement of the hospital work and other work of a national character which he is now fulfilling, on a form which will be sent him for the purpose. This information will be tabulated and an analysis made of the amount of service rendered by each member of a hospital staff. From this analysis the Committee will be in a position to advise the Minister of National Service as to the number of doctors of military age who must be considered indispensable to the civil community, and who should in consequence be retained in civil practice.

It may be necessary, in order to obtain the fullest benefit of a doctor's service, to transfer his work from a hospital in one group to a hospital in another group, as a temporary arrangement for the duration of the war, and for this reason each doctor will be asked to sign a declaration that if it is considered desirable in the national interest, he will agree to serve on the staff of any hospital or hospitals to which he may be assigned by the Minister of National Service on the recommendation of the Committee, and at the same time to discontinue his services at any hospital where he may now be acting as a member of the staff.

An appeal will be made to those members of hospital staffs who are over military age, to those who hold *a la suite* commissions in H.M. army, and to those who have been medically rejected for service in the army, or are otherwise excepted from liability under the Military Service Acts, to assist by their co-operation in making this scheme a success.

It is recognized that the reorganization of the medical staffs may cause inconvenience to the governors and officials of the various hospitals, but it is not intended that any alterations of staff shall be proposed beyond those considered by the Minister of National Service on the advice of the Committee to be absolutely essential in the national interests.

Addresses.

The address of the Medical Tribunal for England and Wales is 429, Strand, London, W.C.2, and for Scotland the Royal College of Physicians, 9, Queen Street, Edinburgh. That of the Committee of Reference is 8-11, Queen Square, London, W.C.1.

We print in our correspondence columns this week a communication from the Council of the Edinburgh Branch of the British Medical Association strongly opposing the exercise of compulsory powers for the provision of medical attendance on the civil population.

At the annual meeting of the National Medical Union, held on June 1st, Professor William Russell presiding, it was unanimously resolved to advise members of the union not to sign any application for exemption under the new Military Service Act, since to do so might render them liable to be transferred to other localities. The meeting also unanimously confirmed and adopted a resolution of its council approving the principle of compulsory medical service of a purely military nature, but strongly condemning any attempt to extend compulsion in respect of civilian practice.

THE first general meeting since the outbreak of war of the Association of French Doctors was held on April 28th, when it was announced that subscriptions to the special war fund amounted to nearly £38,000, and that of this £6,000 had been expended in grants to practitioners in invaded territory and their families. It was announced that the legacy of Dr. and Madame Dard, of Dijon, to the widow and orphan fund, amounting to £40,000, had been paid over.

British Medical Journal.

SATURDAY, JUNE 8TH, 1918.

A MINISTRY OF HEALTH AND THE FUTURE OF MEDICINE.

A SHORT time ago the Royal College of Physicians of London appointed a committee to report upon the proposals for the establishment of a Ministry of Health. At its meeting on June 3rd it received an interim report from this committee recommending that steps should be taken for the formation with other bodies of a small joint committee on the subject. This recommendation was accepted, and it was further resolved that the joint committee should have power to communicate when necessary with the Government, and to inform it on any part of the subject, reporting its action from time to time to the College. We imagine it to be probable that the Council of the Royal College of Surgeons of England will be disposed to take part in setting up the joint committee, which on matters of administrative detail may find it expedient to enlist the help of experts in public health and general clinical practice. The Scottish Royal Colleges have already set forth their views, but severally and independently, and the joint action proposed in London possesses certain obvious advantages which will be appreciated by the Government and Parliament. A collective expression of opinion must not only be convenient but more likely to carry weight.

It may be assumed that the interest of the Colleges in the proposal for a Ministry of Health is mainly in respect of medical education and the advancement of medicine by observation and research. Sir William Osler in his contribution (p. 653) to the discussion at the Royal Society of Medicine, which has been again adjourned, laid due stress upon this aspect of the matter, instancing the need for the reconstruction of medical schools, the "destruction" of the curriculum, the abolition of unnecessary examinations, and the establishment of up-to-date clinics at the hospitals. He promised that when the younger men returned from the war and took the matter in hand the seniors would stand by and see fair play between them and the authorities, and we imagine that the services of the judicious bottle-holder will be required in the contest that must inevitably take place. The British Medical Association, which must look at the matter from a somewhat different point of view, will, we have no doubt, welcome the proposed joint committee in London as a valuable reinforcement in dealing with the legislature, and as a justification of its contention that the trend of public opinion which found its first expression in the Insurance Act, and is now giving speed to the proposal for a Ministry of Health, is one which nearly concerns every branch of the profession. The pamphlet¹ issued by the British Medical Association a short time ago, giving reasons for the establishment of a Ministry of Health as one of the principal departments of state, together with a scheme of constitution proposed by the Association, has done something to show the hollowness of some of the talk about the complexity of our system of treating and preventing disease and the multiplicity of Government departments interested in health ques-

tions. While pointing out the directions in which the system might be simplified, the pamphlet showed that administration is necessarily complex, because the natural conditions are complex, and that there are many ministries which ought to be able to command the advice of experts, because government is concerned with the proper ordering of human affairs, which are unceasingly affected by the ill or good health of the governed.

In all the recent deluge of talk on public platforms as to the need for a Ministry of Health we can recall little suggesting that the orators had given any thought to the production of the medical hands with which the Ministry of Health must work and without which it would be as helpless as an engine without an engineer. A good deal of lip service to the wonderful advances of medical science was mixed with reproaches against the medical profession that it had not more quickly applied them for the prevention of disease and the promotion of health, but very little anxiety was shown to organize methods for the advancement of medicine and the improvement of medical education. The reports of the two committees to the Prime Minister on the position of natural science² and of modern languages and modern studies³ in the educational system of Great Britain marked a very distinct stage in the growth of opinion, and their recommendations, which appear to command the sympathy of the Board of Education, cannot fail to have a very considerable effect before long on the subjects and the methods of secondary and higher education. The ground is therefore well prepared for any action which the joint committee proposed by the Royal College of Physicians may advise with regard to medical education and medical schools. It is to be noted also that through the establishment of the Advisory Council of Scientific Experts to administer the Imperial Trust for the Encouragement of Scientific and Industrial Research, and in the existence of the Medical Research Committee, we have the elements of a Ministry of Science.

On the other hand, there are the administrative questions with which the pamphlet of the British Medical Association is mainly concerned. On many of these also the value of the opinions of the Royal Colleges will be considerable, especially on all matters concerned with hospitals, and the connexion which should exist between them and the medical schools on the one hand, and general practitioners on the other. On these accounts the step taken by the Royal College of Physicians of London is a matter for congratulation.

THE NERVOUS TEMPERAMENT IN WAR.

MUCH interest has been excited recently in France by Professor Ernest Dupr 's description of a type of psychoneurosis which he would sharply distinguish from neurasthenia on the one hand and hysteria on the other. The interest is due to the belief that the type he has described is a definite clinical entity, and that its recognition will prevent injustice, especially to soldiers. He first published his description in 1910-11, but his papers attracted little attention until Dr. Maurice de Fleury, who had begun to recognize that the type was not uncommon among the cases coming before him during the last two years at the psychiatric clinic of the military hospital of Val de Gr 'ce, brought the matter before the Acad 'mie

² The Position of Natural Science (Cd. 9011, price 9d.), BRITISH MEDICAL JOURNAL, April 20th, 1918, p. 459.

³ The Position of Modern Languages (Cd. 9036, price 9d.), BRITISH MEDICAL JOURNAL, May 18th, 1918, p. 567.

¹ *A Ministry of Health*. London: The British Medical Association. Price 3d.

de Médecine a month or two ago.¹ Soon afterwards Dupré himself communicated a very concise paper² to that learned body, of which a fortnight later he was elected a member by a very large majority.

He uses the not very happy term *constitution émotive* for the condition, and describes it as characterized by over-excitability, both sensory and psychic, and imperfect motor inhibition, both reflex and voluntary, so that reactions are abnormal in degree, extent, duration, and in their relation to the stimulus. It is not a traumatic neurosis, inasmuch as it may persist from childhood, but the onset of the symptoms in their fully developed form is usually determined by commotion or emotion intense in degree, or frequently repeated, or by an infection or toxæmia. The psychological signs, which according to Dupré form the groundwork of the condition, are undue impressionability, nervousness, restlessness, anxiety, irritability, and impulsiveness, occurring simultaneously or in alternation. In this soil various combinations of symptoms develop—timidity, scruples, doubts, obsessions, phobias, terrors, and psycho-sexual anomalies. In the more serious cases there may be attacks of melancholia with anxiety, and chronic conditions of obsession passing on to incurable derangement characterized by self-accusations, hypochondria, and negation. All this may be considered a little indefinite, and applicable to many psychoneurotic disorders, but for the diagnosis of the condition he describes Dupré requires the presence of certain physical signs of which he gives a very long list. They include exaggerated reflexes, tendinous, cutaneous, and pupillary; hyperæsthesia with widespread and long-lasting motor reactions (especially mimicry and vocal); loss of motor equilibrium, evidenced by visceral spasm (pharyngeal, oesophageal, gastro-intestinal, vesical, and palpitation of the heart), emotional tremors of the limbs, starting, shivering, chattering of the teeth, stuttering, transitory myoclonus, and tics; functional inhibition, evidenced by loss of power in the limbs, mutism, and relaxation of sphincters; circulatory disturbances, especially tachycardia, constant or paroxysmal, and a variable pulse, and also alternation of peripheral vaso-constriction and vaso-dilatation and dermatography; defective heat control with local variations, objective (local thermometer) and subjective; and glandular disturbance of the sweat, the saliva, of the tears, and of the gastro-intestinal, urinary, genital, and biliary secretions.

Dupré points out that exaggerated emotional response to stimuli is the normal condition in infancy and often persists into childhood, to disappear as inhibition develops with growth and produces nervous equilibrium and stability. In some persons the inhibitory apparatus is imperfectly developed, and is easily thrown out of gear. He does not deny that neurasthenia or hysteria may be grafted on the condition he describes but he insists that it may exist independently of either.

Much credit is no doubt due to Dupré for the observations he made before the war. During the last three or four years the condition described has become familiar to most of those who have had to do with psychoneuroses among cases from the front, and the defect in Dupré's article seems to be that he does not adequately discuss the diagnosis between the condition he describes and neurasthenia, hysteria, some psychopathic states, and simulation. The condition only develops in a predisposed terrain, so that there may be said to be a constitutional disequilibrium of affectivity. It is easy to understand that

such physical manifestations of the condition as shivering and trembling and chattering teeth, embarrassing to the civilian, would be something more to the soldier, for cowardice in the face of the enemy is one of the worst of military offences. M. de Fleury makes the point well by telling a story of Turenne. On a day of battle that illustrious soldier, seized with trembling, no doubt also, it is suggested, with tachycardia and anxiety, exclaimed: "Ah, carcass, you tremble, but if you knew where I am going to take you you would tremble much more." De Fleury illustrated his paper by the history of a young business man who had always been painfully shy; he was mobilized with the rank of lieutenant on August 3rd, 1914, and did his duty well for eighteen months. Then he had to endure a bombardment which lasted nine hours, during which he was buried. This was followed by a phase of well-marked mental confusion, and a few days later he began to suffer from nervous crises, characterized by a feeling of suffocation and general trembling but without loss of consciousness. After five months' rest he was able to return to duty, but in March, 1917, he was again exposed to bombardment (whizz-bangs), and was thereafter seized with intense trembling, sweating, tachycardia, and cardiac anxiety. When examined by de Fleury he exhibited all the symptoms of Dupré's syndrome, and had to be invalided out of the service. He has returned to his business, but is still greatly inconvenienced by the persistence of the respiratory, circulatory, and secretory disturbances, by sudden outbursts of anger, and by neurasthenic depression. The point de Fleury makes is that in such a case as this the individual has been able to repress his emotion and its physical accompaniments until some traumatism breaks down his resistance.

THE BIRTHDAY HONOURS.

THE birthday honours include a considerable number of members of the medical profession. As will be seen from the list printed elsewhere the great majority are awarded in recognition of war services rendered in a naval or military capacity. Among the appointments and promotions within the various orders Surgeon-General H. D. Rolleston, senior physician to St. George's Hospital, who has been actively employed as consulting physician to the Royal Navy since the outbreak of war, has been promoted to be K.C.B. The Companionship of the Bath is conferred upon Deputy Surgeon-General Robert Hill, who has been principal medical officer of the Grand Fleet, and on Major-Generals Sir Anthony Bowlby and Cuthbert Wallace, consulting surgeons with the British armies in France, as well as on Major-General Stanistreet, Deputy Director-General, War Office. Five medical men receive the honour of K.C.M.G.: Major-General Sir Berkeley Moynihan, C.B., a member of the Army Medical Advisory Board; Colonel Sir Ronald Ross, K.C.B., F.R.S., who has been employed on special malaria duty for the army; Surgeon-General M. W. O'Keeffe, C.B., who is D.M.S. of one of the British armies in France; Colonel Sir William Leishman, C.B., F.R.S., who until his recent return to work at the War Office was pathological adviser to the army in France; and Colonel W. H. Horrocks, C.B., a member of the Army Medical Advisory Board and co-editor of the *Journal of the Royal Army Medical Corps*. Among those who receive the Companionship of the Order are Deputy Surgeon-General P. W. Bassett-Smith, R.N., whose work in pathology and bacteriology has been of the greatest value to the navy; Colonel H. M. W. Gray, C.B., consulting surgeon with one of the armies in France; Colonels Armstrong, Elder, and Snell, of the Canadian Army Medical Corps, and Colonel Huxtable, of the Australian Army Medical Corps; Lient.-Colonels Tewsley of the New Zealand, and

¹ *Rev. Scientifique*, 1918, No. 9, p. 257.

² *Bull. de l'Acad. Méd.*, lxxix, p. 286.

Badgerow of the Canadian Army Medical Corps; Major Cluny Macpherson of the Royal Newfoundland Regiment, and Professor H. L. Ferguson of the University of Otago. We also notice the name of Major Maurice Sinclair, R.A.M.C., who has done so much to systematize the treatment of fractures of the femur. The K.C.I.E. is conferred upon Lieut.-Colonel W. J. Buchanan, I.M.S., Inspector-General of Prisons, Bengal; and among those to whom the C.I.E. is awarded is Colonel Patrick Hehir, C.B., who served with so much distinction in Mesopotamia. Sir Alfred Keogh, G.C.B., becomes G.C.V.O., and Lieut.-Colonel Sir Edward Worthington, C.M.G., M.V.O., Assistant Director-General at the War Office, is promoted to be K.C.V.O. The honour of knighthood is conferred upon Colonel A. W. Mayo-Robson, formerly of Leeds, who has been for some years consulting surgeon in the Southern Command at home; upon Mr. Harry Baldwin, dental surgeon to the King and past president of the Odontological Section of the Royal Society of Medicine; and upon Dr. Nilratan Sarkar of Calcutta. Sir Frederick Treves is appointed to the Order of the Companions of Honour, instituted a year ago. To these and to the many others who have received distinctions and promotions we offer congratulations in the name of the medical profession, while the knighthood conferred upon Mr. Peter Squire will be noted with pleasure by the great number of medical practitioners to whom *Squire's Companion to the British Pharmacopoeia* has proved a useful friend. The lists of appointments to the Order of the British Empire will be published in the *London Gazette* on June 8th, with the exception of the appointments to the Order in respect of services in or for the Dominions and Colonies, which it has been arranged to defer until September.

STATEMENT BY THE MINISTRY OF NATIONAL SERVICE.

THE Minister of National Service is issuing to all medical practitioners a statement with regard to their position under the Military Service Acts, 1916-1918. This sets out at considerable length the way in which the present national emergency affects the provision of sufficient medical services, both for the forces and for the civil community; the measures which are held to be requisite for meeting simultaneously both kinds of needs; and the procedure to be adopted in the selection of doctors for services of various kinds. A historical survey is given of the circumstances which have led the Government to place doctors under an exceptional obligation not simultaneously placed on other members of the community as regards military and civil work. The regulations made under the new Military Service Act are next discussed, with a view to explaining why it will no longer be possible for a doctor who bases his claim for exemption on occupational grounds—that is, grounds of national interest—to be granted exemption from military service on the condition merely of continuing in his present practice. The condition of exemption in such a case will be that of rendering professional services in such places and under such conditions as those competent to judge may deem best in the national interest. But, in order that the best interests of the medical profession as well as those of the community may be conserved, the full co-operation of the profession through its central and local organizations formed for the purpose, and also of its individual members, is recognized as essential. The statement then passes from general considerations to an outline of the procedure to be followed—a matter with which we deal at page 647. It is noted that the calling up of medical practitioners will be conducted in such a way as to avoid all unnecessary disturbance to the medical service of the country, and emphasis is laid on the point that doctors should continue their work as before unless and until called up for service. Since no reference

is made in the statement to the proposed "certificate of protection," it is to be assumed that the arrangements for carrying this plan into effect have not yet reached their final form.

THE UTILIZATION OF STUMP MUSCLES

COMMUNICATIONS made by Italian surgeons to the Inter-Allied Conference on the after-care of discharged sailors and sold. rs, which were summarized by Professor Vietor Putti of Bologna in his address to the Royal Society of Medicine, of which a report is published in this issue, are welcome contributions to our knowledge of what may be called the secondary surgery of amputations. For although the ante-bellum work of Vanghetti,¹ and the later work of his imitator Sauerbruch, was known in this country, hardly any practical application of the Italian teaching has been made here, and, as far as we know, nothing has been published here. Sauerbruch recorded a case in Germany in 1915, and returned to the subject twice in 1916,² when he published a monograph in which those operative procedures which he has employed were fully described and illustrated. Since then the Grand Duchy of Baden has placed at his disposal in Singen the means of further testing the value of Vanghetti's methods. So far as we are aware, however, very little evidence is available as to the results obtained, and most German surgeons appear to be cautiously sceptical upon the subject. British surgeons have doubtless been too busy in doing the obviously necessary work of war surgery to devote time to a procedure of which the practical value had not been established, but Professor Putti's demonstration and lecture and his published account of his experience—he has, we believe, operated upon fifty cases—should stimulate them to give the method a thorough trial, the more so as it can be carried out without exposing the patient to much risk of finding himself worse off, in case of failure, than he was before the intervention. It is in cases of loss of both hands that cinematization is best worth trying, for the needs of these unfortunates are the most crying, and any help in such cases is worth having. In one-armed cases the value of prosthetic appliances is much less, since the surviving hand so soon learns to do double duty. In all cases it would seem wise to resort to cinematization as early as possible, before the patient is used to one-handed life, or has become discouraged by long hospital experience. In this connexion it is noteworthy that a recent German writer refers to the difficulty of persuading patients to submit to the operation.

THE PSYCHOLOGY OF THE ALARMIST.

ONE of the sorest afflictions in times of anxiety like the present is the gloomy prophet who goes about crying out that "all is lost." The vaticinations of Cassandra must have dispirited the Trojans even when they shut their ears most obstinately to them. The defenders of Jerusalem must have felt relief when the seer who ran round the walls ingeminating the fall of the doomed city was slain in the act of calling out woe to himself. Such alarmists we have now in plenty among us. They are represented by the eternal type of the "Fat Boy" who takes a mischievous pleasure in making people's flesh creep; by the fussy person who asks debating questions in Parliament; by the pessimist whose mental constitution leads him to look at the black side of things; and by those newspapers whose characteristic note is sensationalism or which find a market in scaremongering. In a paper read before the Paris Academy of Medicine on April 16th, Dr. Ch. Vallon, physician to the great Paris asylum of St. Anne, stated that by an extension of the French press law of July 29th, 1881, promulgated on August 15th, 1914, the utterance of certain statements in such a way as

¹ *La Chir. d. Organi di Movimento*, vol. i, pp. 71, 293, 400, 419; vol. ii, p. 1.

² Sauerbruch, *Med. Klinik*, October 10th, 1915, p. 1125, Berlin. *Zeit. für Orthopädische Chirurgie*, vol. xxxvi, 1916. *Die Willkürliche Bewegbare Künstliche Hand*, Berlin, 1916.

to be heard by a smaller or larger number of persons simultaneously makes the offender liable to certain penalties. He classified the alarmists produced by the war as criminals, victims of vanity, or pessimists. The criminals were amenable to the law in the ordinary way. So were the vain persons, who talked sensationally because they wished it to be supposed that they had relations with highly placed officials; they also might render themselves amenable to the law. The pessimists were very often persons suffering from disease. Many of the vain alarmists were weak-minded or ill-balanced, but others were hypochondriacal or dyspeptic; and it was the duty of the medical expert to make this plain to the court. In such persons responsibility was diminished and they formed a transition group between the weak-minded vain persons and those suffering from definite mental disorder. In a large number of such persons—melancholics and others affected with various psychoses—the wanderings of their mind are governed by the war news. He instanced the case of a man who had been discharged from the army soon after the beginning of the war for syphilis of the nervous system; his native town was subjected to bombardment, which upset him so much that he took refuge in Paris, where he obtained work in a munition factory, and soon began to spread alarmist reports among his fellow-workmen. He was arrested, and upon him were found sheets of paper, covered with notes in pencil, relating to imaginary defeats of the French forces. The man had, in fact, kept a journal of his delirium, and all his supposed facts were inventions. The medical evidence convinced the court that the man required treatment for his disease and not punishment. Vallen's conclusion is that all alarmists should be regarded with suspicion; some of them are conscious evildoers, others persons suffering from disease—very often brain disease—but they ought all to be either punished or brought under control, for if there were many of them in a community they might be a danger by weakening public confidence. Instead of listening to these cowardly voices we should in times of stress adopt the attitude of the Roman Senate which passed a vote of thanks to a defeated general for not having despaired of the Republic.

WASTAGE AMONG WOMEN WORKERS.

THE Medical Research Committee has issued a report,¹ by Captain M. Greenwood, of the welfare and health section of the Ministry of Munitions, on the causes of wastage of labour in munition factories employing women. The report is founded upon a statistical examination of certain factories—a London factory with full records, a country factory, a Midland factory with conditions intermediate between the first two, and factories for heavy work. The inquiry embraced nearly 40,000 employees in eighteen representative factories, but the completeness of the data varied in different instances. In the case of the London factory records existed from 1911 onwards, and the analysis was brought down to the beginning of December, 1916. It was found that the causes assigned by women for leaving work could be classified in three categories—those who left on account of ill health, those who left for some other sufficient reason, and those who left for no reason or an insufficient one. Both in peace and war the rate of loss in the first two or three months of service was heavy. It would appear that of 1,000 girls entering the factory, 132 did not outstay the second month, and that about one hundred of these left for no sufficient reason. A comparison, indeed, suggests that when the losses from all causes are considered the experience was somewhat more favourable in peace than in war. Taking the loss of effectives within the first three months to be not less than 10 per cent. of the original strength—it was probably more—

the question arises as to the causes of a period of employment so short that little useful service can have been rendered. Various causes are suggested as contributing to the result. The first is the fault of the employee herself, such as caprice, unwillingness to submit to discipline, or love of change for its own sake. The second cause suggested is fault in the employer, who does not show judgement in the selection of candidates for employment, the conditions of which are unknown to the applicant but known to the employer. It is suggested also that a third contributory cause may be similar lack of judgement on the part of the officials of the labour bureaux. These officials and factory administrators indulge in mutual recriminations, and it does not seem probable that it will be easy to overcome this difficulty, but its remedy is outside the scope of the report. From a comparison of the effects of munition work in relation to the age of the workers, the conclusion is that the general strain of factory life in itself is not worse borne by elder than by younger women, even in factories engaged upon chemical work which is often associated with specific dangers. But if the factory life is combined with more than a very moderate degree of actual physical work women over 23 come less well through the ordeal. The difference, though not great, is distinct enough to make it a matter of practical importance to attempt to institute a system for recruiting the older women for the physically lighter work and the younger women for the more strenuous labour. This appears to be the most important practical conclusion to be drawn from the report. The early age after which strain becomes too great is noteworthy; it occurs during physical maturity, and its most plausible explanation is that the older women, of whom a larger proportion than of the young women will be married and have young children, have not sufficient reserve of energy to meet the double demand. In an introductory note the Committee bears testimony to the thoroughness with which Captain Greenwood has availed himself of the exceptional opportunities afforded him for the inquiry, and expresses the belief that his numerical data, which are set out in a large number of tables, will long serve as a standard for reference when subsequent work of a similar kind is undertaken in the future.

THE MEDICAL WOMEN'S FEDERATION.

THE first annual meeting of the Medical Women's Federation was held in London, with Dr. Jane Walker, the President, in the chair, and was largely attended by members from all parts of Great Britain. The question of the status of medical women employed in military hospitals under the War Office was discussed. It was felt that these women, through the absence of military rank, were serving under a serious disability involving loss of professional standing. It was unanimously agreed that the Federation should take every means in its power to press for temporary rank for medical women in the military hospitals on the lines of the Territorial R.A.M.C. A draft scheme of maternity and child welfare had been drawn up, but the meeting was in favour of postponing the preparation of the final draft until the question of a Ministry of Health was settled. A statement was made by Dr. Mary Bell, the Federation representative on the Central Medical War Committee, inviting the Federation to nominate three or four representatives to discuss with the Executive Subcommittee of the C.M.W.C. in what way the services of medical women can best be used to take the place of medical men called up under the new Military Service Act. It was unanimously resolved that Regulation 40 D under the Defence of the Realm Act, which makes it an offence for any woman suffering from venereal disease to solicit or to have sexual intercourse with a member of His Majesty's forces, ought to be immediately withdrawn, and a special committee was appointed to consider and report upon the matter in all its bearings.

¹ H.M. Stationery Office. Medical Research Committee. Special Report Series, No. 16. To be obtained through any bookseller. Price 1s. 6d.; post free 1s. 8d.

THE EPIDEMIC IN SPAIN.

THE widespread epidemic of an acute catarrhal affection in Spain, which was stated in our last issue to be most probably influenza and attended by little or no mortality, is now reported to have caused 700 deaths in ten days, but if the number of cases has been as large as reported the case mortality must have been very low. The *Times* of June 3rd quoted Dr. Pittaluga to the effect that the disease attacks the respiratory rather than the abdominal organs; that relapses frequently occur within a few days; and that, although the disease is clearly of the character of influenza, bacteriological examination has not resulted in the discovery of the influenza bacillus, but has revealed an organism described as the parameningococcus. It is well known that the *Bacillus influenzae* is quite commonly absent in cases clinically characteristic of influenza, and that the *Micrococcus catarrhalis*, which has some superficial resemblance to the parameningococcus, is very commonly found. Although, as recent reports of the Medical Research Committee have shown, an epidemic of meningococcus carriers may reach a very high percentage amongst contacts, we are not cognizant of any previous outbreak of cerebro-spinal fever in any degree comparable in extent to the epidemic in Spain. Before coming to any conclusion it is obvious that further bacteriological information must be awaited.

SIR ARTHUR SLOGGETT.

GENERAL SIR ARTHUR SLOGGETT before leaving France was the recipient of many spontaneous proofs of the general recognition by all branches of the army of the success of his administration during three years and three-quarters of strenuous work as Director of Medical Services, British armies in France, and of the high personal regard and esteem in which he is held. Sir Arthur Sloggett, though he has vacated his appointment in accordance with the age and time limits of the army, is still happily endowed with health and energy, and may yet, we hope, be able to render further service to the country.

THE Inter-Allied Food Commission, which, as has been reported, held its first meeting in Paris last November and its second in Rome last March, is meeting this week in London. It is attended by representatives of France, Italy, Belgium, United States of America, and Great Britain. The first business of the commission was to establish physiological principles as to the amount of food necessary for each individual, distinguishing age and sex, and then forming an estimate of the total food requirements of each country. A census of the production of food-stuffs in each country is now being made, and in this way the deficit, which must be met by importation into each country, will be ascertained.

Medical Notes in Parliament.

Territorial Medical Officers.—Commander Bellairs asked Mr. Forster, on June 3rd, whether the War Council had considered the grievance under which the Territorial Force officers of the Royal Army Medical Corps laboured in spite of all their pre-war service in receiving rates of pay and gratuities less than temporary Royal Army Medical Corps officers; and whether the War Council had further considered the favourable report of the Committee of 1917 recommending that the position in regard to pay, allowances, and gratuities of officers in the Royal Army Medical Corps belonging to the Territorial Force and Special Reserve should be equalized with that of temporary officers when they would gain thereby. Mr. Forster, in reply, referred to an answer he gave on February 21st, when he stated that the question was fully considered by the Cabinet Committee on officers' pay, and it was decided not to make the change proposed. These Territorial officers, he added, got the same emoluments as regular officers, and, like them, got the new allowance for children at full rates in the junior ranks, while the officers serving under special contract had half rates only.

Hospital Treatment of American Wounded in England.—Sir Bertram Falle asked Mr. Macpherson, on June 3rd, if he were aware that all the hospitals, including the Royal Hospital, the Fausell Road Hospital (400 beds), the Union Infirmary, and a number of private houses lent to the Voluntary Aid Detachment, Portsmouth, were being taken over by a United States staff, and that the English staff and patients were being sent wherever there was a corner for them; and if he would secure at least the preservation of the Royal Hospital and the Union Infirmary for the English staff and English patients. Mr. Macpherson replied that, owing to the present conditions of fighting in France, some American and British wounded were being brought to this country in the same convoys, and were being treated in British hospitals. It was the desire of the American authorities that their medical and nursing staff now available in this country should undertake some portion of the charge in our hospitals of American and British soldiers. With a view to taking advantage of the generous offer of our ally and freeing British staffs for other hospitals two sections of a general hospital at Portsmouth had been examined, and he hoped that necessary arrangements would be made. British soldiers would not be ejected from the hospital, but as vacancies occurred the majority of patients admitted would probably be American.

Ministry of Health (Scotland).—Mr. Munro informed Mr. Hogge, on May 30th, that until the general proposals for a Ministry of Health had been discussed and adjusted in the War Cabinet he could not make any statement as to the policy of the Government with regard to Scotland.

Travelling Vouchers for Hospital Visits.—Mr. Forster, in a written answer to Mr. Jowett on May 30th, stated that vouchers were issuable at the discretion of medical officers in charge of hospitals which enabled relatives visiting officers and soldiers in hospital in the United Kingdom to travel by rail at single fares for the double journey without the 50 per cent. war increase, provided that the journey was not less than ten miles in the outward direction. Only one visit was allowed in each case, unless the medical officer in charge of the hospital considered in exceptional cases that a second visit was desirable. Two full tickets could be issued for any one visit. Relatives must obtain the vouchers beforehand from the officer in charge of the hospital.

British Doctors in Prisoners' Camps in Turkey.—In a written reply to Mr. Hume Williams (May 30th) Mr. Macpherson has stated that under the Berne agreement of December last one British medical officer and five medical personnel of other ranks might be detained in Turkey per 1,000 British prisoners. The question of increasing the number, if found to be insufficient, was under consideration. It was hoped that the Turkish authorities would make a suitable distribution of this medical staff. The Netherlands Minister at Constantinople would doubtless include this among the many other points in which our interests were involved under the agreement. In reply to a further question, Mr. J. F. Hope wrote that the Turkish Government had not yet given notice of the date upon which the 1,000 British invalid prisoners to be exchanged would be ready for embarkation, and he feared that in the most favourable circumstances it must be a considerable time before the first exchange took place. No inspection of internment camps in Turkey under the Berne agreement had yet taken place, but a representative of the Netherlands Government had left the Hague for the purpose on May 24th, and it was hoped that the inspections would shortly begin.

THE FUTURE OF THE MEDICAL PROFESSION UNDER A NATIONAL HEALTH MINISTRY.

THE first part of this discussion at the Royal Society of Medicine was reported in the *BRITISH MEDICAL JOURNAL* of April 20th (p. 456). The discussion was resumed on May 29th.

SIR WILLIAM OSLER said that upon two points there was more or less agreement: First, the urgent need of co-ordination in the various departments which now dealt with public health; secondly, that the nationalization of medicine had of late progressively advanced, recent legislation having brought the state to the door of the general practitioner, and, willy-nilly, he had become in some measure a civil servant. Much of this legislation had lacked effectiveness owing to a timorous regard for the fetish of local authority. The profession had too often suffered the pace to be set by organized ignorance, but there was hope in the Local Government Board, where the spirit of Sir John Simon still lived; the Board should form the nucleus of the new department. There were three contentious points: (1) Was a scheme possible in which the general practitioner should be a paid official of the state and yet independent—a civil servant and yet a free agent, the executive officer of a city or county council and yet alive to the needs of science? He wanted to conserve the competition which had had such an important place in the life of the profession for at least two thousand five hundred years, as

illustrated by the bidding of the free Greek towns for Democedes. He was less worried about the choice of doctor than about the choice of practice, and the individual development of the progressive, ambitious man who loved his profession, hated politics, and was too honest to pull wires. (2) What was to be the relation of the state to research? The prejudice in some quarters against state aid was an academic obsession, peculiarly insular and Anglican. Apart from Lister's work on infections, practically all the first-hand discoveries made in this country had been made by men in official harness, such as Griffith Evans, Manson, Ross, Bruce, and Leishman. The debt of the profession was a hundredfold greater to the Local Government Board for its researches in preventive medicine than to all the universities combined. (3) What was the position of the hospital in the scheme? The hospital should form the unit or the centre around which the general practitioners should coalesce. The hospitals were preparing for the change, and within a few years there should be a thoroughly practical working combination of the voluntary agencies with the state. To come into a national scheme there would have to be some radical alterations in the arrangement of the staff. Speaking of medicine only—for nowadays they "could grow surgeons anywhere," while the modern physician was a man of much broader gauge and harder to cultivate—he recognized that in any new scheme there must be a reduction in the number of attending physicians, and he drew an amusing picture of the "growing" of a good consultant according to Major Dill's scheme brought forward at the previous discussion. In conclusion, Sir William Osler said that a strong Ministry of Health, backed by a united profession, could initiate important reforms which seemed at present hopeless. The reconstruction of medical schools; the reform, or rather the destruction, of the curriculum; the establishment in the hospitals of up-to-date clinics, the abolition of unnecessary examinations—some of these reforms at least a strong central organization could force through against the blind opposition of vested interests. These were *post-bellum* problems for the young men, and it would be a pleasure for the seniors to stand by and see fair play between them and the public as represented by the authorities.

Mr. E. B. TURNER said that eighteen central and nine local departments were concerned with public health, and every practitioner who had thought on the subject would agree that a Minister of Health should be appointed to co-ordinate the overlapping interests. He should have Cabinet rank, and be assisted by an advisory board representing the skilled knowledge of the profession. Such a Ministry should have three different spheres of action: (1) Preventive medicine; (2) medicine having to do with the clinical treatment of individuals; (3) research, upon the success of which the success of the other two would depend. The Ministry should take over every department which had to do with health, including the medical department of the Poor Law, and there, of course, arose difficulties, as instanced in the Education Bill, which secured a large field for inspection and treatment to the medical department of the Board of Education. Government departments in the past had put clinical work in a position of disadvantage to preventive; under a Ministry of Health the officers responsible for the preventive and for the clinical side should have equal status, and those who did the administrative work should have some years of clinical training. He hoped that the voluntary hospitals would remain; it would be an exceedingly good thing to continue and extend the principle of the cottage hospital. The general practitioner also should be given as wide opportunity and working power as possible. Abundant use must be made of the general practitioner if the public health was to be served and the utility and independence of the profession maintained.

Dr. J. C. McVAIL said that it behoved those who were anxious that a Ministry of Health should at last be established to avoid discussion which might hinder rather than help. The primary question, he thought, was the extent and character of the services which the Ministry would wish from the medical profession; when that was settled the terms and conditions would fall to be considered in relation to the decision. He disagreed with Sir William Osler in what he had said about the bearing of competition upon the character of the service. Those who had had a fairly long experience in public health matters were not

afraid of doctors becoming officials. The present public health service had not settled down into a routine because it was official. The country was now alive as never before to the importance of the physical welfare of the individual in the interests of the nation, and also to the fact that the medical profession alone could supervise the work. The share the medical profession could take in the work of reconstruction was to establish a department of medical service which should be devoted not to the treatment of disease but to the maintenance of health.

Dr. WILLIAM GORDON said that it was essential to preserve "soulful" contact between patient and doctor, and this could be done by making the general practitioner the backbone of the whole business. He believed with Sir William Osler that if competition were abolished the work of the practitioner would suffer. The Insurance Commissioners had met such a situation with a compromise, which, he thought, with some changes, might be extended over a wider field. A system of part-time service might be inaugurated in which a man should be in part a Government servant and in part in competition with his fellow practitioners. The medical profession must itself have an adequate voice in the new Ministry; it was of no use to have an advisory committee which was merely ornamental. He thought also that the Minister himself should be a medical man.

Dr. HAYDN BROWN said that a Ministry of Health should alone be considered now; when that was formed the question of a State Medical Service would come up in its turn to be fought out by the Ministry aided by the medical profession. The British Medical Association made the claim that many years ago it had put forward the suggestion which was now becoming practical politics. But what had the medical profession done since to further it? It was the laity, notably Lord Rhondda and Mr. Waldorf Astor, who had stimulated the present movement. He suggested the formation of a Section of Medical Economics in the Royal Society of Medicine.

Dr. SMITH WHITAKER expressed the opinion that specialist treatment covered two different things—the kind of service which could only be rendered satisfactorily by a man who had concentrated his study on the subject, and the kind which only necessitated access to special apparatus and accessories, such, for instance, as the diagnosis and treatment of venereal diseases; under a Ministry of Health the general practitioner might have wider opportunities in this second respect.

Sir WATSON CHEYNE, in a few words, said that to get a Ministry of Health was by no means easy, for each Government department was developing its own system of medical supervision, and would be loth to part with it. There was not enough pressure of public opinion to bring matters to a focus. The public needed to be educated.

Dr. G. E. HASLIP pointed out that it was the profession itself which first asked for the interference of the state with medicine—namely, with regard to contagious diseases—and the more disease was studied the more widely the fact of contagiousness was recognized, as, for example, in phthisis. A system of part-time work at clinics and of proper co-ordination with hospitals and specialists would kill any idea of a whole-time state medical service.

On the motion of Sir BERTRAND DAWSON the discussion was again adjourned.

THE distinction of Grand Officer of the Order of the Crown of Italy has been conferred on Count Gian Giacomo della Somaglia in recognition of his "magnificent work" as President of the Italian Red Cross.

PROFESSOR R. PFEIFFER and Dr. G. BESSAU, in a paper (*Deut. med. Woch.*, October 11th, 1917) on the bacteriology of gas gangrene, insist on the importance of distinguishing between Fraenkel-phlegmon and malignant oedema; for the first is a relatively benign, the latter a very virulent infection. The first requires comparatively conservative treatment, the latter immediate amputation allowing a wide margin of healthy tissue. And even so, the patient seldom recovers. They find that both the non-putrefactive bacilli, Fraenkel's and the bacillus of malignant oedema, may cause gas phlegmon. The putrefactive germs play only a secondary part when present along with non-putrefactive germs, and they think it doubtful whether the putrefactive germs by themselves can produce a progressive gas phlegmon. The writers are pessimistic about the prospects of successful serum treatment.

THE WAR.

THE BIRTHDAY HONOURS.

THE following medical names appear in the list of birthday honours published on June 3rd. The military distinctions and promotions have been awarded for valuable services rendered in France and Flanders, Italy, Egypt, Salonica, and the Indian Frontier, or for services otherwise rendered in connexion with the war. All the officers belong to the A.M.S. or R.A.M.C. unless otherwise indicated:

Companion of Honour.

Sir Frederick Treves, Bt., G.C.V.O., C.B.

K.C.B. (Civil).

Temporary Surgeon-General Humphry Davy Rolleston, C.B., R.N.

C.B. (Military).

Surgeon-General Patrick B. Handyside, R.N.
Deputy Surgeon-General Robert Hill, C.V.O., R.N.
Temporary Major-Generals: Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., and Cuthbert S. Wallace, C.M.G.
Colonel (temporary Major-General) George B. Stanistreet, C.M.G.

Colonels: Stuart Macdonald, C.M.G., Edgar M. Pilcher, D.S.O., Alexander Primrose, C.A.M.C., Gerald T. Rawnsley, C.M.G., Arthur E. Ross, C.M.G., C.A.M.C., G. StClair Thom, C.M.G.

Lieut.-Colonel and Brevet-Colonel (temporary Colonel) Thomas W. Gibbard, K.H.S.

Lieut.-Colonel and Brevet-Colonel Allan J. Macnab, I.M.S.

Lieut.-Colonel John Blackburn Smith, I.M.S.

Temporary Lieut.-Colonel James W. Barrett, C.M.G.

K.C.M.G.

Temporary Major-General Sir Berkeley G. Moynihan, C.B.
Surgeon-General Menus W. O'Keeffe, C.B.
Colonels: William H. Horrocks, C.B. (ret. pay), Sir William B. Leishman, C.B., F.R.S., K.H.P.
Temporary Colonel Sir Ronald Ross, K.C.B., F.R.S. (ret. pay), I.M.S.).

C.M.G.

Fleet Surgeon (acting Deputy Surgeon-General) Percy W. Bassett-Smith, R.N., C.B.

Fleet Surgeons: Frederick J. A. Dalton, R.N., Edward Sutton, R.N., David Walker Hewitt, R.N., and William W. Keir, R.N.

Colonels: George E. Armstrong, C.A.M.C., Robert W. Clements, D.S.O., John M. Elder, C.A.M.C., Wilfred E. Hudleston, D.S.O., Robert B. Huxtable, D.S.O., V.D., A.A.M.C., Daniel O'Sullivan, and Arthur E. Snell, D.S.O., C.A.M.C.

Temporary Colonels: Owen W. Richards, D.S.O., and Arthur S. Woodward.

Lieut.-Colonels (temporary Colonels): Edmund M. Morphew, D.S.O., Harold Collinson, D.S.O., James S. Gallie, D.S.O., John A. Hartigan, D.S.O., Albert G. Thompson, D.S.O.

Lieut.-Colonels: William R. Blackwell, Thomas A. Granger, I.M.S., Albert E. Hamerton, D.S.O., Francis S. Irvine, D.S.O., Cyril H. Tewsley, N.Z.M.C.

Honorary Lieut.-Colonel George W. Badgerow, C.A.M.C.

Major and Brevet Lieut.-Colonel Eugene Ryan, D.S.O.

Major (and temporary Colonel) Henry McI. W. Gray, C.B.

Majors (temporary Lieut.-Colonels): William L. Steele and Edmund T. Potts, D.S.O.

Major (acting Lieut.-Colonel) George H. L. Hammerton, D.S.O.

Majors: Cluny Macpherson, M.D. (Royal Newfoundland Regiment), and Maurice Sinclair.

Temporary and honorary Major Charles G. Jarvis.

Captain (temporary honorary Lieut.-Colonel) Donald J. Armour.

Henry Lindo Ferguson, M.D., Professor of Ophthalmology, University of Otago, New Zealand.

K.C.I.E.

Lieut.-Colonel Walter James Buchanan, C.I.E., I.M.S., Inspector-General of Prisons, Bengal.

C.I.E.

Colonel Patrick Hehr, C.B., C.M.G., I.M.S.
Lieut.-Colonels Ernest Alan R. Newman, I.M.S., and Herbert A. Smith, I.M.S.

Major and Brevet Lieut.-Colonel Frederick A. F. Barnardo, I.M.S.

Major Davis Heron, I.M.S.

John Robertson Henderson, M.B., F.L.S.

G.C.V.O.

Lieut.-General Sir Alfred Keogh, G.C.B., C.H.

K.C.V.O.

Sir Alan Reeve Manby, M.V.O.
Lieut.-Colonel Sir Edward Scott Worthington, C.M.G., M.V.O.

M.V.O.

Charles Percival White, M.B.

Knighthood.

A. W. Mayo-Robson, C.B., C.V.O., F.R.C.S.
Harry Baldwin, M.R.C.S., Dental Surgeon to the King.
Nilratna Sarkar, M.D., Calcutta.

Bar to D.S.O.

*Captain (temporary Lieut.-Colonel) Arthur T. Pitts, D.S.O.

D.S.O.

Lieut.-Colonels (temporary Colonels): Frederick A. Maguire, A.A.M.C., Arthur E. Shepherd, A.A.M.C.

Lieut.-Colonels: George J. Boyce, C.A.M.C., Edward T. Brennan, M.C., A.A.M.C., William C. Croly, Arthur L. Dawson, A.A.M.C., Anson S. Donaldson, C.A.M.C., William E. Foggie, Archibald L. C. Gilday, C.A.M.C., John N. Gunn, C.A.M.C., Joseph Hayes, C.A.M.C., Daniel F. Kappel, C.A.M.C., William E. Kay, A.A.M.C., Montagu M. Lowsley, John Powell, Balcombe Quick, A.A.M.C., Hugh W. Thomson, and John R. Whait.

Major (temporary Colonel) Creighton H. Lindsay, C.M.G.

Majors (temporary Lieut.-Colonels) Richard C. Hallowez, Ernest C. Hodgson, I.M.S.

Majors (acting Lieut.-Colonels): Frederick J. Garland, John W. Leitch, Rowland P. Lewis.

Majors: Thomas A. Barron, Francis L. Bignell, A.A.M.C., Arthur R. Clayton, A.A.M.C., Albert T. Dunnlop, A.A.M.C., Thomas C. C. Evans, A.A.M.C., George H. R. Gibson, C.A.M.C., Charles E. Hercus, N.Z.M.C., Theodore A. Lomer, C.A.M.C., Donald S. Mackenzie, A.A.M.C., Ernest A. C. Matthews, I.M.S., Major Walter J. Stack, A.A.M.C., Alan C. Turner, Wilfred Vickers, A.A.M.C., Douglas P. Watson, and Ralph K. White.

Surgeon-Major Arthur W. Shea (Notts and Derby Regiment).
Temporary Major Harold W. Wiltshire.

Captains and Brevet Majors (acting Lieut.-Colonels) Claude H. S. Frankau and Benjamin Johnson.

Captains (temporary Lieut.-Colonels) Francis W. M. Cunningham and Hector G. G. Mackenzie.

Captains (acting Lieut.-Colonels): William Blackwood, Herbert W. Carson, Colin Clarke, Robert Hemphill, Thomas B. Layton, Arthur N. R. McNeill, Sinclair Miller, M.C., Ernest W. Wade, Alfred J. Williamson.

Captain (temporary Major, acting Lieut.-Colonel) Thomas A. Green.

Captains: Ernest M. Cowell, Ambrose L. Lockwood, M.C., Mervyn J. Holmes, A.A.M.C., Wilfred J. Pearson, M.C., O. Teichmann, M.C.

Temporary Captains (acting Lieutenant-Colonels): Ralph E. Drake-Brockman and Albert Jones, M.C.

Temporary Captains: James A. Conway, M.C., Samuel S. Greaves, M.C., and Wilfred J. Pearson, M.C.

Temporary honorary Captain Humphrey Nockolds.

Bar to the Military Cross.

Captain (acting Major) Hugh H. Robinson, M.C.

Captains: *Thomas S. Elliot, M.C., Arthur E. Ironside, M.C., *Hamilton S. Moore, M.C., and *John Rowe, M.C.

*Temporary Captain George W. B. James, M.C.

Military Cross.

Captain (acting Major) William T. Ewing, C.A.M.C.

Captains: Robert P. Anderson, William D. Anderton (S.R.), Richard P. Ballard (S.R.), Roy D. Bartram, A.A.M.C., Philip B. Benham, N.Z.M.C., Douglas W. Berry, Alexander C. Bryson, Frederick C. Chandler, Eugene H. Coyne, David Dempster (S.R.), James Derham-Reid, George S. Elliston, Charles N. Gover (S.R.), Nicholas H. H. Haskins, Sidney M. Hattersley, Humphrey F. Humphreys, David W. John (S.R.), Griffiths L. Jones (S.R.), Ivan B. Jose, A.A.M.C., Gerald P. Kidd (S.R.), William A. Lethem (S.R.), Donald C. Macdonald (S.R.), William G. Mackenzie, William F. McLean (S.R.), Henry P. Malcolm, Norman R. Mathews, A.A.M.C., Francis R. H. Mollan (S.R.), Cyril E. Petley, George L. K. Pringle, Albert Ramsbottom, Douglas G. Rice-Oxley, Frank H. Robbins, Cedric M. Samson, A.A.M.C., Clement P. Sells, Frank Scroggie, John A. Shauasy, A.A.M.C., John J. McI. Shaw, Robert G. Shaw, Edward S. Simpson, George H. Stevenson (S.R.), Ludwig S. B. Tasker, Francis G. Thatcher, William McN. Walker (S.R.), and Valentine H. Wardle.

Temporary Captains: Wilfred H. Alderton, Francis J. Allen, Robert H. Alexander, Lawrence W. Bain, Geoffrey T. Baker, Stanley Batchelor, William D. Bathgate, William Brownlie, Charles W. G. Bryan, Bloomfield G. H. Connolly, Henry H. Davis, John W. Dew, Leslie W. Evans, Keith D. Falconer, Richard D. Fitzgerald, Ilope M. Gillespie, William E. Hallinan, Randal M. Handfield-Jones, Claude C. Harrison, J. Berry Haycraft, Godfrey J. D. Hindley, Austin H. Hnycke, Joseph G. Johnston, David A. D. Kennedy, Francis J. Lidderdale, Eric A. Lumley, William J. Macdonald, John B. McFarland, Donald MacLutye, Unsack O'Malley, Herbert M. Pentreath, Michael P. Power, Ralph S. Renton, John W. Riddoch, Robert S. Ross, William J. Rutherford, John H. Thornley, James A. Tobin, John Watson, Alexander U. Webster.

Lieutenant (temporary Captain) Desmond W. Beamish.

Quartermaster and honorary Captain Charles F. Fraser.

* The announcements of awards of the D.S.O. and Military Cross in these cases have not yet been published in the *London Gazette*, but will appear in due course.

Quartermaster and honorary Lieutenant George Sellex.
Temporary Quartermaster and honorary Lieutenant George S. Annett.

To be Brevet Colonel.

Lieut.-Colonels (temporary Colonels): W. H. S. Nickerson, V.C., C.M.G., and G. J. A. Ormsby, D.S.O.
Surgeon Lieut.-Colonel E. N. Sheldrake (ret. pay, late Grenadier Guards).
Lieut.-Colonels: F. J. Brakenridge, C.M.G., A. L. A. Webb, C.M.G., and Sir E. S. Worthington, C.M.G., M.V.O.
Temporary Lieut.-Colonel W. L'E. Eames, C.B. (Lieut.-Colonel A.A.M.C.).

To be Brevet Lieut.-Colonel.

Majors (temporary Lieut.-Colonels): E. B. Bird, D.S.O., and O. W. Holden, D.S.O.
Majors (acting Lieut.-Colonels): C. G. Browne, D.S.O., P. Davidson, C.M.G., D.S.O., C. H. Turner, D.S.O.
Majors: H. V. Bagshawe, D.S.O., F. G. Faichnie (ret. pay R. of O.), and C. A. Gill, I.M.S.
Captains and Brevet Majors: H. M. Rigby, K.C.V.O. (temporary Lieut.-Colonel, R.A.M.C.), Sir H. J. Stiles (temporary Lieut.-Colonel, R.A.M.C.).

To be Brevet Major.

Captain (acting Major) A. G. R. Foulerton.
Captains: H. H. Blake, L. G. Bourdillon, D.S.O., M.C., C. C. Frye, J. Gilmour, M.C., and W. J. F. Mayne.
Temporary Captain A. E. Boycott.

To be Honorary Lieut.-Colonel.

Quartermasters and honorary Majors: H. Copping (ret. pay) and A. Wilson (ret. pay).

To be Honorary Major.

Quartermaster and honorary Captain J. W. Osborne.

I.S.O.

William J. Henderson Sinclair, M.B., Medical Officer Barlinnie Prison.
Senior Assistant Surgeon and honorary Major Michael Courtney, I.S.M.D., Superintendent, Central Jail, Montgomery, Punjab.

MENTIONED IN DISPATCHES.

The following officers of the medical services are included in General Sir Herbert Plumer's dispatch dated April 18th, 1918, containing a list of officers and others whose distinguished and gallant services and devotion to duty he considers worthy of special mention.

ARMY MEDICAL SERVICE.

Staff.

Major-General F. R. Newland, C.B., C.M.G.
Colonels: R. J. Blackham, C.M.G., C.I.E., D.S.O., S. L. Cummins, C.M.G., J. V. Forrest, C.M.G., L. N. Lloyd, C.M.G., D.S.O., T. du B. Whaite, C.M.G.
Lieut.-Colonel (temporary Colonel) R. Pickard, C.M.G.
Lieut. Colonel C. H. Furnivall.
Captain T. D. Inch, M.C.
Temporary Captain W. J. Pearson, M.C.

Royal Army Medical Corps.

Lieut.-Colonels W. C. Croly, J. W. West.
Captain (temporary Lieut.-Colonel) T. H. Scott, M.C.
Captain (acting Lieut.-Colonel) A. Irvine-Portescue.
Captains: D. G. Duff (S.R.), H. W. Malthy (S.R.), T. S. Nelson (S.R.).
Temporary Captains: W. E. Bullock, P. J. Chissell, S. J. Drake, M.C., J. L. Davies, J. S. Doyle, W. Duffy, D. G. Gardiner, T. L. Llewellyn, T. Stordy, T. Thompson, H. Upcott, R. R. Watts.
Lieutenant (temporary Captain) T. J. Kelly, M.C.
Temporary Lieutenant T. B. Johnston.
Temporary Quartermasters and honorary Lieutenants: E. G. I. Brice, C. Elliot, T. H. Griggs.

Royal Army Medical Corps (T.F.).

Major (acting Lieut.-Colonel) G. H. L. Hammerton, D.S.O., M.C.
Captain (acting Lieut.-Colonel) T. A. Green, D.S.O.
Captain (acting Major) W. Bowater, M.C.
Captains: L. Ball, G. C. Soutter, B. M. Young.
Quartermaster and honorary Captain S. O. Wright.

Indian Medical Service.

Lieut.-Colonel J. C. Robertson, C.M.G., C.I.E.

The King has awarded the Military Medal to the following five members of the nursing profession for distinguished services during a recent hostile bombing raid on a casualty clearing station: Sister-in-charge Kate Maxey, T.F.N.S., Sister Dorothy P. Foster, R.R.C., T.F.N.S., Acting Sisters Mary A. Brown, P.A.L.M.N.S.(R.), Marie D. Lutwick, Q.A.I.M.N.S.(R.) (Canada), and Miss Lillian A. Forse, V.A.D.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

STAFF SURGEON C. R. M. BAKER, R.N.

Staff Surgeon Cecil Robert Morshead Baker, R.N. died suddenly at H.M. training establishment, Shotley, on May 26th, aged 37. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1906, entered the navy as surgeon on May 14th, 1907, and became staff surgeon in 1915.

ARMY.

Killed in Action.

MAJOR E. J. ELLIOT, R.A.M.C.

Major Edward John Elliot, R.A.M.C., was killed on May 23rd, aged 37. He came of an old Border family, and was the sixth owner in direct succession of the estate of Binks, Roxburgh County. He was born on May 5th, 1881, and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1904, afterwards acting as house-surgeon of the Radcliffe Infirmary, Oxford. He entered the R.A.M.C. as lieutenant on July 30th, 1906, gained the Parkes Memorial medal in hygiene while at the R.A.M.C. College, became captain on January 30th, 1910, and had recently been promoted to major. He went to France in August, 1914, and was mentioned in dispatches in January, 1916.

Captain D. E. Howes, Canadian A.M.C.

Died of Wounds.

CAPTAIN I. C. MACLEAN, D.S.O., M.C., R.A.M.C.

Captain Ivan Clarkson Maclean, D.S.O., M.C., R.A.M.C., died of wounds as a prisoner in a German hospital on April 4th, having previously been reported as missing on March 24th. He was the son of the late Major-General H. J. Maclean, Rifle Brigade, and was educated at Haileybury and at St. Thomas's Hospital. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1905, and graduated M.B. and B.S.Lond. in the same year, and M.D. in 1909. He subsequently filled the posts of assistant in the x-ray and in the children's surgical department at St. Thomas's, of house-physician to the Brompton Consumption Hospital, and of anaesthetist to the Royal Ear Hospital, St. John. He then went into practice at Knightsbridge, holding the appointments of anaesthetist to the Golden Square Hospital, and of honorary medical officer to the Actors' Association. He took a temporary commission as lieutenant in the R.A.M.C. on August 19th, 1914, and was promoted to captain after a year's service. Most of his service was spent in France with his father's old corps, the Rifle Brigade. He received the Military Cross on June 23rd, 1915, for Neuve Chapelle; a bar for the battle of the Somme on December 21st, 1916; and the D.S.O. on September 26th, 1917, for the third battle of Ypres, where he was severely wounded; he went to the front again last January. His younger brother, Lieutenant A. C. Maclean, R.E., was killed on April 9th.

LIEUTENANT W. E. BROWN, R.A.M.C.

Lieutenant W. E. Brown, R.A.M.C., was reported as having died of wounds, in the casualty list published on May 29th. He was attached to the Duke of Wellington's, the West Riding Regiment.

Died on Service.

LIEUT.-COLONEL F. W. THOMSON, I.M.S.

Lieut.-Colonel Francis Wyville Thomson, Bengal Medical Service (retired), died suddenly at Bouside, Linlithgow, on May 27th, aged 58. He was born on February 7th, 1860, the only son of the late Sir Charles Wyville Thomson, of *Challenger* fame, professor of natural history in Edinburgh University, and was educated at that university, where he graduated M.A. in 1880, and M.B. and C.M. in 1886, also taking the D.P.H. of the R.C.S.Ed. in 1892, and the Liverpool diploma in tropical medicine in 1905. Entering the I.M.S. as surgeon on September 30th, 1886, he became major on September 30th, 1898, and lieutenant-colonel on September 30th, 1906, retiring on March 14th, 1908. He served on the North-

West frontier of India in the Waziristan campaigns of 1894-95 and of 1901-02, receiving a medal and clasp for each, and in the third China war of 1900, when he took part in the relief of Peking (medal with clasp). During the present war he had served as senior medical officer of the T. & Y. defences. Most of his service in India was spent in military employment.

MAJOR A. WESTLAKE, R.A.M.C.(T.F.)

Major Algernon Westlake, R.A.M.C.(T.F.), died at Grimsby on May 25th, aged 59. He was educated at the universities of Edinburgh, where he graduated M.B. and C.M. in 1884, and Manchester, after which he filled the posts successively of house-surgeon of Hertford General Infirmary, resident medical officer of the District Hospital, Great Grimsby, and medical superintendent of the Grimsby Corporation Small-pox Hospital. He then went into practice at Grimsby, also holding the appointments of honorary surgeon to the Grimsby and District Hospital and to the Grimsby Church Schools, honorary physician to the Grimsby Nursing Institute, medical officer to the borough police and to the Grimsby Workhouse, and public vaccinator to No. 2 District of Grimsby Union. He had been Vice-President of the East Yorks and North Lincoln Branch of the British Medical Association. He held a commission, dated October 14th, 1908, as Major R.A.M.C.(T.F.) in the 4th Northern (Lincoln) General Hospital.

CAPTAIN L. H. Y. STEPHEN, R.A.M.C.

Captain Lionel Henry Yorke Stephen, formerly of Lutterworth, Cambridgeshire, and Folkestone, Kent, died of acute tuberculosis at Bournemouth on May 22nd, 1918. The sixth son of the late James Stephen, Judge of No. 17 County Court Circuit and writer of *Stephen's Commentaries*, he entered Guy's at a later age than the average student, and became M.R.C.S. L.R.C.P. in 1897. After filling resident appointments at two institutions, he went as a civil surgeon to South Africa on the outbreak of the Boer war and served there until invalided in 1901 after a severe attack of typhoid fever. On the outbreak of the present war he was, in view of his previous experience, reaccepted for service despite his being much over the age limit of the time, and went out with the first expeditionary force. Eventually pleuritic effusion caused him to be relegated to home service, and the remainder of his life until three months ago was spent as registrar at the Military Hospital, Dover. Of notably open-handed disposition and popular with all sorts and conditions of men, he died at the age of 49 and is survived by a wife and two children.

Wounded.

Lieut.-Colonel K. D. Murchison, D.S.O., R.A.M.C. (S.R.).
Major G. D'R. Carr, M.C., R.A.M.C. (temporary).
Major A. R. Clayton, Australian A.M.C.
Major E. B. Hogan, Canadian A.M.C.
Major H. E. Macdermot, Canadian A.M.C.
Major O. R. Mcrillees, Australian A.M.C.
Captain R. B. Anderson, Canadian A.M.C.
Captain J. H. Bensted, R.A.M.C. (temporary).
Captain J. N. Cruckshank, R.A.M.C. (temporary).
Captain C. A. Davies, Canadian A.M.C.
Captain M. Ffoulkes, R.A.M.C. (temporary).
Captain E. M. Gordon-Glassford, M.C., Australian A.M.C.
Captain W. B. Jack, R.A.M.C. (temporary).
Captain G. B. McGregor, M.C., R.A.M.C. (temporary).
Captain W. F. McIsaac, Canadian A.M.C.
Captain H. K. Mitchell, Canadian A.M.C.
Captain A. J. Neilan, R.A.M.C. (temporary).
Captain H. C. Pearson, Canadian A.M.C.
Captain R. K. Rae, Australian A.M.C.
Captain J. H. Walmsley, Canadian A.M.C.
Captain and Quartermaster R. J. Fleming, R.A.M.C.
Captain J. H. Duff, Canadian Army Dental Corps.

Wounded and Missing.

Captain P. M. McLachlan, M.C., R.A.M.C. (temporary).

Prisoners of War.

Captain F. Dallimore, M.C., R.A.M.C. (temporary).
Captain F. C. Nichols, R.A.M.C. (T.F.).
Captain D. A. Wilson, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Deane, Gordon Alexander, Captain Royal Irish Fusiliers, eldest son of Dr. Charles C. Deane, of Longhall, co. Armagh, died of wounds on April 11th, aged 23. He got his commission on March 17th, 1915, and went to the front in February, 1917.

Fry, Edwin Harries Sargood, Major R.G.A., son of Dr. E. S. Fry, Secretary of the Edinburgh Medical Missionary Society, died of wounds in a casualty clearing station on May 15th, aged 23. He was educated at Watson's College, Edinburgh, and became an engineer. When the war began he was a member of the Forth Defence Company of the Royal Engineers (T.F.). He got a commission in November, 1915, went to the front in January, 1917, and had previously been wounded. Two of his brothers are serving, one in the I.M.S. and one in the Royal Air Force.

James, C. K., Lieut.-Colonel Border Regiment, attached West Yorkshire Regiment, only surviving son of Dr. C. A. James, of Upper Clapton, killed on May 19th, aged 26. He was educated at Cheltenham College, and at Caius College, Cambridge, where he held a scholarship and graduated as B.A. In February, 1914, he went to Shanghai. When war began he returned at once, and got a commission in the Border Regiment. He became lieutenant in March, 1915, went to Gallipoli, and was wounded at Anafarta. He became captain in August, 1915, went to France in July, 1916, and received the D.S.O. after the battle of the Somme. In January, 1917, he was promoted to major (temporary); in March, 1917, temporary lieutenant-colonel, commanding a battalion of the West Yorks; he received a bar to the D.S.O. for Cambrai, had been six times mentioned in dispatches, and last March commanded a brigade.

We are informed that Captain M. T. Ascough, M.C., R.A.M.C. (T.F.), who was reported missing in our issue of April 13th, is a prisoner of war and unwounded.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

Correspondence.

TUBERCULOSIS OFFICERS AND THEIR WORK.

SIR,—In the BRITISH MEDICAL JOURNAL of May 25th, in an article under this heading, some suggestions are made to which a large number of practitioners will take grave exception. One wonders whether it be quite politic to draw comparisons between the state medical officer and the private practitioner, and why the former is considered more competent to recognize tuberculosis in its earlier stages than the latter; but there are other and more important considerations to which I wish to draw attention.

The explanation put forward for the delay in notification—namely, that it is due to the mistaken idea that a positive diagnosis is not justified until bacilli appear in the sputum—may often be given, but I suggest that a more honest explanation is a desire of the practitioner to refrain from the objectionable task of notification so long as he can cling to the hope that the disease is curable. This explanation may be surprising, but analyse the reasons a little further and it will surprise few.

"The gradual weeding out of the dangerous elements" is no new method of attempting to eradicate disease from a community. It is not a twentieth century innovation, and is not even confined to the human species. There are three quotations which might be well placed together. The first is from the Levitical law on leprosy, "All the days wherein the plague shall be in him he shall be defiled; he is unclean; he shall live alone; without the camp shall his habitation be." The second is from your leading article: "But in the case of tuberculosis, the interests of the individual must give place to those of the community in which he lives, and his medical adviser, whether he be acting in a private or in a panel capacity, should refuse to aid in the suppression of the truth." The third is from the Hippocratic oath: "Whether in connexion with my professional practice or not in connexion with it I shall see or hear in the life of men which should not be spoken of abroad I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art respected by all men in all time."

Might I suggest that the attitude of the community towards disease through all ages, which finds expression in the first two quotations, made the Hippocratic oath a necessity for the practice of the art? Would Hippocrates have consented to the notification of leprosy? Will it prove ultimately in the interests of the community to lightly cast aside the experience of many great medical thinkers of the past, and abolish secrecy in dealing with those suffering from disease which may be dangerous to the community in which they live?

I will instance what it may do. A young man called at the surgery; the medical man informed a sister that he was afraid her brother was suffering from consumption, and that it might be advisable to send him to the tuberculosis dispensary. The medical man did not see the patient again until he was far advanced in consumption. The young man admitted that he had not worked for six months. He had not claimed insurance benefit because he was afraid he would be notified as suffering from consumption. *The violation of the oath prevents the practice of the art.*

Is the profession satisfied that when their patients get to know that if they suffer from "anaemia, indigestion, wasting, and general debility," they may be in reality suffering from consumption and that they must go to the tuberculosis dispensary to be "weeded out"; will they seek the advice of the profession, or may they not nurse their illnesses in secret or seek the advice of the charlatan or quack? It may be dangerous to admit, but the confession will find an echo in the heart of many other practitioners. I have had cases where every indication was that the patient was suffering from pulmonary tuberculosis, where the patient and the mother have pleaded that if there was any doubt notification should not be made; and remembering the tragic exclamation of a young lady who had once been engaged to be married, "Who will marry a girl that has been in a sanatorium?" I have waited and the patients are now without a single symptom to indicate the previous mischief. Perhaps the diagnosis was wrong.

It can be admitted that many are indifferent to visiting a tuberculosis dispensary, as we find many who are willing to sit in a public and much advertised venereal clinic; but, as a rule, they are drawn from a type which we would not like to become characteristic of the nation. A member of an Insurance Committee admitted to me that he would seek other medical advice before he would go to a dispensary, and he had been advocating closer co-operation between the tuberculosis officer and the practitioner!

Tuberculosis officers appear to be very eager to give advice to the general practitioner; may one of the latter return the compliment by pointing out to them that the eradication of cause is even more important than the recognition of early symptom—the back-to-back houses, the overcrowding, the long working hours, the malnutrition, only to mention a few to which they could devote their energies?

Other reasons and other proofs must be forthcoming before I will be eager to hand over the sick wolf to the tender mercies of the pack.—I am, etc.,

May 27th.

A PRACTITIONER.

THE MEDICAL PROFESSION AND THE MILITARY SERVICE ACT.

THE following letter has been addressed by the Council of the Edinburgh Branch of the British Medical Association, and copies have been sent to the Prime Minister, the Minister of National Service, some other members of the Government, the members of Parliament of the area of the Edinburgh Branch, and to various others:

Sir,

The Council of the Edinburgh Branch of the British Medical Association desire to call attention to certain matters in connexion with the Military Service (No. 2) Act, 1918.

They wish to do all in their power to assist the Ministry of National Service in its endeavour to make the best use of the medical profession in the present war emergency, in the interests both of H.M. forces and of the civil population. With this object they feel it their duty to approach you on this matter because, except through the Committee

of Reference, the Central Medical War Committee, and the Scottish Medical Service Emergency Committee, no one of which can claim to be representative, the medical profession has had no opportunity of expressing its views to the Government.

The Council are proud of the fact that the members of the medical profession have been conspicuous for the readiness with which they have voluntarily offered service in the interests of the nation throughout the war, and are convinced that this readiness will continue. All the more on that account, they are strenuously opposed to compulsory powers being exercised for the provision of medical attendance on the civil population. From their intimate knowledge of general practice they are convinced that serious difficulties would arise in giving effect to any such compulsory reorganization. They are, however, cordially in favour of any voluntary arrangements which it may be found possible to make for this purpose. Such arrangements should in every case be made with the sanction of the Local Medical War Committees.

They strongly disapprove of any possible intention of the authorities to exercise their powers in such a manner as to compel a medical man without giving him the option of accepting a commission in H.M. forces to make the choice between ordinary military service and the undertaking of some new work in civil practice to which he may have serious and valid objections. They hold that, as in the past, no medical man should be conscripted into the ranks unless he has declined to accept a commission as a medical officer in H.M. forces.

They are convinced that there are many medical men in civil practice, not only within the new age limit, but considerably beyond it, who would be fit and willing to act as military medical officers at home or in base hospitals abroad were they given the opportunity; but who would almost inevitably break down under the strain of increased civil medical work.

They venture to make a strong appeal for the consideration of some such alternative to the more cumbersome method of civil substitution which seems to be in contemplation. It would, it appears to them, not only be an advantage to the army by giving a wider choice of experienced men for the less onerous but highly responsible posts in the R.A.M.C., but would benefit the general population by leaving at home some of the younger men who are best fitted to bear the unusually heavy strain of civil practice.

Before, however, any further extensive call is made on the much-thinned ranks of those engaged in civil practice, the Council would like to feel sure that the War Office are using the medical officers they already have to the best possible advantage. Many reliable reports have been received showing that there are officers in the R.A.M.C., both in this country and abroad, who are not fully occupied. There are few men now remaining in civil practice of whom the same can be said.

They are strongly impressed by the severe strain imposed on the general practitioners in the winter months during the war, and in view of the further call being made for medical officers they suggest that temporary employment in the R.A.M.C. should be offered for short periods, to enable general practitioners to take their share in the heavy work abroad during the summer and to return to their practices during the winter, when their services are in less demand at the front and more urgently required at home.

Yours faithfully,

WM. BLAIR,
President.

JOHN STEVENS,
Honorary Secretary.

British Medical Association,
(Edinburgh Branch Council),
78, Polwarth Terrace, Edinburgh,
June 3rd, 1918.

ADAPTATION AND DISEASE.

SIR,—I cannot expect the main body of your readers to be familiar with my writings, and thus Professor J. T. Cunningham's letter (p. 632) necessitates a reply. In that letter I am charged with having "the audacity to claim priority with respect to the publication of a hormone theory of heredity, and to place" his "name in a footnote together with those of Heape, Bourne, MacBride, and Dendy." What are the facts? The relevant part of my footnote runs as follows:

I do not think that I can be accused of unduly advertising my wares, or of too keen a desire to claim priority, when I have allowed sixteen years to elapse before calling the attention of biologists in general to my address of 1901 (here republished in

Part II). The conclusions then reached by me regarding metabolites and, as we subsequently became accustomed to term them, hormones, and their influence upon the germ cells, have since then been enunciated by several prominent biologists, by Heape, Bourne, Cunningham, MacBride, and Dendy, although in each case without note of my earlier contribution, which, it should be noted, appeared in a leading organ of the medical profession under a title which had no uncertain sound.¹

What I stated in 1901 was, after pointing out that agents introduced into the body from without could influence the germ cells:

Exogenous and bacterial intoxications are not the only intoxications. We recognize yearly more and more the existence of states of truly endogenous intoxication, auto-intoxication, of disturbed states of constitution due to disturbances in glandular activity, or to excess of certain internal secretions, or of the substances ordinarily neutralized by the same. Such disturbances acting on the germ cells would be truly somatogenic.

I then instanced the case of gout and the gouty diathesis, at times originating *de novo*, more often "inherited," and I continued:

Defect in bodily metabolism has led to intoxication of the germ cells, and the offspring show a peculiar liability to be the subjects of intoxications of the same order. Here what is transmitted is a constitutional state, and that constitutional state may manifest itself in more than one way, but no one will deny that this is truly inheritance of an acquired condition.

Now it is true that in 1901 Professor Cunningham's distinguished colleague at University College had not invented the term "hormone." Professor Starling brought this into the world in the course of his Croonian lectures for 1905. He introduced it in order to afford a generic term for what may rightly be termed the active principles of the internal secretions, for bodies which have a direct chemical action upon sundry tissues in contradistinction to the enzymes which have a mediate action. Granting this, it is the thing, not the name given to it, that counts. It is quite possible that some one anticipated me in the suggestion that modifications of the internal secretions may permanently influence the germ cells. Unconsciously we absorb the opinions of others. Yet all these years I have not succeeded in discovering that any one was before me in arriving at this conclusion. It will be observed that I did not claim, as Professor Cunningham implies elsewhere in his letter, the enunciation of a complete harmonic theory. Rather, I regard a purely harmonic theory as incomplete, adhering to my original presentation and holding that metabolites of more than one order—enzymes, for example, as well as hormones—are to be held effective. No physiologist can accept a hormone theory pure and simple. But the greater includes the less, just as 1901 preceded 1908.

Briefly, therefore, Professor Cunningham's "charge" is, on the first count, that I have the audacity to claim that there were students of nature before Aristotle; and, on the second, that I have the audacity to mention Galen and other naturalists in the same breath with the Stagirite.

Had Professor Cunningham moved in circles outside the biological—for instance, among artists—he would have found that it is quite a commonplace to draw the distinction between the academic upholders of tradition, and those who are impatient of the trammels of the schools. This charge of audacity takes us back in a curious manner to the academic atmosphere of the late Middle Ages, and to those who resisted the Renaissance.—I am, etc.,

London, W., June 3rd.

J. G. ADAMI.

CARE OF THE TUBERCULOUS SOLDIER.

SIR,—Major Horton-Smith Hartley in his valuable paper (p. 609) emphasizes the need of men retaining their previous occupations in better health conditions than is possible in crowded cities. The possibilities of this, however, are at present limited, but they need not be in the future, if men with the influence that he has will join in urging a bold progressive housing policy such as is proposed by the National Garden Cities Committee, of 19, Buckingham Street, Strand, W.C.2. Half a million houses will have to be built in the future, and we must demand that they be built under the best possible conditions. I am not inviting him to send these men to Letchworth, for we already have our share, but we need a multiplication of garden cities.—I am, etc.,

NORMAN MACFADYEN, M.D., D.P.H.

Letchworth, June 2nd.

¹ "Theories of Inheritance, with special reference to the inheritance of acquired conditions in man."—BRITISH MEDICAL JOURNAL, vol. i, 1901.

Universities and Colleges.

UNIVERSITY OF OXFORD.

At a congregation held on May 25th the degree of M.B. was conferred on W. J. Hart.

UNIVERSITY OF LONDON.

The following candidates have been approved at the examinations indicated:

THIRD M.B. B.S.—W. A. Hewitson, *Emily Catherine Lewis, *J. G. Wardrop, Ruth Balfour, M. Baranov, G. Bourne, G. W. J. Bousfield, H. Carpenter, D. C. Clark, R. N. Cooper, R. M. Dannatt, W. Feldman, Marjorie E. Franklin, Eryl Glynn, H. E. Griffiths, Winifred E. Lepper, A. E. B. Paul, E. N. Ramsbottom, Violet I. Russell, G. K. Scales, Eleanor M. Sea borough, Elisabeth H. Schwab, A. Selby-Green, Charlotte A. Shields, Esie Stansfield, G. P. Staunton, T. J. Thomas, Naomi Tribe, R. N. Vakil, Phillis E. Webb, E. Wolff, H. W. S. Wright, Irene Yates, W. A. Young.

* Distinguished in Surgery.

† Distinguished in Forensic Medicine.

The following candidates have passed in one of the two groups of subjects:

Group I.—Mary N. Andrews, J. E. A. Boucaud, O. S. Martin, Irene G. Parsons, Lily D. Taylor, J. A. van Heerden. Group II.—G. E. Barker, O. D. Brownfield, G. F. Cooke, H. C. Cox, J. H. Dancy, Maud Gazdar, H. N. Hornbrook, P. Hughes, P. N. Menon, Gladys M. Miall-Smith, B. H. Pidcock.

UNIVERSITY OF ST. ANDREWS.

The following medical degrees were conferred at the graduation ceremony on June 1st:

M.B., Ch.B.—J. C. Coutts, J. Ferguson, Janet H. Hodge, J. C. McGregor, J. K. T. Mills, Jean M. Orkney, G. R. Ross, Margaret W. Shirlaw, G. R. Tudhope, Tharyan Verghese, M.D.—K. M'Leay, Captain R.A.M.C.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

On the invitation of the president and council, a representative number of surgeons in the United States Naval Service visited the college and museum on May 31st. The party was received by the president, Dr. R. McKenzie Johnston, and members of council. There were also present Major-General John Joshua Russell, A.M.S., D.D.M.S. Scottish Command, and representatives of the British navy at present on active service.

Medical News.

THE late Mr. William Hamerton Jalland, F.R.C.S., of York, left £65,225.

DR. G. ARBOUR STEPHENS has been elected chairman of the Glamorgan Poor Law Committee for the Feeble-minded which administers the Drymma Institution at Neath.

THE sixty-ninth annual meeting of the American Medical Association is to begin at Chicago on June 10th. It will be attended by several British representatives including Sir Arbutnot Lane and Sir James Mackenzie.

DR. W. NONNENBRUCH claims to have cured a severe case of botulism with serum supplied by the Koch Institute. Clinically the case was typical, and the improvement coincided exactly with the injections, three of which were given.

THE Freemasons' War Hospital No. 2, an extension of the original hospital in the Fulham Road, has now been installed in Fulham Palace, and was formally opened by its President, the Duke of Connaught, on May 31st. The accommodation provided is 100 beds. His Royal Highness commended this work of Freemasons for the wounded, and as Grand Master wished it every possible success.

OWING to the great shortage of nurses in Germany, much of the nursing and night watching has been done by other hospital employees. Cooks have nursed infectious cases, and one cook, who nursed a case of typhoid fever, passed the disease on to eleven persons through their food. The Minister of the Interior has, therefore, forbidden members of the kitchen staff of a hospital to take part in the nursing of infectious cases under any circumstances.

THE annual report of the Homes for Inebriates Association for 1917-18 contains in an abbreviated form the report by Dr. F. S. D. Hogg, resident medical superintendent of Dalrymple House, Rickmansworth. During 1917, 47 patients were admitted, 38 of whom were cases of alcoholism, and 9 were suffering from drug addiction. Nine patients joined the army immediately on leaving the home, and Dr. Hogg finds that most of those discharged who have entered one of the services have done well. More than 50 former patients are known to have joined the colours.

At its meeting in London on May 28th the President, Lieut.-Colonel D. G. Thomson, announced that the late

Dr. Maudsley had bequeathed £2,000 to the Medico-Psychological Association of Great Britain and Ireland. The disposal of the bequest will be considered by the Council at its next meeting. The annual meeting will be held in Edinburgh next month, when Colonel Keay, Medical Superintendent, Edinburgh District Asylum (Bangour Village), will succeed Lieut.-Colonel Thomson as President.

At the annual general meeting of the Society for Relief of Widows and Orphans of Medical Men on May 29th, when Sir A. Pearce Gould, president, was in the chair, it was reported that the invested funds amounted to £143,550 and the income from investments to £4,557 18s. 7d. Subscriptions and donations amounted to £317 2s., and the working expenses for the year were £267 10s. The sum of £4,292 10s. was distributed among the annuitants of the charity (48 widows and 7 orphans). Membership is open to any registered medical practitioner who at the time of his election is resident within twenty miles of Charing Cross. Relief is only granted to the widows and orphans of deceased members. At the present time the widow of a member who has an income of £100 per annum or under receives a grant of about £80 per annum, and each orphan up to the age of 16 receives £43 per annum. There are, however, two special funds which enable the directors to continue the grants to orphans after the age of 16. Further particulars of the society may be obtained on application to the secretary at the offices of the society, 11, Chandos Street, Cavendish Square, W.1.

The following provision has now been made by the Ministry of Food for the supply of extra rations to expectant and nursing mothers: Expectant mothers may receive, on application in due form to the Local Food Office, an extra ration during the last three months of pregnancy. This may consist either of two meat coupons per week or of one butter coupon per week. In districts where a milk priority scheme has been found necessary they may also obtain a priority permit for one pint of milk daily during the same period. Nursing mothers will not themselves receive any additional ration, but are entitled to use the rations obtainable for the infant, namely, the ordinary child's weekly ration of meat, butter or margarine, and sugar, and in districts in which priority schemes are in force, a priority certificate for one and a half pints of milk daily. To obtain the child's meat and food cards, application must be made to the Local Food Office on a special form.

Letters, Notes, and Answers.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Atitology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediseera, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

STERILIZATION OF CATGUT.

"OLD MEMBER."—There are many ways of sterilizing catgut. Lister's sulphochromic method is described in Caird and Catbarr's handbook. Boiling, or Jellott's method, is usually employed, under some modification, for the proprietary brands put up in sealed glass tubes. The ether and corrosive sublimate method requires the raw gut to be soaked in ether and 1 in 4,000 perchloride for a week each. The method of choice to-day, however, is the iodine method, which is at once simple and reliable. Commercial catgut is steeped in ether for twenty-four hours and then transferred to a 1 per cent. solution of iodine in potassium iodide for eight days. It may be kept in this solution indefinitely. Before use it should be placed in sterilized water for a few minutes.

LETTERS, NOTES, ETC.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

DISSATISFIED writes: Allow me to join in the protest against the withdrawal of bonus to those going out of benefit. I reach the age limit this summer, and have been expecting the usual payment at that time. That it should not be paid

is, I consider, a very great injustice to me and to those who have been paying their premiums for many years, and who are likewise approaching the end of their benefits, especially as the funds of the society are in a good sound state, and well able to bear the old bonus payment. I think that a special meeting of the society ought to be called to discuss and reconsider such an important decision, as I do not for a moment suppose it can have the support of the majority of its members.

A FATAL SELF-INFLICTED LESION.

PROFESSOR SANTI PUSATERI recently reported to the Royal Medical Academy of Palermo (*Il Policlinico: sezione pratica*, May 19th, 1918) a case which is of special interest owing to its extreme rarity. On May 8th, 1917, a soldier, in order to escape returning to the front, injected nitric acid into his right ear. This was followed by high fever, vomiting, giddiness, headache, and acute pain in the right mastoid region. Seventeen days afterwards facial paralysis supervened, and nearly three weeks later haemorrhage from the right ear and from the nose came on. On October 6th the tympanum was explored, and it was found that the ossicles had become disintegrated. A large amount of granulation tissue was removed and was quickly reproduced. On November 21st there was recurrence of venous haemorrhage, and the man died four days later (about 6 months after the injection of the acid). *Post-mortem* examination showed rupture of aneurysms of the carotid artery and jugular vein at a point corresponding to the lower and anterior walls of the tympanic cavity. The front surface of the petrous bone was eroded, and on the corresponding surface of the dura there was a thin layer of pus spreading towards the middle fossa of the brain and the cerebellum. The erosion of the vessels by the necrotic and suppurating process was the direct cause of death by haemorrhage, but even without this the purulent leptomeningitis would probably have proved fatal. The present war has shown that the ear is chosen in preference to other organs as the object of self-inflicted injury probably because the public, and even some doctors, think that such lesions are of comparatively little importance.

THE BILLING CASE.

THE hearing of the case against Mr. Billing, M.P., which ended in his acquittal, was conducted in such a manner as to bring to the notice of a very wide public an evil which is apparently an invariable accompaniment of civilization when it reaches the stage of luxury. As we had occasion to show some years ago, the practices of sexual perverses are defended with the utmost effrontery by a number of persons who pose as philosophers, and many of whom have undoubtedly possessed literary talents of a high order. This attitude towards an irrational vice is inexplicable to the healthy mind of man or woman, and must be classed among pathological states. The vice seems usually to be congenital—that at least we take to be the outcome of Krafft-Ebing's researches—but apparently it may be developed by example and precept in individuals of unstable sexual equilibrium who, without such stimulation, would never spontaneously have given evidence of perversion. It is probably for this reason that the majority of people consider that such lapses are best treated by police methods.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the fortnight ending June 1st:

	£	s.	d.		£	s.	d.
Dr. W. Maxwell Penny	2	0	0	Dr. Evan Jones	0	10	8
Dr. John A. Macdonald	1	1	0	Dr. Killen	1	1	0
Dr. J. J. Perkins	3	3	0	Dr. Edhir	1	1	0
The Viscount Iveagh, K.P.	25	0	0	Medical Insurance Agency			
(per Sir Rickman Godlee)				(per Dr. Haslip, chairman)	50	0	0
Dr. J. A. Macdonald (Taunton)	6	5	0	Sir Rickman Godlee	4	2	8
Sir Francis Champneys	5	0	0	Dr. A. Rowe (sale of micro-score)	1	5	0
Dr. C. Legg	0	10	6	Dr. Taylor	2	2	0
R. H. W.	20	0	0				

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

As average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

A Lecture

ON

SOME FEATURES OF GUNSHOT WOUNDS OF THE CHEST.

By J. F. DOBSON, M.S., F.R.C.S.,

LIEUT.-COLONEL R.A.M.C.(T.).

SURGEON TO THE LEEDS GENERAL INFIRMARY, ETC.

THE recognition of penetrating wounds of the chest is not always easy, and the most careful examination of the chest should be made in wounds of the upper arm, neck, shoulder, and lumbar regions. The following case is very instructive in this respect:

CASE I.—Wound in Deltoid Region (Arm raised): Penetrating Wound of Chest: Haemothorax: Aspiration: Recovery.

On July 31st, 1917, Pte. G. M. was sitting in a railway carriage when a shell fell close to the train, and he felt he had been hit in the arm. He was helped out of the train, walked with assistance about 100 yards, and then sat on a form for some time. He had a little pain in the chest, and could not take a deep breath. There was no haemoptysis. The wound in the arm appeared to be trivial, and a dressing was applied.

He was sent on to hospital about fifteen miles by road. On admission there a wound was found over the insertion of the right deltoid. The bone was not injured and there was no exit wound. He rapidly became very ill with dyspnoea, haemoptysis, cyanosis, etc. With stimulation, warmth, and oxygen he improved. Dullness was present at the right base, extending up to the angle of the scapula. It was evident that while the arm was abducted the missile had passed through the biceps muscle, missing the vessels and nerves, across the axilla, and into the chest. X-ray examination showed the foreign body in the lung about the level of the angle of the scapula, midway between the front and back of the chest. The diaphragm was elevated on the right side and there was a large haemothorax. This was aspirated and found to be sterile. He rapidly improved and was evacuated to England on August 31st, 1917.

The puzzling character of the single wound low down in the upper arm is emphasized by the subsequent history of this patient. Some time after his return to England the old wound in the arm was reopened in the expectation of finding a foreign body, and this despite the fact that the missile had already been localized in the lung.

A great change has recently taken place in the method of treating wounds of the chest. Briefly the principles of treatment now adopted are identical with those governing the treatment of gunshot wounds in other parts of the body. Wounds are excised, haemorrhage is controlled, fragments of fractured bone and large and accessible foreign bodies are removed from the lung and pleura, and large open wounds are closed. If reference is made to the most instructive article by Gask and Wilkinson¹ it will be seen that the indications for early operative treatment given there cover a considerable proportion of the cases. The only cases in which operation is not advised are those in which the wounds of the chest wall are small and clean, when there is no evidence of fractured ribs, and when the foreign body retained in the chest is small. In those cases treatment on general medical principles is adopted.

The results of this early operative treatment may be studied in the articles by Gask and Wilkinson, Anderson, Roberts and Craig, Lockwood and Nixon, and others which have recently appeared. They are a striking triumph for British surgery. But there are failures, and it is to those cases in which early operative treatment has not been adopted, or in which it has not been completely successful, that I wish to draw attention.

The chief cause of failure is sepsis. This is a most formidable occurrence after early operative treatment. Such cases are detrained on the lines of communication as unfit for further transport, and the mortality amongst these is high. The following case is an example:

CASE II.—Lacerated Wound of Lung: Immediate Closure: Sepsis: Gangrene of Lung: Death.

Pte. T. O'G. was wounded by a rifle bullet on October 4th, 1917, in the right side of the chest below the angle of the scapula. At a casualty clearing station the wound was excised, and fragments of fractured ribs and the rifle bullet removed. The lung was lacerated and there was a quantity of blood in the pleural cavity. The wound was completely closed without drainage.

On October 11th he was admitted to a general hospital off an ambulance train as "unfit for further transport." He was

extremely ill. Pulse 130; dyspnoea and cyanosis. The wound was very septic with much discharge. He was considered to be beyond further surgical aid, but improved a little under treatment, and on October 13th the wound was reopened. The parietal wound was sloughing and stinking. The lung was completely collapsed and the pleural cavity filled with foul discharge and sloughs of the parietal pleura. The lacerated portion of lung was gangrenous. A silver irrigation cannula was inserted through a separate puncture and the wound drained with a large tube. He survived until October 18th.

In this instance as soon as the wound was reopened it was converted into an open "flapping" wound. It could not be resutured around a tube owing to the sloughing muscles and pleura. All that could be done was to make provision for drainage and irrigation and to pack the wound firmly with gauze.

CASE III.—Closure of Wound: Septic Haemothorax and Purulent Bronchitis: Recovery.

Pte. J. W. G. was wounded on August 1st, 1917, by a rifle bullet in the left side of the chest. The wound was explored and fragments of broken rib removed with the foreign body. There was a considerable haemothorax. It was not noted whether the lung was injured. The wound was stitched up. He was admitted to a general hospital on August 8th, from an ambulance train as "unfit for further transport." He was collapsed and cyanosed and there was extensive dullness in the left chest. The wound was reopened in part and a drainage tube inserted, giving exit to a large quantity of stinking pus. He was very ill for some weeks, purulent bronchitis of the opposite lung being a serious complication. He eventually did well, and was evacuated to England on November 17th.

These cases emphasize the danger of evacuating a case in which the chest has been primarily closed until such time as the possibility of infection has passed.

SEPSIS AFTER IMMEDIATE CLOSURE.

In what proportion of cases treated by thoracotomy and immediate closure of the chest is secondary sepsis to be feared?

Gask and Wilkinson¹ give the following figures: Sixty-seven thoracotomies for various injuries with immediate closure of the chest, followed by empyema in 22 cases (32 per cent.) and death in 19 cases (28 per cent.). In 15 of these cases the operation was performed for infected haemothorax, and in 12 (80 per cent.) an empyema subsequently developed, with 5 deaths (33 per cent.).

Anderson² tabulates the results of 58 thoracotomies with immediate closure. Secondary drainage was necessary in 12 (20 per cent.), and there were 14 deaths (24 per cent.). What proportion of the cases of empyema died is not apparent.

Roberts and Craig³ give 25 thoracotomies and complete closure, with 10 deaths = 40 per cent.. The number of cases in which a secondary drainage was necessary is not given.

Lockwood and Nixon⁴ divide their cases into two groups, before and after August, 1917. The figures refer to the latter group only. Of 82 thoracic and abdomino-thoracic cases in which thoracotomy was performed with immediate closure there were 24 deaths (29 per cent.). It is difficult to decide from a study of the statistical tables published with the paper in what proportion of cases infection of the pleura contributed to the mortality. Apparently in 5 cases only did an empyema develop. Empyema occurred in 5 cases in which no primary operation was performed, with 1 death.

Duval,⁵ whose early work in the field of thoracic surgery has done so much to stimulate other surgeons, gives details of 29 thoracotomies with 8 deaths (27 per cent.), followed by empyema in 9 cases with 2 deaths.

In all these series of cases the late mortality and empyema rates do not appear to be included. This is impossible at the present time, and probably all the facts about these cases will not be available until long after the war. But it can safely be said that the mortality and morbidity among chest cases evacuated from the casualty clearing stations is still considerable, and almost entirely due to sepsis.

The best preventive of sepsis is early and thorough operative treatment with complete closure of the chest, but there will always be a number of cases received some time after the receipt of the wound, cases in which some degree of sepsis is inevitable. In some the infection is derived from the lung, and may not be prevented by primary operative treatment, however early and thorough.

Drainage.

Can these cases be saved by drainage? Colonel H. M. W. Gray,⁶ in contrasting the results of immediate closure and drainage, gives the following figures: 198 cases in which the pleural cavity was drained, with a 50 per cent. mortality; and 57 cases of complete closure, with 29.8 per cent. mortality. He states that the operation with complete closure is therefore 20 per cent. better than the operation with drainage. I do not think this conclusion can be accepted literally, as the late, the most seriously wounded, and the most heavily infected cases would be drained.

Still the results of drainage are undoubtedly bad. Many cases succumb to sepsis, despite a free and dependent opening. This is to be prevented by treating the infected pleura and lung as other infected wounds are treated—namely, by washing the whole of the infected area with an antiseptic fluid at regular intervals—the progressive sterilization of the wound—combined with efficient drainage. I shall describe later how this may be done.

INFECTED HAEMOTHORAX.

Let us now turn our attention to those cases in which a primary operation is not performed, where a haemothorax is present, and signs of infection develop. According to Bradford and Elliott,⁷ infection of a haemothorax occurs in about 25 per cent. of cases. Henry, who carried out the bacteriological investigations in this series, found that organisms such as the pneumococcus, *B. influenzae*, and *M. tetragenus* were present in about 20 per cent. of infected cases, and that in the remaining 80 per cent. streptococci, staphylococci, and anaerobes were found. Sir J. Rose Bradford⁸ says: "It would seem that infection of a haemothorax is much more frequently derived from the skin or clothing than directly from the lung." He divides the cases into early and late infections. In the one case the infection occurs in the first few days and is undoubtedly due to organisms carried in by the missile. In the late cases symptoms may be delayed to the second or third week. The usual symptoms are increasing dyspnoea, rise in pulse-rate, elevation of temperature, etc., and in the later stages, jaundice. For the physical signs reference may be made to Sir J. Rose Bradford's paper. The cases in which urgent symptoms most rapidly arise are those in which gas develops in the pleural cavity. Marked displacement of the heart sometimes occurs with great rapidity.

These late cases of infection of a haemothorax are extremely dangerous. The patient may be in transit to the base or even to England, and if that be so he is at a great disadvantage, as very early operative treatment is necessary.

For this reason these cases require most careful watching. When treatment is required it is required most urgently. The co-operation of the physician and the surgeon is very necessary. For one thing, the condition of the opposite lung is of the greatest importance. Purulent bronchitis, a contralateral haemothorax, or pneumonia may be present, or pericarditis. Gask and Wilkinson mention a case in which a plug of blood and mucus had been aspirated into the bronchus of the opposite lung, death occurring from respiratory failure when the affected side of the chest was opened.

Diagnosis of Infected Haemothorax.

When symptoms suggesting infection arise the chest must be explored to determine the sterility or otherwise of the haemothorax. Valuable information is frequently obtained, but a negative report is not always reliable, and if too much importance is attached to these findings necessary treatment may be delayed. If the patient's symptoms suggest that infection has occurred the chest should be opened. Radiography, to determine the amount of fluid, position of missile, etc., is of the highest importance, but it must not be allowed to delay treatment.

Treatment of Infected Haemothorax.

Preliminary aspiration may be resorted to in very desperate cases, but the serious condition of the patient is only in part the result of the mechanical pressure of fluid or fluid and gas. It is largely due to septic absorption. If the patient is relieved an operation should be performed as soon as possible.

Drainage of the Chest.

This may be performed in one of two ways:

1. Resection of a short length of rib, and insertion of a drainage tube under local anaesthesia. This is the method usually adopted.
2. Thoracotomy under local or general anaesthesia. Resection of a considerable length ($\frac{1}{2}$ to 5 in.) of rib, preferably the eighth, insertion of a spreader (Tuffier's *Ecarteur* is very satisfactory), inspection of the chest cavity, removal of clots, fluid, foreign bodies, fragments of bone, etc., repair of damage to lung and diaphragm.

The operation is, in fact, the same as that done in the early stages for chest wounds, only it is done in the presence of established sepsis. The operation may in certain cases be followed by immediate closure of the chest, but this is only possible in the early stages of an infection, and is certainly not practicable in all. In many cases a drain must be inserted.

The disadvantage of the first procedure is that no exploration of the chest is possible, and clots, foreign bodies, fragments of bone, cannot be easily removed. Nevertheless, in certain cases, this is all that can be done at the time. In some cases a more extensive thoracotomy may be required at a later date.

However established, either after a limited or an extensive operation, drainage alone is insufficient. When the infection is serious and well established it is not controlled by drainage, and the patient may succumb to sepsis. In any case free suppuration continues for a period more or less prolonged, much lymph is thrown out on to the lung, and the parietal pleura and the lung fails to expand. The cavity will perhaps close after considerable falling in of the chest wall, or the patient will be left with a chronic empyema.

Antiseptic Instillation.

Drainage should be supplemented by the progressive sterilization of the pleural cavity by the instillation of an antiseptic. This may be effected in various ways:

1. By irrigation of the cavity once or twice a day through a drainage tube. This is only satisfactory in the presence of a very small cavity. The greater part of the pleura cannot be reached.
2. By the method employed by Tuffier—namely, irrigation every two hours through a number of Carrel tubes supported on wires and inserted into the pleural cavity in all directions through the drainage aperture.

I have no personal experience of this method except in the case of small cavities. So far as I know there are no published records of the results, but they are said to be exceedingly good. The disadvantage of the method would seem to be that the dressings are difficult and tedious.

3. By filling the pleural cavity with Dakin's solution every four hours through the drainage tube, the patient lying on the sound side, the fluid being siphoned off at the end of two hours. (Campbell's method.⁹)

However efficacious, this method would seem to be exceedingly tedious and very difficult to carry out in times of stress.

4. Irrigation through a special silver cannula which I have employed and which is described and illustrated in the BRITISH MEDICAL JOURNAL, February 2nd, 1918.

The cannula is used in the following way: After opening the chest a point on the chest wall towards the upper limit of the cavity is selected where the cannula may most conveniently be introduced. This is usually in the third or fourth space, about or just external to the mammary line; a small incision is made through the skin, and the cannula pushed through the intercostal muscles into the chest. The tip of the cannula should point outwards and downwards, and the instrument is fixed in position by two sutures to the skin. The original incision is then closely sutured around a drainage tube, which may be long enough to reach into a bottle of antiseptic fluid. The tube of a Carrel ampuole is then attached to the cannula, and the cavity irrigated every two hours. Hitherto I have generally used eusol, but no doubt other solutions will be as efficacious.

This is a simple and very effective device for instilling antiseptic fluids into the pleural cavity. If the cannula is judiciously placed (and in large cavities more than one can be inserted) the whole of the pleural cavity is easily exposed to the action of the antiseptic. When the thoracotomy wound is closely sutured around the drainage tube no dressings are required for several days. The tube passes out through the dressings into a bottle, and the cavity is washed out every two hours without any disturbance of the patient. The best method of fixing the drainage tube and occluding the wound around it is to pass two catgut

sutures, one on either side, through the muscles and through the wall of the tube supported by two silkworm gut stitches through the skin, also picking up the drainage tube. There is then no leakage around the tube, the dressings remain dry, and can be left undisturbed. The silver cannula is very easily inserted; washing through is quite a simple process, and is not attended with discomfort. The saving in dressings and in the nursing required is enormous.

The results of drainage and irrigation by this method are striking. The general condition of the patient improves rapidly. The amount of discharge is much lessened, and in many cases there is practically none. The lung expands quickly and undoubtedly much more rapidly than in cases treated by drainage alone.

The following two cases are examples of infected haemothorax treated in this way.

CASE IV.—Late Thoracotomy: Irrigation: Rapid Recovery.

Pte. C. N. McC. was wounded on October 9th, 1917, by a fragment of high explosive shell in the right side of the chest and head. He received no surgical treatment at the casualty clearing station. When admitted to a general hospital on October 14th there was no history of haemoptysis, but considerable dyspnoea. Haemothorax on the right side was explored, and a coliform bacillus cultivated from it. X-ray examination showed a foreign body in the upper part of the right lung, three inches above the nipple.

On October 18th thoracotomy was performed, the eighth rib being resected, a large quantity of bloody fluid evacuated, and clots cleared out. The lung was much collapsed. The foreign body was not sought for. An irrigation tube was inserted in front through a separate small incision in the nipple line in the fourth space, with a large drain behind. The cavity was irrigated every two hours with eusol. Rapid improvement in the general condition ensued. The discharge was never abundant.

On November 3rd it was noted that the lung was expanding very well. As soon as the condition of the patient permitted the scalp wound was explored and a fracture of the occipital bone found, without injury to the dura. This was dealt with in the ordinary way, and healed satisfactorily. He was evacuated to England on December 1st, there being a very small amount of discharge and the lung well expanded.

CASE V.—Late Thoracotomy: Irrigation: Rapid Recovery.

Pte. G. B. was wounded on October 10th, 1917—a through-and-through bullet wound of the left chest. He received no surgical treatment at the casualty clearing station, and was admitted on October 14th to a general hospital. He was then very ill with an evident gas-infected haemothorax, the heart being much displaced; $4\frac{1}{2}$ in. of the eighth rib were resected; the left pleural cavity was filled with foul smelling bloody fluid with gas; the lung was almost completely collapsed. A drainage tube and silver cannula were inserted, and the cavity irrigated every two hours with eusol. The patient improved rapidly; the discharge was never profuse. The temperature oscillated for some time, and convalescence was delayed by an attack of tonsillitis. The lung expanded well.

He was evacuated to England on December 1st, 1917. He was discharged from hospital early in January, 1918, and left for Australia, the wound being healed and his general condition excellent.

In most cases it becomes necessary to remove the silver cannula before the cavity is completely closed. The rapidly expanding lung presses the point of the cannula against the chest wall and causes some pain. It is as well to continue the progressive sterilization of the cavity after the cannula has been removed, by inserting an ordinary Carrel tube through the drainage wound for the instillation of the chosen antiseptic. This is continued until the lung is completely expanded. In a normal case the lung may be expected to expand rapidly and the cavity to close in a short time. Can anything be done to expedite this?

Taffier and Depage¹⁰ are of the opinion that the best way of hastening the expansion of the lung is, after sterilization of the chest cavity, to close the parietal

wound by secondary suture, leaving a pneumothorax. The results are said to be good, but I know of no published records of cases. I have not ventured to do this in any of my cases. One is hampered by the fact that it is frequently necessary to evacuate them before the cavity is sufficiently sterilized, but the expansion of the lung is so rapid that it would seem to be unnecessary in the majority of cases.

CHRONIC EMPYEMA.

Chronic empyema is a not infrequent result of infected haemothorax. It is due to failure of expansion of the lung, and may be due to imperfect drainage or the retention of a foreign body. In comparatively early cases of chronic empyema, when the adhesions tethering the lung are not very dense, they may stretch after a time and allow sufficient expansion of the lung, which, with some amount of falling in of the chest wall, will permit the parietal and visceral pleura to come into contact and so effect closure of the cavity. If this does not take place suppuration continues for an indefinite period and the patient is likely to develop amyloid disease.

Operations for Closure of Chronic Empyema.

The following are the principal operations available for closing a chronic empyema cavity:

1. Estlander's, Schede's, or Wilms's operations* aim at effecting closure of the cavity by removing the whole or portion of the overlying ribs and allowing the chest wall to fall in, on to the collapsed lung. Schede, in addition to excising ribs, also removed the thickened parietal pleura. These methods are not free from danger; it is frequently necessary to perform the operation at several sittings, and complete success is not easily attained. At the best the lung is left unexpanded.

2. By combining an osteoplastic resection of ribs with filling of the cavity by the insertion of flaps of muscle cut from the latissimus dorsi, the scapular, or pectoral muscles.

These methods are apt to be only partially successful and the lung remains unexpanded.

3. By decortication of the lung after an osteoplastic resection. The thickened vis-

ceral pleura is stripped from the surface of the lung exposed in the cavity. By releasing the lung from the compression of its dense pleural covering it is thought that its re-expansion will be favoured. In some cases this undoubtedly occurs, but on the whole the results seem to be very disappointing. Haemorrhage is sometimes severe and the lung tissue is easily torn. It is a dangerous operation and not to be recommended.

4. By separating the adhesions which bind the lung down to the chest wall.

Types of Chronic Empyema.

My experience of chronic empyemata leads me to believe that there are three main types:

1. *Localized empyema*, such as is diagrammatically illustrated in Fig. 1. In this form the lung is partially collapsed, though in contact with the costal pleura both in front of and behind the empyema. The collection of pus may be laterally, posteriorly or anteriorly situated, though rarely the latter.

2. A *more complete form*, in which the lung is much more collapsed (Fig. 2), the anterior border having receded and the organ collapsed into the paravertebral fossa. This condition may involve the whole lung, though, as a rule,

* A very full account of these operations is to be found in a paper by S. Robinson, *Collected Papers of the Mayo Clinic*, vol. vii. p. 618.

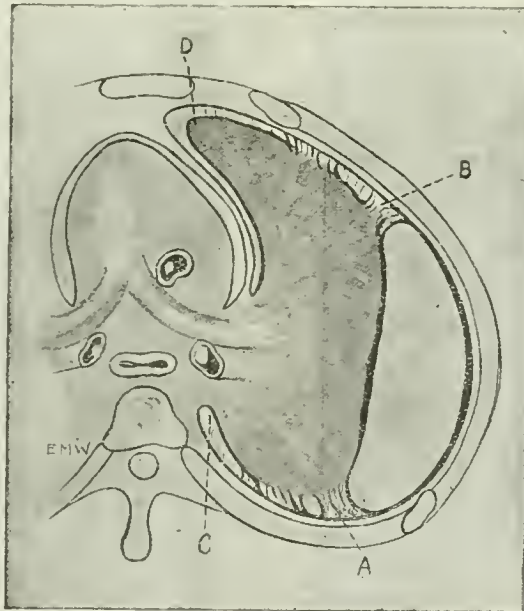


FIG. 1.

the apical portion of the upper lobe is not collapsed and remains in contact with the chest wall. This is the variety commonly met with in large chronic empyemata.

3. *Complete Collapse of the Lung*.—In this form (Fig. 3) the organ is greatly shrunken and collapsed on to the hilum; practically all that remains is a stump of tissue attached to the vessels and bronchi.

There are other, much rarer, forms—multilocular, apical, diaphragmatic, and interlobar—and their occurrence must be borne in mind.

As an empyema develops a layer of fibrin is deposited on the pleural membrane, on that portion covering the lung and that lining the chest wall. In time organization of the fibrinous layer occurs, and a more or less dense fibrous membrane is the result. The parietal and visceral pleura become thickened, sometimes to an astonishing degree. If the empyema is drained in its early stages before fibrous changes have occurred rapid expansion of the lung is the rule. But fibrous changes prevent expansion of the lung. Fibrosis may be due to delay in recognizing and draining the empyema or to failure to control the infection after drainage, with consequent persistent suppuration. As has been said, the resulting chronic empyema may be cured by operations producing collapse of the chest wall or by removing the thickened visceral

diaphragm may be separated in a similar way. Separation of the adherent lung is not usually attended by much haemorrhage; in any case this is easily controlled by irrigation.

This method of freeing the lung is only possible in the types of empyema depicted in Figs. 1 and 2. When collapse of the lung is absolutely complete, as illustrated in Fig. 3, the cavity can only be closed by an extensive osteoplastic operation.

The following cases are examples of chronic empyemata treated in this way:

CASE VI.—*Chronic Empyema treated by Stripping Thickened Pleura: Recovery.*

Pte. T. W. was wounded on September 15th, 1917, by shell fragment. An infected haemothorax was treated in the casualty clearing station by resection of a portion of rib (ninth) and drainage. There was continuous discharge for a month.

On October 14th, when admitted to a general hospital, he was very anaemic, with rise of temperature, poor pulse, and much stinking discharge. The whole of the left chest was dull except at the apex. X-ray examination showed a foreign body in the lower lobe of the lung.

On October 18th thoracotomy was performed, 5 in. of the eighth rib being resected, and a large quantity of foul pus evacuated. The cavity occupied two-thirds of the pleural space and the lung collapsed into the paravertebral fossa. There was a sinus in the lower lobe of the lung leading to the foreign body, which was removed (a piece of high explosive

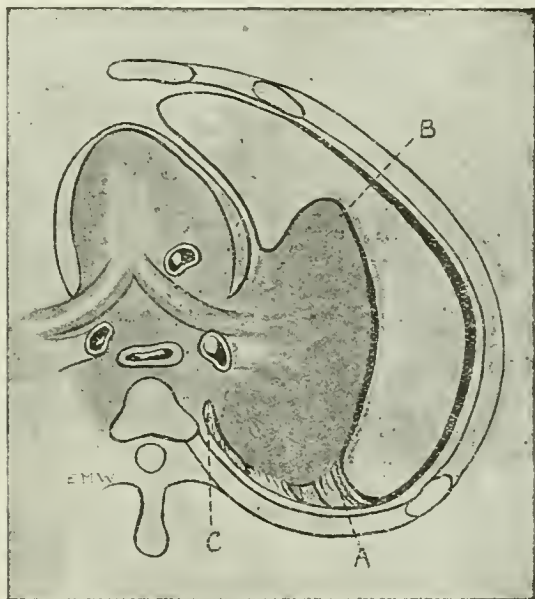


FIG. 2.

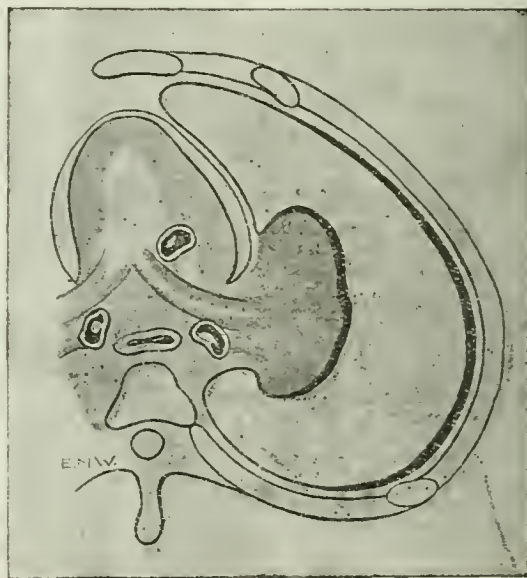


FIG. 3.

pleura covering the surface of the lung exposed in the cavity. No doubt the thickening of this portion of the pleura is a factor in preventing expansion of the lung, but it is not the only or indeed the chief factor. This expansion is prevented by the firm adhesions at the points marked A and B in Figs. 1 and 2. It is the fixation of the lung at these points which prevents expansion. At A and B the adhesions are generally very dense and firm, but beyond these points—in the areas figured A to C, B to D—adhesions are much less dense. If these barrier adhesions at A and C are separated the lung will expand. It seems probable that the limited success which has attended the operation of decortication is not due to the fact that the removal of the thickened visceral pleura has permitted expansion of the lung, but is the result of the undesigned separation of these barrier adhesions. The object of the operation for chronic empyema should be to close the cavity by effecting expansion of the lung, and this can be done by dividing these barrier adhesions at the points marked A and B on the diagrams. In fairly early cases these barrier adhesions can be separated by the fingers; when they are very firm the scissors will be necessary. The lung should not be wounded nor should any attempt be made to strip off the thickened visceral pleura from its surface. Some immediate expansion occurs always, and in some cases the results are astonishing. Once the barrier adhesions are passed separation along the lines A to C, B to D is very easy. Adhesions to the

shell). The adherent lung was stripped from the paravertebral fossa without difficulty and with little haemorrhage, and marked immediate expansion of the lung occurred. The original wound was explored and found to drain a small loculus below the main cavity. There was considerable necrosis of the ninth rib at the site of the previous resection. The silver cannula was not inserted, as one was not available. The cavity was irrigated by the side of the drainage tube. On November 3rd it was noted that the lung was expanding very satisfactorily and that there was very little discharge.

On December 1st he was evacuated to England, with the lung expanding very well and his general condition excellent. There was still some discharge from the site of the first operation, and sequestra were coming away.

A note on the further history of this patient was received on January 23rd, 1918. The wounds were healed, and the left side of the chest was expanding very well, but there was still some flattening of the chest.

In this case the immediate results of stripping the adherent lung were very striking. The barrier adhesions were so dense and firm that it is certain the cavity would never have closed unless they had been divided, and a secondary rib resection would have been required.

CASE VII.—*Chronic Empyema treated by Stripping Thickened Pleura: Recovery.*

Pte. J. F. was wounded on November 17th, 1917, in the right chest below the nipple. The wound was excised and the fractured rib removed. The diaphragm was perforated, and a fragment of shell was removed from the liver; the wounds in the liver and diaphragm were sutured, the haemothorax

evacuated. The lung was not damaged. The chest was closed without drainage.

Aspiration was performed on November 20th, 24th, and 30th. On the last occasion pus with faecal odour was evacuated. Aspiration was performed again on December 1st, and on December 12th he was admitted to a general hospital. He was very upset by his journey from the casualty clearing station, and was received in a state of collapse. There was an obvious empyema. The thorax was reopened, Tuffier's spreader inserted, pus evacuated, and adherent and collapsed lung stripped from the paravertebral fossa. Considerable immediate expansion of lung occurred. A silver irrigation cannula was placed in position anteriorly. The thoracotomy wound was tightly sutured around a long drainage tube. The patient was propped up in bed on a bed-rest, the drainage tube passing out through the dressings between the bands of the bed-rest into a bottle. The pleural cavity was irrigated every two hours with dichloramine-T, 3 per cent., through the silver cannula.

From the beginning there was very little discharge. The dressings were not disturbed for five days; the wound was then healed except at the point of exit of the tube. The dressings remained dry until the large tube was removed on the eleventh day and replaced by a smaller one. The silver cannula was removed and rescripted from time to time. The patient's general condition rapidly improved; the temperature, after some oscillations, fell to normal.

On December 23rd, 1917, it was noted that the right lung was markedly expanded, and that breath sounds were heard down to the level of the tube. After the silver cannula was removed the small remaining cavity was irrigated through a Carrel tube inserted through the drainage aperture.

The further progress of this case was uneventful. A note received early in February, 1918, was to the effect that his general condition was excellent, and the lung completely expanded; a small sinus remained at the site of drainage.

CASE VIII.—Chronic Empyema: Repeated Thoracotomy: Stripping of Lung.

Pte. J. M. L. was wounded by a piece of shell on October 25th, 1917. The missile passed into the left chest and penetrated the diaphragm. Thoracotomy was performed at the casualty clearing station, the diaphragm sutured, and the chest closed. Laparotomy was performed, but no intra-abdominal lesion detected. On November 5th 1½ in. of rib was excised and a fragment of shell removed from the pleura. The cavity was washed out with flaine and closed without drainage. On November 9th 2 in. of rib were resected and one pint of stinking pus evacuated; drainage. On November 13th 2 in. of the third rib were removed. A cavity containing serous fluid was opened, washed out, and closed. A note on November 28th stated that the left lung was completely collapsed, and that the tube drained a large cavity.

When admitted to a general hospital on December 1st there was a large quantity of discharge and the lung was collapsed. X-ray examination showed a small fragment of shell lying beneath the inner end of the clavicle. Culture yielded streptococci, staphylococci, and coliform bacilli. Thoracotomy was performed by Major J. H. Cobb through the old wound over the seventh rib, the cavity wiped out, and adherent lung stripped; some immediate expansion occurred. A silver irrigation cannula was inserted.

On December 31st, 1917, there was practically no discharge from the cavity, but it was still of some size, and extended upwards towards the clavicle. Some expansion of the lung had occurred. The general condition was very markedly improved.

A further note of this patient's condition was received in February, 1918. He was very well, and the lung was completely expanded; a small sinus remained at the site of the first operation.

It is extremely important in every case of chronic empyema to have a radiograph of the chest taken, not only to discover the presence of a missile, but to exclude the possibility of a lost drainage tube. On three occasions in the last six months I have removed a lost drainage tube from the chest; one case was one of my own. An infected haemothorax was drained after resection of a rib under a local anaesthetic. The tube was secured to the skin by two silk-worm-gut sutures. The following day it was missing. A radiograph showed it to lie inside the chest, whence it was easily removed. In another case (a man evacuated from a casualty clearing station, and put off the ambulance train as unfit for further transport) the patient complained of great pain in the chest. Five inches of half-inch drainage tube with a safety-pin attached was extracted from the pleura. Both these cases did well.

In another case a drainage tube was removed from the track of a missile through the substance of the upper lobe of the right lung. It had probably been lost for several days. This patient ultimately died from gangrene of the upper lobe of the lung.

The question arises whether it would not be better to provide adequate drainage and to sterilize the cavity by irrigation before separating the adherent lung, which could be done at a later stage. In very septic cases, in

exhausted and debilitated individuals, and in patients with signs of incipient amyloid disease, this would no doubt be the better course.

The Late Removal of Foreign Bodies from the Lung and Pleura.

If an operation is performed for infected haemothorax or empyema the foreign body, whenever accessible, should be removed if the patient's condition will permit it.

CASE IX.—Removal of a Foreign Body in the Absence of Sepsis.

Pte. C. W. was wounded on October 8th, 1917, by a piece of high explosive shell which entered the left chest close to the nipple.

On October 14th he was admitted to a general hospital. The note stated that he had had a pneumothorax on the left side, but no active treatment had been necessary. His general condition was good. X-ray examination showed a foreign body—a long, ragged piece of shell—in the lower lobe of the left lung.

On October 25th thoracotomy was performed, 4½ in. of the eighth rib being resected. Tuffier's spreader was inserted. The foreign body was felt in the lower lobe of the lung; the lung was incised, and the foreign body extracted. The wound in the lung was sutured. Complete collapse of the lung was prevented by adhesions. The patient was not at all disturbed during the operation, the pulse remaining quiet throughout. The wound was completely closed by suture in layers—pleura, muscles, and skin.

On November 16th he was evacuated to England. The wound had healed by primary intention, the lung had expanded well, and his general condition was excellent.

The question of the necessity of removing the foreign body in such a case as this has still to be determined. I have heard it seriously advanced by an administrative officer that any foreign body, however small and wherever situated, should be removed from the chest, for the reason that no man who knows he has a foreign body in the chest ever goes back into the front line. The same can probably be said of men upon whom thoracotomy has been performed. There are definite indications—haemoptysis, abscess of lung, etc.; pain and dyspnoea are also indications, but it is not always easy to be sure when these complaints are genuine.

My thanks are due to Colonel T. Gowans for permission to publish the details of the cases mentioned. I am also greatly indebted to Captain T. S. Parkinson and Captain M. J. Stewart for their invaluable assistance.

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WAR SCARS AND THEIR PAINS:

WITH SPECIAL REFERENCE TO PAINFUL
AMPUTATION STUMPS.*

BY

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CIVILIAN and pre-war scar tissue was made up of fibrous tissue in which there were few foci of round cells and fewer organisms. These round cells represented areas of repair and did not exist for long. In consequence they were of little importance. In war scars all these conditions were increased and exaggerated, the round cells of the inflammation being more numerous and polynuclear, the neighbouring connective tissue cells proliferating and some also becoming oedematous and distended with fluid, whilst organisms, as long as three years after the wound had healed, have been grown from the ends of the nerves in a painful amputation stump. The nerves were removed at operation and dropped straightway into a culture medium. In such ways cultures of staphylococci, colon bacilli and diplococci have

* An address delivered at the Welsh War Hospital, Cardiff.

been obtained. This war scar tissue is, then, an irritant of the first water, containing contracting fibrous tissue, inflammatory foci, varying in number, and pathogenic organisms. It is like a fire, and as the smoke from that ascends the chimney and finds its way through cracks in the bricks where the mortar is bad, so the irritation of this collection of war scar tissue ascends the stump, starting infective inflammation in muscles, arteries, veins, bones, connective tissue, and nerves. There are at least three points of importance here: the pain is of composite origin, the pain need not be of nervous origin, but from the osteomyelitis of bone or the arteritis of an artery, in which case it is folly to confine the treatment to the nerve trunks.

How do the organisms get up into the painful stump? Do they go by direct extension or are they carried up in the neural lymphatics, like the toxins in a case of tetanus? Some

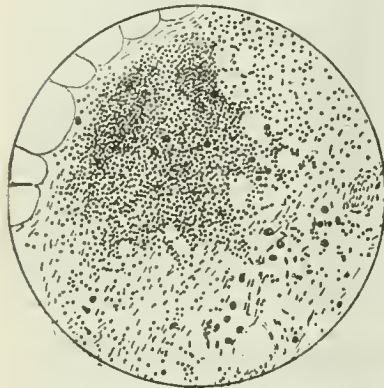


FIG. 1.—An inflammatory focus of round cells from an amputation neuroma.

months ago Professor Marinesco and I were investigating the painful nerves of an officer whose arm had been shattered about the elbow, and had been amputated below the shoulder-joint. The amputation wound was well healed, and had been so for some months. No other wound was present. Not until the nerves had been removed and embedded in a paraffin block for section cutting did we discover a macroscopic piece of metal in the nerve, about the size of a pin's head. How did this metal get there? Did it enter the wound near the elbow, had it been blown past the site of the future amputation and ended up in one of the nerves of the future stump, or was it carried up by the neural lymphatic stream?

Then Professor Marinesco and I were often finding dark patches, due to some powder, on our sections, and at first these were regarded as artefacts due to our faults or carelessness, such as dust. However, some were shown to be iron dust. In addition, these powder patches were too frequent to be always our fault. Finally, it was concluded that the powder was shrapnel pulverized by the action of the body juices on masses embedded in the wounds and carried upwards by the lymph stream. Then we found particles of fibres, probably silk, also carried up into the structures, including the nerve ends, in these painful stumps. These particles varied in size and shape, and they were regarded as relics of the fragmentation by the body fluids of silk ligatures afterwards carried away by the lymph stream. Then there were the cultures of organisms.

This train of evidence is enough to teach us of the upward lymphatic stream and the irritative effect of silk; it is a kind of internal seton. That some silk is carried inward by the lymph stream and some is shed outward from abscesses, sinuses, and discharges of the wound, shows that war time scar tissue is utterly unable to encapsulate surely an unabsorbable suture. It should never be used in war wounds. The great pathological characteristic of painful stumps was the presence in them of foreign bodies, usually multiple, some put there by the enemy, and others, perhaps most, by ourselves—such as the silk.

When a nerve is divided it always regenerates. In general it regenerates so as to reinnervate the deinnervated

parts. But if the deinnervated parts have been removed by amputation then the fibres of regeneration seem to innervate all structures they meet—arteries, veins, bones, muscles, and connective tissue. As they do this they sooner or later must come across the inflammation infested scar tissue, when we have the simple algebraical equation:

$$\text{Nerve} + \text{inflammation focus} = \text{pain.}$$

The particular function of the nerve affected—motor, sensory, vasomotor, etc.—does not seem to matter.

To make this worse, as they regenerate the nerve fibres branch and branch, increasing manifold the chances of trouble. No one can do more than delay regeneration, which is like the flow of a river. None can stop it. The lesson is therefore that this war scar tissue must be done away with before, at least, much regeneration can take place. This is to be accomplished by heat, light, x ray, radium, vibration, electricity, and ionization. The duty of carrying it out belongs to a special, not a general, hospital.

Should the regenerating fibres encounter an obstruction, they pool up like a river, forming a tumour—a *regeneration neuroma*. Then they flow on.

If this infective scar tissue is not removed by art or craft, reamputation will become necessary, involving a serious loss of power and usefulness to the patient. This reamputation must be done much higher, as the following case shows: A man had had an amputation just above the knee. He had an obstinately painful stump. I removed the whole contents of Hunter's canal, up which the smoke of irritation had ascended from his wound. The internal saphenous nerve was examined microscopically 6 to 8 inches above the amputation. It showed signs of infective inflammation. It would have been very hard on the man to amputate above the inflammation. Such a case is only too likely to prove unsatisfactory, as there were no clinical signs to guide the surgeon—such as a swollen tender painful nerve. One must never judge harshly. Not all have played games and learned to deny self for the benefit of the whole—true team work. How, then, is such a case usually to be judged? The team who worked on the patient are judged harshly.



FIG. 2.—An inflammatory focus in the midst of a new formation of nerve fibrils.

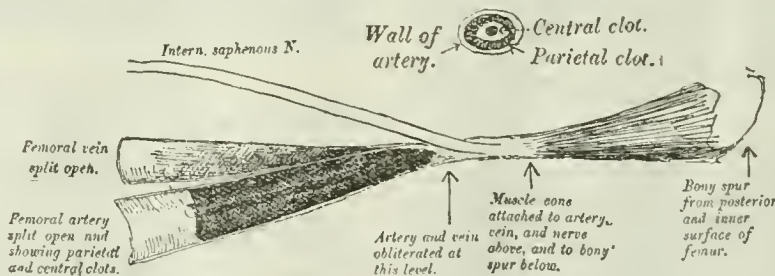


FIG. 3.—The infected contents removed from Hunter's canal.

This should not be. Often before fitting an artificial limb a stump appears all right. To fit an artificial limb or apparatus is sometimes like putting a poker into a fire. It stirs it up to a blaze, making patent its irritations and imperfections.

In the nerve end the irritation may

cause arteritis, endarteritis, phlebitis, lymphangitis, and thrombosis in the intraneural vessels. The irritative process travels up more freely and further along the vessels than along the nerves. The neuromata on the inner side of arm stumps illustrate this. Therefore should the vessels be cut short at every amputation.

A CASE of intussusception in the jejunum 10 inches from its commencement, due to an adenoma of an accessory pancreas, is reported by Benjamin (*Ann. Surgery*, 1918, lxvii, 293). There was a cauliflower-like mass 2 by 1½ by 1 in., projecting from the mucous membrane by a stem. The literature of accessory pancreas is summarized, and 17 other cases in the jejunum are collected from various sources. Though it is recognized that an accessory pancreas by traction may produce a diverticulum of the intestine, it does not appear that an intussusception has been previously reported.

THE EMERGENCY TREATMENT OF WOUNDS.

BY

LIEUT.-COLONEL A. J. HULL, F.R.C.S., R.A.M.C.

It has been abundantly proved by the experience of war that wounds treated by excision heal in many cases by primary union. Further, the fact is established that even when primary union does not occur the more serious types of infected wounds are avoided by this measure, provided the wound is so treated at a suitable time. Anatomical considerations, of course, prevent complete excisions in many cases.

The successful treatment of wounds depends upon the stage at which the wound comes under treatment. Wounds, fortunately, pass through a pre-inflammatory stage, and during this stage it is possible to remove the infected tissues, leaving a non-infected wound. Carrel has shown that a wound passes through a fairly definite chronological sequence. During the first few hours following its infliction a wound is comparatively clean, judged by bacteriological tests. The smears are usually negative. The organisms have not had sufficient time to multiply in order to appear in the secretions. At the end of five or six hours organisms are frequently found in smears, and after twelve hours the wound has commenced to react. Polymorphs appear in large numbers, and bacteriological examination shows a large number of organisms; moreover, the organisms have now spread to the depths of the wound and abound in the particles of fractured bone. It follows that during the first twenty-four hours the wound is amenable to surgical treatment, and after that period an inflammatory stage appears, during which the results of excision have been very much less satisfactory.

The ideal treatment for infected gunshot wounds is to excise them during the pre-inflammatory stage—that is, within twenty-four hours of the infliction. The exigencies of war will more often than not make this impossible. The question therefore arises whether it is possible to prolong the pre-inflammatory stage.

Several observers working with flavine have recorded the appearance of the wounds, which are described as *in statu quo*. There appears to be suppression of suppuration and inflammatory reaction during certain stages of treatment. It may be possible to make use of this or a similar reagent in order to prolong the pre-inflammatory stage sufficiently to allow surgical technique to be employed during the optimum period.

The only treatment which a wound at present receives in war previous to being excised or otherwise dealt with at a casualty clearing station is the application of a first field dressing. It is true that this statement requires modification, inasmuch as it may be injuriously redressed on several occasions, thus delaying the cleansing operation; but the depths of the wound, the shattered fragments of a fractured bone, the parts that really matter, receive no treatment.

In fact, in spite of the advances in surgery, particularly in the treatment of wounds, the emergency treatment is no more efficacious than it was in the days of the Trojan wars. The dressings applied to wounds before the arrival at a casualty clearing station have no influence whatever upon the infection in the depths of the wounds. Improved results of the treatment of wounds can only be achieved by some method of either excising the wound during the pre-inflammatory stage or by prolonging that stage, and research in the latter direction appears to be most desirable.

The old first field dressing appears to be totally inadequate. It is suggested that, as soon as practicable after the infliction of a wound, it should be instilled with some non-irritating antiseptic, in order to inhibit the growth of micro-organisms. Within the first few hours, unless septic foreign matter remains in the depths of the wound, pathogenic organisms are found to be few in numbers and confined to the surface of the wound.

When septic foreign bodies are retained in a wound, the growth of organisms would be enormously retarded by the presence of an inhibiting antiseptic. Septic cloth would become soaked with the reagent injected, and would become comparatively innocuous. Excision of the wounds would be carried out in due course with greatly enhanced likelihood of primary union.

Several reagents which are non-irritating inhibitors of septic organisms are available. Flavine in 1 in 1,000 solution or dichloramine-T would appear to be suitable antiseptics for the purpose. Brilliant green is frequently used (as recommended by Captain Hey) as an antiseptic stain. The wound is filled with brilliant green, which acts as a guide to infected tissue, previous to the excision of the septic area. This reagent would fulfil a double purpose if instilled into the wound at an early stage, by acting as an inhibitor of sepsis, and a guide to the septic tissue. Eusol and Dakin solutions would be too evanescent and too transient in their action for this purpose—as, in fact, they are for any wound treatment during transport.

If a 5 per cent. solution of salt be combined with the antiseptic reagent, the micro-organisms will not only be inhibited in the wound, but an outpouring stream of serum will be produced which will carry infection from the wound, and prevent the ingress of organisms.

The technique of wound instillation is of the simplest possible description. The chosen solution is instilled by means of a fine glass nozzle attached to a Higginson's syringe, care being taken to inject fluid into the depths of the wound. This treatment is certainly not beyond the scope of an advanced dressing station.

There is also indication for the use of this method in casualty clearing stations. In times of pressure a patient may have to wait a day or more before an operation can be performed. The preliminary instillation of the wound with an inhibiting antiseptic solution may make the difference of the wound being operated upon in the pre-inflammatory stage, or when suppuration has commenced. Still more desirable is such treatment when it is necessary to transfer a patient to the base from casualty clearing stations without operation.

I am not at present prepared to recommend the indiscriminate irrigation of wounds of the head and trunk as a preliminary measure, particularly if performed by unskilled hands, but I think its use in the case of wounds of the extremities, particularly compound fractures, is strongly indicated.

The use of preliminary instillation may be objected to on the grounds that the nozzle may introduce infection and that the injection of fluid may spread sepsis. A glass nozzle is easily sterilized between each injection, even at an advanced dressing station, and it is extremely doubtful if such sterilization is necessary. The injection of antiseptic fluid will not spread infection beyond the original limits of the wound, which would become infected in any case. Carrel made use of the instillation treatment in the later treatment of wounds, particularly after wound excision.

By beginning wound instillation within an hour or so we are treating a wound which is bacteriologically as sterile as an excised wound, and but for the tissue necrosis which follows gunshot wounds the early instillation of a suitable antiseptic might replace wound excision.

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TEMPORARY CAECOSTOMY IN RESECTION OF THE DISTAL PORTION OF THE COLON FOR NON-OBSTRUCTIVE CONDITIONS.

BY

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THIS note has been written to draw attention to a little surgical manoeuvre which has been of service to me in cases of resection of portions of the distal half of the large intestine. This step in the surgical technique of excision of any portion of the large bowel between the splenic flexure and the sigmoid colon I learnt in the course of conversation with a very distinguished Scottish surgeon who employed it, but in France I have met with very few surgeons who appeared to be familiar with the procedure, either in theory or in practice. It is of course established now that excision of portions of the large intestine for gunshot injury in the "forward area" is only

rarely indicated; and, indeed, in the few papers upon gunshot wounds of the abdomen which have been sent to me by my surgical friends, or to which I happen at present to have access, there is scarcely any record of resections of the large bowel, and hardly a note of a successful case.

A. I have employed temporary caecostomy in the United Kingdom in cases of resection of the large intestine for carcinoma originating in any part from the splenic flexure to the pelvic colon. I am not referring to cases of intestinal obstruction above an operable cancerous growth, where, of course, the obstruction must be relieved by operation before any idea be entertained of extirpating the tumour, but I am advocating temporary or provisional caecostomy in cases of excision of a carcinomatous splenic flexure, descending, iliac or pelvic colon, where no obstruction exists. The opening acts as a vent for gases generated in the colon above and near the suture line, and acts as a safety valve in preventing any strain on the junction.

I am aware of the brilliant results obtained in excisions of cancerous segments of the large bowel by distinguished operators, but I submit that this little point of technique may be of value to surgeons of ordinary dexterity; it has certainly added to my mental comfort in the treatment of these cases, and it has as certainly promoted the convalescence of the patients.

B. I have also on several occasions made use of temporary caecostomy when operating in the United Kingdom to close a proximal inguinal colostomy performed in France for some severe gunshot injury of the rectum. Opinion is not yet finally settled as to the best means of closing an inguinal colostomy, but I have personally usually performed an intraperitoneal operation, excising the "spur" and practising end-to-end union of the bowel. In such cases, as in those of excision of a carcinoma, I have found temporary caecostomy to be a measure of safety. It might appear to be a retrograde step to substitute a stoma in the right iliac fossa for one of the left side, but if the caecum is simply anchored to the parietal peritoneum the opening closes readily enough, especially if the drainage tube in the caecum be inserted after the manner of a Senn's gastrostomy. I have never had to undertake any operation to close a caecostomy performed in this way, and the stoma generally closes in ten days to a fortnight.

C. Excision of portions of the distal colon for gunshot injury. It is an axiom of military surgery that in the cases of gunshot wounds of the bowel the least possible should be done, and that suture should be preferred to resection unless the latter is inevitable. The whole experience of the surgery of this war has demonstrated that suture suffices in the large majority of cases of injury to the colon; by reason of the size of this portion of the intestinal tract its wounds are mostly of the nature of perforations or tears, and the bowel is rarely completely divided. Moreover, the absence of numerous loops and coils makes multiplicity of wounds of the colon uncommon when compared with their frequency in the small intestine. Nevertheless, I do claim that there are certain cases of gunshot injury of the large intestine where a resection of the damaged portion is indicated, more especially when infarction of the bowel is present. Further, in some cases where the wound of the large intestine has been of such magnitude or difficulty of approach as to suggest the formation of an artificial anus, recourse might well be made to excision and suture, when the high mortality of the colon anus is borne in mind. The adoption of this procedure would, of course, be influenced by the general condition of the patient.

If excision is to be practised let the removal be free, and let the bowel sections be planned in accordance with the dictates of general surgical experience. The wide removal of damaged bowel and of the adjacent damaged and devitalized retroperitoneal tissue which the resection facilitates finds justification not only in being in keeping with the ordinary rules for the treatment of gunshot wounds by excision of the damaged area, but also by the end-results in those cases in which this more drastic operation has been undertaken. With few exceptions these have all been cases of gunshot injury to the distal portion of the large intestine, and in these the temporary or provisional caecostomy performed at the time of resection has proved to be a measure of safety. The opening has been made into the caecum at the end of the operation while the suture is suturing the skin of the laparotomy

incision. The "gridiron" method affords convenient access to the caecum, and the drainage tube is inserted like a Senn's gastrostomy. If a collodion or mastisol dressing be applied to the laparotomy wound, there does not appear to be any extraordinary risk of infection of the latter.

CASE I.—Penetrating Wound of Abdomen; Severe Wound of Caecum and Ascending Colon; Excision of Caecum, Ascending Colon and Hepatic Flexure; End-to-side Union of Ileum and Transverse Colon; Suture of Jejunum.

Pte. J. K. was admitted on November 20th, 1917, into a casualty clearing station with two penetrating wounds of the abdomen. Two fragments of shell had entered the abdominal cavity through the right flank, and the caecum and ascending colon were both badly damaged and perforated, the latter being almost completely divided. There were four wounds of the jejunum, which were sutured. Operation was performed about ten hours after the man was hit, and at the time he was in rather poor condition. The wounds in the flanks were widely excised, and subsequently vigorously treated by Carrel's method; the terminal part of the ileum, the caecum, ascending colon and hepatic flexure were excised, and an end-to-side junction performed between ileum and the transverse colon. The patient made a good recovery and was evacuated to the base, and I last heard of him in an unsolited letter from the medical officer in charge of a Red Cross hospital in the South of England, telling me of the patient's complete recovery, and congratulating me on the successful case.

CASE II.—Penetrating Wound of Abdomen; Resection of Jejunum; End-to-end Union; Resection of Distal Part of Transverse Colon, Splenic Flexure, and Descending Colon; End-to-end Union; Caecostomy.

Lieut.-col. W. was admitted into a casualty clearing station in the early hours of a February morning with a penetrating wound of the abdomen, produced by a shell fragment. The piece of shell entered the left flank, completely dividing his descending colon and shattering its adjacent edges. The upper jejunum was the site of several large perforations, and its mesentery was perforated and bleeding; three feet of jejunum were resected and an end-to-end junction performed. The missile had made a large rent on the posterior aspect of his transverse colon, and passing forwards and to the right had just penetrated the anterior surface of this portion of the bowel. It was deemed safer to excise the damaged portion of the transverse colon, splenic flexure, descending and iliac colon, and an end-to-end junction was performed between the proximal portion of the transverse colon and the sigmoid flexure. The wound of entry was excised widely and "Carrelled"; a temporary caecostomy was then performed. Apart from massive collapse of the lower lobe of his left lung and some trouble with the laparotomy wound, the patient made a good recovery, and was evacuated to the base a month later, and subsequently to England.

CASE III.—Penetrating Wound of Abdomen; Perforations of Jejunum Sutured; Resection of Small Intestine; Wounds of Sigmoid Resected.

Pte. C. W. was admitted into a casualty clearing station in the early hours of a January morning with a penetrating wound of the abdomen, due to a fragment of shell. After the patient had been warmed and resuscitated for a couple of hours, the abdomen was opened, and nine or ten perforations of the jejunum were sutured, and in addition a resection of 18 in. of small intestine lower down was performed. Four wounds of the sigmoid were found, two of which were on the mesenteric border. As the bowel was in a state of infarction, the damaged portion was resected, and an end-to-end junction made. The foreign body was removed from the musculature of the left flank, and the damaged tissues widely excised; a temporary caecostomy was performed. The patient's recovery was uneventful, the caecostomy closed after ten days, by which time the rectum was acting satisfactorily, and he was evacuated to the base in three weeks, and subsequently went to England. Curiously enough, this patient's father had undergone an abdominal operation at my hands in Middlesex Hospital some few years ago.

CASE IV.—Penetrating Wound of Abdomen; Large Tear of the Iliac Colon; Limited Resection; Temporary Caecostomy.

Pte. D. L. was admitted into a casualty clearing station on November 21st, 1917, with a shell wound penetrating the left side of the abdomen. The fragment had entered the left iliac fossa in front and had passed downwards and backwards, shattering the anterior part of the crest of the ilium and emerging over the left hip. There was at least a pint and a half of fluid in the lower part of the abdominal cavity, consisting largely of blood, but also of extravasated intestinal contents. Some fourteen hours had elapsed since the patient was hit, and this fluid possessed a distinctively offensive odour. The damaged segment of the colon was resected—about 2½ in. in all—and an end-to-end union performed. The wounds of entry and exit were widely excised, the loose fragments and the damaged bone were removed, and Carrel's treatment carried out with vigour; temporary caecostomy was performed. The patient made a good recovery, and by the time he was evacuated to the base his lower bowel was acting satisfactorily, and the caecostomy had closed.

Two of these cases are of special interest, inasmuch as they are resections, not only of portions of the large intestine, but also of the small. Satisfactory accounts of these two were obtained on April 23rd.

I would reiterate that the operation of excision of a damaged portion of large intestine is by no means advocated as an alternative to suture, but as an expedient to which it is sometimes justifiable to resort. The narration of the above cases will show that they have all been of a severe type, and that two, indeed, have been double resections. The purpose of the paper is merely to show that caecostomy is a measure of safety in cases of resection, and that the latter operation is justifiable in a certain few cases of gunshot injury. These cases have been operated upon in an advanced clearing station, which in its operating theatre and in the heating arrangements of the wards bore the impress of the engineering and architectural abilities of its then commanding officer; but I have also been fortunate in enjoying the assistance of an anaesthetist and of operating theatre sisters of far more than ordinary skill.

Sir Harold Stiles has very kindly allowed me to make use of his name in connexion with this communication, and in a personal letter he writes: "Whenever I resect a carcinoma, an artificial anus, or a faecal fistula of the distal half of the large intestine, the last step in the operation consists, as a matter of routine, in stitching a small area of the caecum to the abdominal wall, so that a small opening can be made into it at the end of twenty-four or forty-eight hours." I very gratefully acknowledge my indebtedness to him for this valuable hint in surgical technique, for although I have usually made my opening in the caecum at the same time as the resection was performed, and although the minutiae of the actual operative procedure may differ, the idea I learnt in visits to Sir Harold at the Chalmers Hospital, Edinburgh.

For permission to use the notes of the military cases included in this paper I am indebted to Lieut.-Colonel E. F. L'Estrange, R.A.M.C.

THE LOCAL APPLICATION OF LIQUID GLUCOSE IN THE TREATMENT OF CERTAIN SUPER- FICIAL BACTERIAL INFECTIONS.

BY

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THE object of this note is to call attention to a method of treatment which in certain conditions that I have observed has produced very good results and which is perhaps deserving of wider use.

Glucose is in frequent use in the laboratory as a bacterial foodstuff, and its application to the site of an infection might at first seem not to be in the best interests of the infected host. But it may be that there are other ways of frustrating the ill effects of the invading bacteria than by their partial destruction with disinfectants. For instance, by altering the nature of the substrate on which they are acting, their products might be rendered less harmful; or the infected region might be made more suited as a nidus for some harmless organism which would then more easily displace the pathogenic one.

The following factors have to be considered to bring about an understanding of the principle which I have tried to exploit in the adoption of this method, and these will be the best guide to its use in any particular instance in which it may seem to be indicated.

1. Almost all pathogenic bacteria are capable of fermenting glucose, some of them, however, much more slowly than others.

2. During fermentation a definite acidity of the medium is produced.

3. Many of the bacterial toxic bodies, using the term in its widest sense, are formed to the greatest advantage in a definitely alkaline medium, and the production of these substances is in some cases distinctly inhibited by the presence of glucose; diphtheria toxin is an instance in point.

4. Stinking discharges are in most cases due to the tryptic digestion of proteins, and this is a form of enzyme

action which can only go on to advantage in an alkaline substrate, and which ceases in the presence of even a slight degree of acidity. This form of digestion, as it may be called, is analogous to that which goes on in the intestine with the formation, among other stinking bodies, of indol and skatol. The formation of indol by bacteria is said to entirely cease in the presence of a very small amount (0.25 per cent.) of glucose. That, as a matter of fact, I think, must depend on whether the particular bacteria ferment glucose rapidly or whether they first commence to digest the proteins. Certainly some bacteria, as, for instance, those causing the foul smell in ozæna, will produce a small amount of indol in the presence of considerable amounts (4 per cent.) of glucose.

Bearing these factors in mind we can briefly consider the clinical conditions in which I have tried this method, or seen it tried. In these infections the bacteria are carrying on their existence outside the body—that is, on the skin or mucous membrane, and not in the tissues themselves. In a sense these conditions are analogous to the "carrier" states with which we are familiar in certain other diseases, notably in meningococcus and diphtheria infections.

Bromidrosis.—This is a condition of stinking sweat, which, as I have shown, responds rapidly to the local application of glycerin.¹ I have as yet had only one opportunity of treating a case with glucose, but in this instance it was effective, as in those cases treated with glycerin.

Ozæna.—This condition of fetid rhinorrhoea is in most cases due to a massive infection of the nasal mucosa with a specific organism, the principal characteristic of which, as far as we are concerned here, is that it grows very freely in neutral broth, producing much indol and a very foul smell. It grows with difficulty in acid broth (+30 and upwards) and there is no smell and no production of indol. It grows fairly well in 4 per cent. glucose broth without any smell, and with a gradual production of acidity, and in this culture, as in the acid cultures, it rapidly dies out. A considerable number of cases of this condition have been treated by Mr. C. H. Hayton at my suggestion both with glycerin and with glucose, by swabbing over the mucosa of the nose once or twice daily with a 25 per cent. solution, with the result that the secretions of the nose have become acid, and the specific bacilli have been to a large extent, in some cases completely, killed out, and replaced by staphylococci and streptococci, the foul smell and the incrustation of the nose clearing up concurrently. I am at present only vouching for the principle of this method of treatment, which seems to hold the elements of success. The final results as to permanency of cure or mere alleviation of symptoms in these cases we hope to embody in a later paper. At present glycerin has given the better results, probably on account of its special physical properties; but it is difficult to obtain.

Chronic Otorrhoea.—Mr. Hayton tells me that he has treated several old-standing cases of this condition with success. Others who have tried the method in these cases say that they have seen no improvement. Obviously the mechanical conditions here may be totally different from those met with in a mere mucous membrane infection.

Chronic Vaginal Discharge.—At the Tottenham venereal clinic, in conjunction with Mr. E. Gillespie and Mr. F. L. Provis, I have had the opportunity of observing and treating a number of cases on this principle. Most of them were long-standing instances of persistent discharge not reacting to disinfectant douches. Some were known to be of gonococcal origin, in some there was no proof that they had had this infection at any time, and the condition seemed to be due more to the faulty anatomical conditions not uncommonly found in multiparae. The treatment was carried out by the patients themselves either by douching twice daily with a 25 per cent. solution of liquid glucose in warm water, or by the introduction nightly of a glucose pessary (25 per cent. glucose made up in a gelatin basis). We found in most cases that the purulent discharge rapidly diminished, in some cases it cleared up completely, and the vaginal secretions resumed their normal acid reaction. We are not prepared to assert that the condition can be cured by this means; some cases have relapsed after being clear some months since discontinuing treatment, some have not at present relapsed, but in any case to assert a

positive cure of a gonococcal condition is extremely hazardous. Moreover, in those cases where the anatomical conditions remain abnormal there must necessarily always be a tendency to an abnormal bacterial flora on the mucosa. Two things, however, admit of a positive statement: (1) That the patient's comfort has been increased by the diminution of the discharge; (2) that the normal acid reaction of the vagina has been restored.

In these infections of a mucous surface which, as I have said, seem to be analogous to certain other "carrier" conditions, it is highly probable that the likeliest means of cure lies, not in attempting to kill off the invaders completely lest some few escaping the killing process might find the place swept and garnished for them, but rather in attempting to restore the mucous surface to a condition in which its normal bacterial flora may multiply, and in course of time take entire possession of the field again.

In connexion with the treatment of vaginal discharge by the method advocated here, all one wishes to lay stress on is the fact of the diminution of the discharge; this most likely, though not absolutely certainly, marks a step in the right direction. Further work must show how this is effected; whether the mere acidity prevents the migration of the leucocytes through the mucosa, or whether the bacterial products that entice them out by their positive chemiotactic influence are not formed in the presence of the glucose medium I have not myself determined at present.

It needs only to be repeated that, in this as in any other form of treatment, one factor that is bound to condition success is a certainty that the medicament actually reaches the site of the infection.

REFERENCE.

¹ *Lancet*, December 5th, 1914.

THE INTRAVENOUS INJECTION OF EUSOL IN CHRONIC ARTHRITIS.

BY

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It occurred to me that the chronic infections causing arthritis might be benefited by the intravenous injection of eusol. Fourteen cases have so far been treated; of these six were very much improved, four improved, and four were not affected. In a chronic complaint such as this it is very difficult to weigh the evidence as to the cause of the result obtained. There seems, however, little doubt that the improvement was in some of the cases directly due to the eusol.

An endeavour was made to get recent acute cases running a temperature and displaying evidence of toxic absorption. Some were, however, long-standing cases with an acute relapse. Cases are not sent to this hospital in the very early acute stage, when there is reason to think this treatment might be most beneficial. They were mostly cases that could not be classified as typically rheumatoid, and in which the source of infection was doubtful.

The solution used contains 0.5 per cent. free hypochlorous acid, and was prepared according to the receipt of James Graham, namely, 12.5 grams boric acid, and 12.5 grams chloride of lime are shaken up with 1 litre water, allowed to stand for some hours, filtered, and 8.5 grams of common salt added; dose, 100 c.cm.

CASE I.

R., aged 24, had had some pain and swelling of the right hand and wrist for six months, which spread to almost all the joints five weeks before admission. He was acutely ill in bed and was making no progress. He had irregular pyrexia up to 100°; a sore throat had started about the time of onset of the arthritis and had become much worse just previous to the time of the more acute attack. An attempt to cultivate an organism from the throat was not successful. The first injection of eusol improved his general condition very greatly. His throat was better by the next day and he began to eat for the first time for some months. He was given two more injections and made steady progress. On discharge his joints were all very much better; his right knee, however, contained fluid, but was painless. He could walk well with one stick. The temperature was normal.

CASE II.

P., aged 32, had had pain and swelling of ankles for at least four months, spreading to the knees, hips, back, shoulders, and

hands. When admitted he was confined to bed, unable to stand or walk. The knees and ankles were swollen, and in the metacarpo-phalangeal joint of the right thumb there was crepitus on movement. He had fairly widespread acne about the face. After the first injection the acne almost disappeared and the pains were slightly relieved. After the second the pains were much relieved, the swelling went down, and the acne entirely cleared up. He had one more injection and was discharged very much improved. He walked with one stick and his temperature was normal.

CASE III.

Clara G. During two years all joints had become gradually affected. Three months ago the right knee and ankle became acutely affected. On admission all joints were typically deformed and tender. There was evidence of thinning and destruction of cartilage, and some bony outgrowths. The right knee was acutely flexed and very tender, the ankle was also very swollen and tender. A skiagram of the right knee showed typical changes of septic arthritis. She had had acne of the face for three months and some pyorrhoea. After two injections she was greatly improved; her pain had gone except on movement, and the acne was very much better. The improvement in general health was also very marked. Under an anaesthetic the knee was straightened and put on extension. Her temperature rose and remained up for several days, but came down after a third injection. She had one further injection a week later. On discharge she was beginning to walk a little, suffered very little pain, and movement was returning in all her joints; even her wrists which had before been apparently fixed. The temperature was normal.

CASE IV.

J. C., aged 29; duration twenty months, gradual onset, second acute attack seven months before. On admission he walked with great difficulty with a stick. Fingers, wrists, feet, and knees were very tender, swollen, and with very limited movement. His month had twice been carefully overhauled, and was apparently healthy. He had an irregular temperature up to 100°. After the first injection he was considerably and immediately relieved, and the next day was walking about without a stick, and was better than he had been for over a year. A second injection was given, the joints steadily improved, and the disease appeared for the time quiescent. He could only stay three weeks, and was advised to return in two months. On readmission, his improvement had been fairly maintained, except for three days, during which he had acute pain. His wrists were both swollen and tender, and the left was almost fixed. He was given four injections of eusol, and made steady progress. On discharge he could run, although clumsily; he had no pain, and had better movement at all joints, though these continued to be swollen. The temperature was normal.

The above cases all did very well; their improvement was immediate and definite, and apparently due to the treatment employed. The following two cases were quite uninfluenced by the injections:

CASE V.

Dorothy L., aged 19; duration eight months, gradual onset. Acute attack in bed until admission. All joints were very tender; there was great muscular wasting. She was very anaemic, and had slight irregular pyrexia. An organism was cultivated from the gums, and a vaccine prepared, but she did not appear to respond to it, and was decidedly not improving. After five doses she was given an injection of eusol (80 c.cm.). The temperature rose to 102°; ten days later she had a second injection, and the temperature rose to 103°. She afterwards appeared to make some progress, and complained less of pain; her general condition seemed better, but the temperature continued to be elevated. It was thought she might now be in a better condition to respond to vaccine treatment, and further doses were given, but without definite result. A third injection three weeks later met with no better result. On discharge her joints were a little less tender, but she was not able to walk any better, and the disease did not appear to have been checked at all.

CASE VI.

R. E., aged 35; duration five years. He had had more frequent attacks during the last two years, and had been ill the last nine months. On admission he looked pale, thin, and ill; the fingers and wrists were mostly affected; the joints were hot and turned slightly red when very painful. He had had artificial teeth for the last six years. The temperature rose to 99.4° at night. He was given four injections of eusol, but without any relief, and was then put on a stock streptococcal vaccine. He was finally discharged only very slightly improved.

These two cases were more typical of rheumatoid arthritis than any of the others. This is of interest, as other observers have found that cases of septicaemia due to streptococci have not responded to eusol so well as those due to other organisms.

The remaining cases do not afford any conclusive evidence; two more were very much improved on discharge, four were improved quite definitely, and, in addition to the last two given in detail, two more were not benefited. Those who have done well have shown this not only by an improvement in the joint conditions and in general

health, but in a steady temperature, which has in some been very well marked.

As to the mode of action of eusol, it is obvious that the bactericidal effect must be very small. It has been shown that hypochlorous acid 1 in 2,000 serum is an effectual antiseptic, but to get that concentration about 300 c.cm. would have to be administered. In the acute cases published, in which recovery was undoubtedly due to its action, the amount was only 100 c.cm., and in one case 40 c.cm. Cordova has shown that eusol would neutralize ten lethal doses of diphtheria toxin when given in two doses, the first immediately after, and the second twenty-four hours after the injection. He also obtained similar results with tetanus toxin and with *Staphylococcus albus*. He concluded that it acted by delaying the development of bacteria and destroying their toxins, thus enabling the natural resistance of the body to assert itself, and suggested that this destruction of toxins may be in the nature of a protean coagulation. It is a moot point whether in cases of arthritis we are dealing with a toxæmia or a direct invasion of the joint by organisms, but many of the other symptoms, the general malaise, and wasting must be due to toxin action. If these can be stopped, the patient must be greatly helped, and perhaps may either find sufficient power of resistance in his own body, or may be in a fitter condition to derive benefit from vaccine treatment. The most suitable cases for this treatment will be cases with signs of chronic poisoning, as shown by the temperature, skin reaction, and general condition. Some definite improvement should be obtained the day after a dose has been given; if this cannot be definitely elicited the treatment should not be continued.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DEFORMITY OF STERNUM AND MALPOSITION OF VISCERA.

THE following is a brief description of a case of congenital absence or imperfect ossification of the body of the sternum with malposition of abdominal viscera. It occurred in a youth aged 18, who came before a National Service Medical Board for grading.

He appeared healthy except for diffuse pulsation over the precordial area. The heart sounds seemed quite normal, but on palpating the precordia the examining fingers dipped down between the sternal ends of the ribs on to the pulsating pulmonary artery or right auricle. No ensiform cartilage could be felt, but the manubrium sterni seemed quite normal in its articulations with the clavicle and first rib. Percussion revealed abnormal dullness on the left side extending downwards almost to the level of the umbilicus. On the right side normal liver dullness was completely absent. He was sent to the Lord Derby War Hospital for x-ray examination, and the report stated "Absence of sternum with malposition of viscera to the left side." Since then Dr. Fox of Warrington has kindly taken an x-ray plate of the condition, and this shows increased heart shadow to the left with greatly increased definition of the bodies of dorsal vertebrae owing to absence of the intervening sternum.

Warrington.

J. S. MANSON, M.D.

TREATMENT OF FRACTURED FEMUR.

ONE of the chief difficulties in the treatment of a fractured thigh is to avoid posterior displacement or sagging at the seat of fracture.

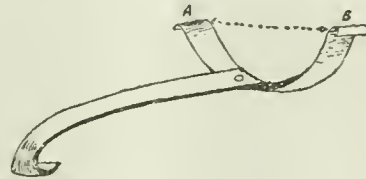
To overcome this displacement I make a simple addition to a Thomas's knee splint, as shown in the accompanying illustration. This support is made of iron sheeting about one-sixteenth of an inch thick and one and a half inches wide. The upper end hooks over the ring of the splint, and the lower end over the two side bars.

The iron sheeting is strong enough to support the thigh without bending, and can be arched forwards to conform with the natural bowing of the femur. It is made of sufficient length to support the condyles of the femur

without interfering with the movements of the knee-joint, and will admit of early movement of the knee-joint, especially when extension is taken by traction through the condyles of the femur.

This support can also be used with a Hodgen splint by making an extra transverse curve at the upper end instead of the hook.

The total length of the appliance is from nine to thirteen inches, as required. The distance from A to B will be



determined according to the size of the man's thigh; the depth of the curve below the line adjoining A and B will be two and a half to three inches.

J. H. C. FEGAN,
Captain R.A.M.C.(T.C.).

Reports of Societies.

CORRECTION OF BONY DEFORMITIES.

AT a meeting of the West London Medico-Chirurgical Society held at the West London Hospital on June 7th, Dr. A. J. RICE-OWLEY, the President, in the chair, Captain D. McCRAE AITKEN gave an address on the correction of gross bony deformities of the lower limbs resulting from war injuries. The results obtained at the Military Orthopaedic Hospital, Shepherd's Bush, which he demonstrated by lantern slides and casts, were excellent, and bore testimony to the efficiency of the methods adopted. Captain Aitken dwelt on the necessity of allowing time for the hardening of callus before letting the patient walk without supporting appliances. Neglect of this rule resulted in gross deformities in limbs properly set at the time of injury. Delirium from intercurrent pneumonia or head injuries was no reason for neglecting the fracture, a statement which applied equally to all other intercurrent ailments. A suitable splint would permit of moving the patient bodily without disturbing the fracture. Early surgical interference was to be avoided until all inflammatory signs had disappeared, and to aid the process and improve the condition of the limb massage was meanwhile applied. Although so far sepsis had occasionally been lighted up by surgical interference there had not been any cause for serious anxiety. Fractures of the femur were put up in the abducted position with the knee extended, and traction made on the leg after reduction under an anaesthetic by strapping attached to the end of the splint. Captain Aitken held that the general alignment of the limb was the point to be considered, but that very good practical results could be obtained where, without surgical interference, the alignment of the bone could not be made perfect. He described the reversed bone-wedge method of dealing with injuries in the neighbourhood of joints whereby shortening of the limb was obviated.

Mr. TYRRELL GRAY, while accepting most of the views expressed by Captain Aitken, could not agree that the danger of lighting up septic foci was slight, and thought this militated against the reversed wedge method. In similar cases he would prefer a simple osteotomy above the injury. Major JOCELYN SWAN supported Mr. Tyrrell Gray's views about sepsis, and further criticized the method of putting up cases of fractured femur with the knee extended. He put up such cases with the knee slightly flexed, and applied extension to the knee by Beesley's callipers, to which a weight was attached. Dr. JAMES MENNELL pointed out that massage could neither light up nor disperse minute pockets of pus or latent septic foci. Any tenderness over the seat of fracture contraindicated walking exercise. The President and Mr. ASLETT BALDWIN and Mr. A. ROCYN-JONES also took part in the discussion.

Rebicus.

DIAGNOSIS IN HEART DISEASE.

CLINICAL experience as a means of accurate diagnosis of heart disease has often been found wanting. Pathological findings have too often proved that the interpretation of morbid sounds has been fallacious, and some writers have even affirmed that the average proportion of error may be assessed at 50 per cent. To what extent have modern methods been effective in reducing this proportion? In the form of a substantial volume, entitled *Diseases of the Heart: their Diagnosis, Prognosis, and Treatment*,¹ Dr. F. W. PRICE has set forth a full account of the results achieved by several trained cardiologists working at Hampstead and elsewhere, which may be welcomed as a landmark in the onward march of knowledge. Much of the subject matter has already appeared in the form of isolated papers and addresses, and, in his preface, the writer makes due acknowledgement of his indebtedness to the labours of others. The introduction of the polygraph, by means of which it is possible to record simultaneous tracings of the heart, the artery, and the vein, has opened up new lines of study and has led to a more satisfactory explanation of the symptoms produced by varying morbid conditions.

Although the main object of the book is to record and explain the clinical value of instrumental observations, the writer has not ignored the value of older methods, nor does he entirely share the enthusiasm of some other observers as to the infallibility of the newer systems.

The primary test to which all cardiac cases must be put resolves itself into the simple question of integrity of function under strain. If the test indicates any departure from normal action, then instrumental investigation should be employed to detect the cause, and in a very large proportion of cases it is found to lie in some abnormality of the neuro-muscular structures of the heart wall. Special attention has thus been called of late years to the abnormal contractions of the auricle, known at the present time as auricular fibrillation and auricular flutter respectively. Persistent irregularity of action is the characteristic of the first of these, and paroxysmal irregularity of the second. Auricular fibrillation is regarded as a specific clinical condition which can be diagnosed with certainty. It is fully discussed and illustrated in a separate chapter. Irregularity may arise from many other causes. The introduction of the instrumental methods of diagnosis, and especially of the electro-cardiograph, which is also very fully explained and illustrated, has resulted in a form of classification which has led, and probably will lead still further, in the direction of effective treatment on rational rather than on traditional lines. The book presents a comprehensive account of modern knowledge of cardiology, and the author has taken pains to indicate the points upon which most competent observers are agreed as opposed to those about which there is difference of opinion. While he duly records such opinions, Dr. Price frequently manifests his own inability to share them. A very full index renders the work easy of reference, and as a whole it may be commended as a comprehensive guide both to diagnosis and treatment.

TUMOURS OF THE AUDITORY NERVE.

PROFESSOR HARVEY CUSHING's monograph on *Tumours of the Nervus Acusticus and the Syndrome of the Cerebellopontile Angle*² is an intensive study of twenty-nine microscopically proved cases and of thirty-five probable but unverified tumours of the acoustic nerve. They are true nerve tumours, neurofibromas, neurogliomas or neurofibrogliomas, and may most suitably be spoken of as acoustic fibroneuromas. The tumour is composed of two kinds of elements, dense fibrous and loose areolar tissue with some of the characters of a glioma, and must be distinguished from other tumours arising in the cerebello-

pontile angle. Their usual origin is in the distal part of the nerve, probably from embryonic tissue rests, within the internal auditory meatus which may become dilated from absorption. The tumour extends into the cerebellopontile angle and eventually causes internal hydrocephalus. The patients, who would appear to be more often women than men, begin to suffer on an average about the age of thirty-four years, and come to hospital and operation some four years later. These patients are therefore older than those with other sub-tentorial lesions. The left acoustic nerve was more often affected, but in rare instances both nerves were implicated, usually, though not always, as part of a more or less widespread neurofibromatosis.

The symptoms occurred in the following stages: First, auditory and labyrinthine manifestations such as deafness, tinnitus, and vertigo; second, occipito-frontal pains, with suboccipital discomfort; third, inco-ordination and instability of cerebellar origin; fourth, evidence that the adjacent cerebral nerves are implicated; fifth, indications of increased intracranial pressure with choked disc and its consequences; sixth, difficulty in swallowing, awkwardness in articulation; and, finally, cerebellar crises and respiratory embarrassment. Nearly all the symptoms, except those due to the auditory nerve, may vary from time to time in a much greater degree than in the general run of cerebral tumours.

The clinical diagnosis can be made with reasonable certainty only when auditory symptoms definitely precede the evidence of implication of other structures in the cerebellopontile angle. The differential diagnosis is fully considered, and the surgical treatment by a "cross-bow incision," which gives a bilateral cerebellar exposure, is described in detail.

This original study of clinical and pathological material has been carried out on the same lines as the brilliant author's well-known work on the pituitary, and, like it, marks a definite advance in knowledge.

RADIOLOGY.

MORTON'S *Textbook of Radiology*³ has now reached a second edition. In all its main features it is essentially unaltered, but certain revisions of the text have been made, it has been expanded by some fifty pages, and the number of plates and illustrations considerably increased. Quite one-half—the first—is given up to a description of the apparatus required for x-ray work; the second half deals with the various conditions in which radiography is valuable, and describes the technique to be used in order to obtain successful results. The subject of x-ray therapeutics is compressed into one chapter of twenty-three pages at the end which deals mainly with the action of x-rays, the methods of measuring dosage, and the theory of filtration.

The illustrations of apparatus are good, but those of radiographs used to indicate various pathological conditions are uneven, and hardly come up to the standard which is desirable. Those of the stomach after an opaque meal are—even allowing for the loss of detail in reproduction—for the most part unsatisfactory, and fail to indicate the modern possibilities of this method of demonstrating various pathological conditions of this organ.

The author states in his preface that his aim has been to produce a guide to those taking up radiography for the first time; with this in view he has been content to indicate conditions most commonly met with in which an x-ray examination is essential, and has devoted a considerable portion of his book to apparatus, and especially to the state of the x-ray tube. Recognizing this, it may be said that he has produced a book which forms an admirable introduction to the subject, and one which should be useful to a beginner.

NOTES ON BOOKS.

ERRORS and defects of movement after war wounds have exercised, and will continue to harass, those who have them in hand till the last pension has been paid. The earlier our ideas of the underlying physics of defective movement are put upon a clear basis the better, and there

¹ *Diseases of the Heart: their Diagnosis, Prognosis, and Treatment by Modern Methods.* With a chapter on the Electro-cardiograph. By Frederick W. Price, M.D., F.R.S. Edin. London: H. Frowde, and Hodder and Stoughton. 1918. (Demy 8vo, pp. 472; 245 figures. 21s. net.)

² *Tumours of the Nervus Acusticus and the Syndrome of the Cerebellopontile Angle.* By Harvey Cushing, M.D., Professor of Surgery at Harvard University. Philadelphia and London: W. B. Saunders Company. 1917. (Roy. 8vo, pp. 296; 262 figures. 21s. net.)

³ *A Textbook of Radiology (X Rays).* By E. R. Morton, M.D., C.M. (Trin. Tor.), F.R.C.S. Ed., etc. London: Henry Kimpton. 1918. (Demy 8vo, pp. xvi + 264; 93 figures; 36 plates. 10s. 6d. net.)

is no tongue better fitted than the French to call in aid. It is to be feared, however, that Professor BROCA, with all his reputation, has not quite succeeded in the volume he contributes to the well-known *Horizon Collection*.⁴ His diction does not lend itself easily to English eyes, though we can well believe that English ears, which, after all, are proper to the purpose, could they be employed in his clinique, would find much to profit by. The first part of the book deals with ankyloses, true and false, their origin, diagnosis, and treatment. The second part discusses non-articular lesions; cicatrices and muscular lesions, with consideration of alterations in the length, direction, and line of action of the long bones in their capacity as levers; it deals also with vicious callus and with false joints. The teaching is sound but not very enterprising.

Professor HARTMANN's lectures at the Hôtel-Dieu on war wounds and their immediate complications⁵ were delivered in the 1916-17 session, and, as might be expected from a teacher of his eminence and experience, afford a clear survey of the then state of opinion as to treatment. They will have a certain interest to the future historian of the evolution of practice during the war period, and doubtless were of high value in the education of his pupils, but at this moment it is inevitable that a hint of the out-of-date should insensibly creep over the reader. The advice seems of yesterday, and yesterday is already with the seven thousand years. The professor, however, rescues from the past some forgotten observations of no little interest, notably Larrey's description of trench foot, which leaves little to be added to-day.

⁴ *Troubles Locomoteurs consécutifs aux Plaies de Guerre*. Par Aug. Broca, professeur à la Faculté de Paris. Paris: Masson et Cie. 1918. (Cr. 8vo, pp. 155; 33 figures. Fr. 4.)

⁵ *Les Plaies de Guerre et leurs Complications Immédiates*. Par Professeur Henri Hartmann. Leçons faites à l'Hôtel-Dieu. Paris: Masson et Cie. 1918. (Roy. 8vo, pp. 203; 58 figures. Fr. 8.)

MEDICAL AND SURGICAL APPLIANCES.

A Modified Rigid Stethoscope.

LOUIS LOWENTHAL, M.D. (Hampstead), writes: For some time past I have been using the monaural stethoscope, which I have modified in such a manner as enables me to hear through it with both ears at the same time. The instrument consists of an ordinary monaural stethoscope in two parts, to which is attached a piece of indiarubber tubing about 16 in. in length. This is connected at the earpiece and communicates with the bore; at the free end of the rubber tubing is a comfortably fitting earpiece. When in use the small free earpiece is inserted into the ear furthest away from the examining side. The stethoscope is placed in position on the chest and used in the ordinary manner. The advantages of this instrument over the single stethoscope are that both ears are engaged, and the examiner can better concentrate his attention since extraneous sounds are prevented from reaching the otherwise unused ear. I have found it especially useful for examination of the heart; the sounds, both normal and pathological, are clear and distinct, being carried direct to the ear through the short, straight stem. Messrs. Allen and Hanburys have designed for me the pattern which I use.

THE FUTURE OF THE MEDICAL PROFESSION UNDER A NATIONAL HEALTH MINISTRY.

The discussion on this subject at the Royal Society of Medicine was concluded on June 5th.* Sir RICKMAN GODLEE was in the chair.

Sir BERTRAND DAWSON said that Sir Watson Cheyne and others had suggested that for the present the profession should confine itself to advocating a Ministry of Health, but that he considered would be an extremely unwise course to pursue. By all means let the need for such a Ministry be urged, but the success of the profession in the future would depend, not only upon the establishment of a Ministry of Health, but upon the policy pursued by that Ministry. The Insurance Act aimed far too much at securing the profession's material interests, and in consequence disregarded too much its ideals; that mistake must not be repeated. One of the first objects of a Ministry would be to co-ordinate a large number of existing departments, two of which would be chief, namely, the Local Government Board and the Insurance

Commissioners. These two bodies represented very important interests, but it was desirable that the Ministry should represent a balance of professional interests, including ordinary general practice, various organized public services, academic medicine, and research, as well as the work gathered under the two Government departments mentioned. The term "state service" was a bogey to some, but there was nothing new in state service, and it was, indeed, because the existing state service had become so ungainly in its proportions that the necessity for re-organization had become apparent. He believed that a whole-time salaried state service for all would ruin the profession; it would remove the stimulus of rivalry, lead to intellectual stagnation, and medicine would become a machine without a soul. But the profession could equally be crushed by having mechanical routine so heaped up around it that the individual was left with little opportunity to exercise his personal initiative or to put his soul into his work. While it was still too early to think out schemes in detail, it was evident that there must be (1) an approximation between preventive and curative medicine, both from the point of view of education and organization; (2) encouragement to the general practitioner by way of the provision of fabric and equipment; (3) the development of institutional treatment. He favoured a system of part-time service.

Dr. CHARLES BUTTAR asked why the profession should press for a Ministry of Health. Was it on account of some supposed benefit the profession would derive from the existence of one King Stork instead of many King Logs? Would they leap into the millennium, or would they not find that the more these things changed the more they remained the same? The failure of the Insurance Act and other attempts at state control was due to the existence of a certain number of free and more or less independent practitioners who refused to put themselves under such control, and this section would always have to be reckoned with. His own view, perhaps an unpopular one, favoured the full encouragement and development of voluntary methods, as against either a complete system of state control which would extinguish the voluntary principle, or a partial system on the lines of the Insurance Act. A large measure of organization and co-ordination could be secured on voluntary lines. He wished to see a small body of men formed, representing the Royal Colleges, the Universities, and the British Medical Association, to discuss the proposals and elicit the collective opinion of the profession as far as possible; but above all to guide the medical profession in a statesmanlike way with regard to its future.

Mr. V. T. GREENYER said that the public must be satisfied whether the profession was or not, and he foresaw difficulties under a state scheme owing to the section of people who would feel themselves "above" the ordinary state clientele of the practitioner. He hoped that the public would help the profession to maintain its freedom.

Dr. J. D. CREE thought that a matter in which the practitioner might have state assistance was that of difficult diagnosis, and this could be forthcoming under a system of complete notification.

Dr. C. THACKRAY PARSONS dealt with the reform of the Poor Law medical service; and Dr. BENJAMIN MOORE reiterated his plea for state service, which he said should not be obscured by any question as to method of payment.

Major GORDON DILL, replying on the whole debate, said that the people who were averse from any change were ignoring the facts of the situation; they disregarded the great revolution which had been going on for many years and had found issue in the Insurance Act. The conditions of medical service would never again be what they had been in the past. As to a state medical service, nobody had suggested the idea of a state service *ab initio*; there were already services of the state in which the majority of practising medical men were engaged. Some had spoken as though a state service meant a service organized and controlled by outsiders; he trusted that whatever was done the organization and control would remain in the hands of the profession.

On the motion of Dr. THACKRAY PARSONS it was agreed:

That this meeting, the third at which the future of the medical profession under a Ministry of Health has been discussed, request the Council of the Society to appoint a small watching committee to consider the progress of the question and report to the Council from time to time.

* For reports of the previous meetings see BRITISH MEDICAL JOURNAL of April 20th, p. 456, and June 8th, p. 653.

THE MEDICAL PROFESSION UNDER THE MILITARY SERVICE ACT.

THE Central Medical War Committee has issued this week a letter to the honorary secretaries and chairmen of Local Medical War Committees in England and Wales, dealing with the duties of the local committees and the ways in which their co-operation is desired in order that the new calls on the medical profession may be made with the minimum of hardship to the profession and of inconvenience to the public. It is pointed out that the local committees will continue to advise the central committee both in its tribunal capacity and in respect of its other duties, the Ministry of National Service recognizing that the system which has been gradually built up depends for its efficiency on the cordial co-operation between the central and local committees.

The Central Medical War Committee, acting as the formal medical tribunal, will deal with all claims for exemption from combatant service. The grounds upon which application may be made were given in full in the JOURNAL of June 1st, p. 622. All registered medical practitioners are liable to military service if:

(a) On the 18th April, 1918, they had not attained the age of 56.

(b) They are male British subjects.

(c) They have at any time since the 14th August, 1915, been in Great Britain; and

(d) They are not for the time being within the exceptions set out in the First Schedule to the Military Service (No. 2) Act, 1918.

The exceptions relate to men ordinarily resident in the Dominions abroad, members of the Forces, certain disabled men, certain rejected men, and men in Holy Orders or regular ministers of any religious denomination.

Any doctor who as an ordinary citizen falls to establish a claim to a special form of exemption on the ground of exceptional personal hardship or ill health, or of conscientious objection, will be given conditional exemption on the terms of the proviso to Regulation 24 (see p. 622). This, which is styled "standard exemption," will hold good unless and until he is offered a commission, the essential condition being that he will, if and when required, undertake such professional work as the Director General of National Service, after consultation with the medical tribunal, may offer him. The desire of the Central Medical War Committee is to secure that as large a number as possible of the members of the profession who come under the new Act shall accept this standard exemption, leaving the question as to whether they ought to be allowed to remain where they are, or to take a commission, or to undertake civil work elsewhere, to be settled later when the circumstances of each area are reviewed. A man who takes the exemption offered to him will be in exactly the same position as the great majority of those who apply for a higher grade of exemption, since it seems unlikely that more than a very few absolute exemptions can be granted.

The object is to put all the men concerned on the same footing, leaving the question of their future use to be dealt with in consultation between the central and local committees. Each individual will subsequently have an opportunity of being heard by both the local and central committees before any decision is reached as to the disposal of his services. In order to meet immediate military requirements it will be necessary in some areas to make a call for military service at once on eligible men of the class just over the former military age. The committees affected will receive due notice, and the doctors concerned will be dealt with in accordance with the new Regulations.

The ordinary procedure will be on the following lines:

(a) Doctors liable to military service will be examined medically by special travelling National Service Medical Boards.

(b) Meanwhile the Local Arrangements Subcommittee of the Central Medical War Committee will be considering from what areas doctors can be spared either for commissioned service with the forces, or for substitution work in civil practice, if and when required.

(c) The men under 56 in the areas selected will receive fourteen days' notice under Regulation 17 in order that they may if they choose exercise their statutory right to apply for exemption. With this will be sent a "certificate of protection" issued by the Ministry of National Service, identical in terms and effect with the "standard exemption" referred to above.

(d) Applications for an exemption different from the standard form will be heard by the medical tribunal.

(e) Simultaneously the Local Arrangements Subcommittee will continue its correspondence with the local committees and investigation into the circumstances of the areas.

(f) From the men neither rejected on physical grounds nor granted on personal grounds exemption different from the

standard exemption, the local committee will select those who in its opinion can be most easily and suitably spared from the area. The process will be analogous to that adopted during the past two years, the only difference being that a doctor who can be spared from his present work may be used for other civilian duties instead of receiving a commission.

(g) Doctors not satisfied with the recommendation of the local committee on their cases, or with the provisional decision of the central committee, will be heard if they so desire. At this hearing all relevant circumstances will be taken into consideration.

The object of this procedure will be to build up a reserve of doctors who are known to be available either for military or civilian work, and this reserve will be drawn upon as and when required. In order that the best use may be made of the men thus made available, all facts bearing on their aptitude, circumstances, and wishes will be noted during the various hearings and investigations.

There is thus no need for an individual doctor to take any action until after he has been medically examined, and not even then until he receives the fourteen days' notice from the Ministry of National Service, together with the certificate of protection which will be offered to every man. He need only take action then if he thinks his circumstances are so exceptional as to be likely to obtain something different from the standard exemption.

The above procedure is based on the assumption that plans must be laid for the possibility of a long war. Hence no idea can be given of the number of men between 43 and 56 who may have to be disturbed. But there is no intention of taking older men if, other things being equal, younger men are available; nor is there any intention of moving men for the sake of moving them. The aim of the central committee will be to disturb as few men as possible. How far this can be achieved will depend largely upon the extent to which arrangements can be made in urban areas for the release of men by a radical revision of the present conditions of practice, such as the institution of central surgeries, the pooling of practices, and the moving of doctors from one part of the town to another. In some cases it will be necessary to move doctors from one area to another, but this method will, for the most part, only be adopted when the central and local committees are convinced that in no other way can the men needed be released for military service.

In our article on this subject last week (p. 647), it was pointed out that where the ground of exemption is occupational the medical tribunal will be able to grant conditional exemption only. In this connexion it may be well to note that a recent Order by the Minister of National Service withdraws certificates of exemption from military service held wholly or partly on occupational grounds by men of various ages employed in a large number of occupations who are in medical categories A, B 1, and C 1, or Grades 1 and 2, or who have not been medically examined. Men thus "decertified" have no right to apply to a tribunal for renewal of exemption on occupational grounds, and their employers cannot make such an application on their behalf. Medical men are thus not alone in being unable to make individual application for exemption from military service on occupational grounds—that is, grounds of national interest.

With regard to the financial arrangements for substitute civilian medical service, the statement now being issued by the Ministry of National Service to medical practitioners, which was outlined in our last issue at p. 651, definitely says that the medical man "may confidently assume that he will not be required to abandon his own work for such service except upon terms of remuneration not inferior to those of commissioned service in the Royal Army Medical Corps." We understand that the financial aspects of national service for medical practitioners are being closely studied by a special subcommittee of the Central Medical War Committee.

THE President of the Republic of Cuba, on the proposal of Dr. Mendez Capote, Director of Public Health, recently signed a decree making compulsory the hospitalization of all sufferers from malaria who are unable to bear the cost of isolation. Foreigners refusing to submit to this ordinance will be expelled from the island.

At the fourth National Medical Congress, recently held at Havana, it was decided to form an anti-venereal league in Cuba. At the same meeting resolutions were passed urging the formation of a league against malaria, hook-worm disease, and rural typhoid. The work will be carried out under the direction of a committee of management comprising the leading bacteriologists in Cuba. The league will have an official organ, entitled *El Eco Científico*.

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THE INTER-ALLIED SCIENTIFIC FOOD COMMISSION.

THE Inter-Allied Scientific Food Commission now sitting in London has already at previous meetings accomplished a good deal of work, and if its recommendations are carried out, the provisioning of allied countries will be placed on a sound scientific basis. That its recommendations will be carried out seems to be more or less guaranteed by the fact that it was established as a result of a decision of the Inter-Allied Conference held in Paris last November. The Conference directed that the inter-allied scientific commission should consist of representatives of France (Professors Gley and Langlois), Italy (Professors Botazzi and Pagliani), United States (Professors Chittenden and Lusk), and the United Kingdom (Professors E. H. Starling and T. B. Wood). It was instructed to meet periodically in order to consider from a scientific point of view the food problems of the Allies, and in agreement with the inter-allied executives to make proposals to the allied Governments. The Commission held its first meeting in Paris on March 25th, and its second in Rome on April 29th. Before its present meeting in London a representative of Belgium, Professor Hulot, was added. A memorandum upon the work of the Commission, furnished to us by the Food Controller, contains some particulars enlarging the information published in previous issues.

At its first meeting last March in Paris the Commission came to an agreement as to the minimum food requirements of the average man. It was laid down that for a man weighing 70 kilos, or 154 lb., doing average work during eight hours a day the food as purchased should have an energy value of 3,300 calories a day, but that a reduction of 10 per cent. could be supported for some time without injury to health. The Commission accepted the figures of Professor Lusk, one of the representatives of the United States, for the proportion to be assigned to women and to children at different ages. At the second meeting, in Rome, the metric ton (a metric ton is 0.9842 ton British) was adopted as the unit for estimating the weights of the various foods produced in each allied country. A "man value"—that is to say, the number of average men equivalent to the population of each of the allied countries—was established, and was taken as a basis for calculating the amount of food to be provided for the adequate nourishment of the total population of each country. An estimate was then formed of the home production of the soil furnished by each allied country in 1918-19 to serve as a basis for determining the amount of food available for men and animals respectively in each country.

It was not thought desirable to fix a minimum meat ration, in view of the fact that no absolute physiological need exists for meat, since the proteins of meat can be replaced by other proteins of animal origin, such as those contained in milk, cheese, and eggs, as well as by proteins of vegetable origin. It was, however, considered desirable to fix a minimum ration of fat; this it was decided should be 75 grams—about 2½ oz. per average man a day. It is to be

noted that the fat ration may be made up from fats partly of vegetable origin and partly of animal origin, and the Commission expresses the opinion that if the amount of fat of vegetable origin was found to be insufficient it might be necessary to maintain a certain stock of animals to make good the deficit.

The Commission has recommended that the maximum possible proportion of all cereals except oats should be reckoned in when calculating the amount of calories available for man. As to milling, it has advised that a uniform extraction of 85 per cent. should be adopted in all the allied countries; this will vary from 80 per cent. in summer to 90 per cent. in winter, and will apply to the United States only as regards their internal consumption, and then only in case of scarcity. While man should always take precedence over animals in the allocation of food by governments, it is recognized that the methods adopted for reserving the maximum possible proportion of the cereals for the use of man may vary in each country. The opinion is therefore expressed that in fixing prices it is the prices of animal products which should be limited rather than those of such vegetable products as may serve equally well for feeding men and animals. The production of veal, pork, and poultry at the expense of other food immediately available for man should therefore be discouraged, and this may best be done by fixing prices for those animal products which will make it unprofitable for the producer to feed the animals on cereals. The chief subject now under consideration is the examination of statistics which will render it possible to ascertain the calorie value of the home production of each of the allied countries. The comparison of these figures with the needs in calories of the population of each country will enable the Commission to deduce the amount of imports necessary for the maintenance of the population, or the exportable surplus, as the case may be.

The Commission has also expressed the opinion that any propaganda having for its object the encouragement of food production and of economy in the use of food should be organized and directed by men of science well acquainted with the subject. The members of the Commission itself fulfil this condition, to the importance of which we had occasion some time ago to call attention, for this elementary principle was at first neglected in this country. It appears that the truth of this principle is beginning to be recognized in Germany, where voices are being raised in favour of consultation of scientific and medical experts by the authorities.

THE PARASITE OF ICTEROHAEMORRHAGIC JAUNDICE.

NOGUCHI¹ has continued his investigations on the parasite responsible for icterohaemorrhagic jaundice, formerly called Weil's disease, and finds that there are no differential features between the Japanese, the European, and the American strains. The Japanese observers, Inada and his collaborators, described the organism as a spirochaete with several irregular waves, the entire body being dotted with alternate bright and shadowy portions, and gave it the now widely familiar name of *Spirochaeta icterohaemorrhagiae*. Hübener and Reiter, who recognized these appearances, believed that the organism had a series of minute knots, and hence called it *Spirochaeta nodosa*. Noguchi's careful observations show that the organism differs morphologically and in resisting the

¹ Noguchi, H., *Journ. Exper. Med.*, Baltimore, 1918, xxvii: 575-625.

destructive action of a 10 per cent. solution of saponin from all previously described spirochaetes, and he therefore places it in a separate genus under the name *Leptospira icterohaemorrhagiae*. The creation of a new genus may also, it is thought, facilitate a more exact morphological description than has hitherto been possible, as the vague use of the term spirochaete has indiscriminately covered at least six large genera of spiral organisms.

It is interesting to note that Noguchi's discovery of the organism in rats in America, where the disease has not been established as occurring in human beings, has been recently paralleled in this country by A. C. Coles,² who recognized this infection in nine out of a hundred rats examined, and in Tunis by C. Nicolle. In these countries, therefore, epidemics of jaundice due to this cause may be anticipated—and, indeed, may have already occurred—but, so far, the proof has not been established by the discovery of the organism.

Noguchi has also examined the cultural conditions of the organism, and finds that an animal or human serum is essential, but that the cultural value of different animal serums varies very considerably; that the reaction of the medium is an important factor, the most favourable being a slight degree of alkalinity; that the organism is an obligatory aerobe; that it grows best at 30° to 37° C., but is unable to grow in urine and does not survive more than twenty-four hours unless the urine is neutralized or rendered slightly alkaline. The faeces of normal or jaundiced persons destroy the organism within twenty-four hours, and in polluted water and sewage it does not remain alive for more than three days. It is therefore improbable that the spirochaete can survive long after it leaves its host, and to explain cases of human infection in which the carrier rodents are not in contact with man, the question of insect vectors has been taken up by Reiter, who obtained negative results with certain biting flies, fleas, and bed-bugs, and by Noguchi, who found that the larvae and adults of the *Culex* mosquito, the larvae of the house-fly and the bluebottle, wood ticks, and leeches failed to become carriers when fed on infected guinea-pigs or their organs. There are therefore further points to be established about the life-history and spread of this spirochaete.

THE RATE OF REFLEX NERVOUS DISCHARGE.

THE meeting of the Royal Society on June 6th was occupied in hearing and discussing an important paper by Mr. N. B. Dreyer and Professor C. S. Sherrington, F.R.S., on the brevity, frequency of rhythm, and amount of reflex nervous discharge as indicated by reflex contraction. The observations upon which the paper was founded arose out of an investigation undertaken for the Army Tetanus Committee, of which Sir David Bruce is chairman. The authors found that a single momentary stimulus of moderate intensity, such as a break-shock, even though not far above the threshold value of stimulation, applied to the afferent nerve of a spinal reflex centre, not uncommonly evoked from that centre a repetitive series of volleys of motor impulses. It tended to do so more as the stimulus, within limits, was increased in intensity, but the state of the reflex centre at the time was also a decisive factor. The rhythm of repetition of volley discharges from the spinal reflex centre was traced, by the ordinary mechanical method, to be of synchronous rate with that of stimulation of the afferent nerve, up to a frequency of 55 a second, and by a mechanical resonance method up to a frequency of 65 a second. By a "doubling frequency" method it was shown further that the frequency-rate of the reflex

discharge had not reached its limit under a stimulation of 75 a second, but surpassed that degree, though by what amount the method did not show. The maximal mechanical power of a muscle contracting under spinal reflex action was frequently as great as the maximal which could be evoked from it by direct faradization of the motor nerve itself.

DIPHTHERIAL INFECTION OF WOUNDS.

A good illustration of the great complexity of questions bacteriologists may be called upon to answer is afforded by a recent inquiry carried out for the Canadian Army Medical Corps with respect to the presence of diphtheria and diphtheroid bacilli in open wounds.¹ The inquiry was rendered necessary by the publication last September of a report by Majors Fitzgerald and Robertson, to the effect that out of 67 cases of open wounds in men returned from the Canadian Expeditionary Force examined in a particular division between May 20th and June 7th, 1917, no fewer than 40 afforded cultures of the diphtheria bacillus. The significance of the observation was somewhat discounted by the discovery that a nurse whose duty it was to dress the suppurating amputation cases had a slight wound of the index finger which yielded cultures of *B. diphtheriae*; she could not, however, be held entirely responsible for the outbreak because other instances of infected wounds occurred in soldiers who had returned to Canada after the nurse had been taken off duty. In two or three cases the infection was discovered in men immediately on their arrival in Toronto from overseas. Characteristic membrane formation occurred in certain of the cases, and in some the virulence of the bacilli isolated in cultivation was proved by inoculation. The fact that some of the cases afforded cultures of the diphtheria bacillus immediately upon arrival in Toronto made it essential to institute an inquiry in England to determine the frequency of the presence of *B. diphtheriae*, and incidentally of allied diphtheroids, in the wounds of patients in Canadian military hospitals. The inquiry was very laborious, but the result was reassuring. Only in four out of 306 cases examined were bacilli isolated having cultural characteristics of a true diphtheria bacillus, and of these four only two were virulent. On the other hand, in a considerable number of cases diphtheroid bacilli were isolated—that is to say, bacilli which morphologically resembled the true diphtheria bacillus. As long ago as 1888 attention was drawn to the fact that a Gram-positive bacillus which might easily be mistaken for the true diphtheria bacillus was frequently present in the throat and mouth. This was at first assumed to be an attenuated strain of the virulent germ, but when more refined bacteriological tests were brought into use in which the power of bacilli to ferment sugars was tested, it was established that this non-virulent bacillus was quite distinct from the true virulent bacillus, and it received the name *B. hofmanni*. Later on many other bacilli resembling the true diphtheria bacillus were found, and at least six groups of them distinguished. Morphologically, and in the early stages culturally, diphtheroid bacilli from wounds are many of them indistinguishable from *B. diphtheriae*, and in some instances they may have the same power to ferment sugars, so that it is not justifiable to make a diagnosis of diphtherial infection of wounds either from smears alone or from stained preparations and cultural characteristics. The demonstration that the bacilli produce toxins—ectotoxins—which can only be effected by observing the result of inoculation of broth culture, is alone capable of proving the presence of infection by the true virulent *B. diphtheriae*. There is a certain amount of evidence that particular species of diphtheroid bacilli characterize particular hospitals, but none that the diphtherial infection of wounds is otherwise than uncommon among the wounded.

² A. C. Coles, *Public Health*, Lond., 1918, xxxi, 88-90.

¹ Adami, Bowman, Adams, Fleming, Farquharson, Imrie, and Janes, *Bulletin of the Canadian Army Medical Corps*, June, 1918.

EPIDEMIO LETHARGIC ENCEPHALITIS.

PROFESSOR A. NETTER, who drew attention last March to the occurrence of cases of what he called lethargic encephalitis in Paris, has recently published¹ a fuller account of the subject. A number of similar cases have been seen by Professor Chauffard and other physicians in Paris and also in other parts of Northern France. The earliest cases in Paris were seen in March, and were diagnosed either as cerebro-spinal meningitis or as tuberculous meningitis. The chief symptoms were fever, somnolence, and ophthalmoplegia, so that the cases appear to belong to the same category as those observed recently in this country, and at first thought to be due to betulism. The patient at first either sleeps, or with difficulty resists the inclination to sleep, but at the same time is able to answer questions and to obey directions. Later on he becomes quite lethargic and unable to do anything, although he may wake up every two or three days to take food. Eventually the somnolence may deepen into coma. The lethargy may be varied by delirium or by convulsions, and the condition may last for weeks or months and be complicated by paralysis of sphincters and by bedsores. The commonest motor paralysis is ptosis of one or both sides, but squinting and even complete immobility of the eyes may be observed—symptoms which point to external ophthalmoplegia of nuclear origin. Loss of accommodation and of the light reflex may occur, and nystagmus is common. The paralysis may extend to the face, the palate, the tongue, the larynx, and the pharynx. There is no actual paralysis of the limbs, but often inco-ordination, trembling, or even clonus or contractures. Fever generally lasts only for a few days, and the diagnosis of encephalitis rests upon the absence (as a rule) of contracture, of Kernig's sign, of irregularity and slowing of the pulse, and on the fact that the cerebro-spinal fluid obtained by lumbar puncture is normal. The mortality Netter estimates at about 50 per cent., but some of the cases which appear most desperate recover. Examination of the brain reveals the lesions of diffuse interstitial encephalitis, which are those observed by Mott and others in sleeping sickness due to the *Trypanosoma gambiense*, though the cause, which has not yet been ascertained, of lethargic encephalitis must be different. Netter recalls an epidemic outbreak of a similar kind in Upper Italy and Hungary in 1890 to which the name "nona" was applied. Apparently cases of the same sort occurred in 1895 in many countries, including France, England, Germany, and the United States. The earliest record of an epidemic prevalence of such a disease appears to be that of an outbreak in Tübingen in 1712, which was called sleeping sickness, but though ocular paralyses were noted it is not clear that somnolence was present in the same cases. Netter gives a reference to an epidemic in Vienna in 1916-17 which appears to have presented all the symptoms of the recent cases. An inoculation under the dura mater of brain substance from one of the Vienna cases produced in a monkey a condition of somnolence which ended in death after forty-six hours. In this animal acute haemorrhagic encephalitis was present. Another monkey inoculated under the dura mater with an emulsion filtered through porcelain remained unaffected. These experiments were made by von Wiesner, who obtained cultures from man and monkey of a Gram-positive coccus; but these experiments do not seem to have been pursued. Netter rejects the suggestion that the condition is due to the same infection as produces poliomyelitis, mainly on the ground that in lethargic encephalitis the inflammatory lesions are interstitial and the cells are not involved. He also rejects the suggestion that it is due to food poisoning, and comes to the conclusion that it is a specific disease due to an infective agent not yet identified. As to treatment,

he used hexamine, which is believed to have an antiseptic effect on the central nervous system, as shortly after its ingestion formic aldehyde can be found in the cerebro-spinal fluid. He also advises intraspinal injections of serum from subjects who have recovered from the disease, a method which he found useful in poliomyelitis.

THE SOYA BEAN.

IN an article on the making of a vegetable milk from the soya bean published on April 13th, p. 430, it was said that though the bean grew freely in China, where it is indigenous, in Southern France, in Algeria, and in many parts of America, it did not take kindly to the English climate. We are informed by Mr. North, curator to the Royal Botanic Society of London, that the society has recently had so much success in growing the bean that it seems possible that its cultivation may become established in this country. Mr. North tells us that some 700 varieties are known in Eastern Asia and that one has been found which apparently flourishes here as well as in its own country of Manchuria. From an article in the *Botanical Journal* for March, 1918, we learn that the bean was brought to England in quantity for the first time in 1908, and that in the following year experiments were made at the instance of the Board of Agriculture with sixteen varieties obtained from Japan. The experiments failed because, though the plants grew well, they formed no flower. In 1910 seed was obtained from Manchuria, and some of the plants formed seed at the Cambridge University farm. When resown in 1911 the crop made little growth, and no seed was produced. Another experiment in the same year with a variety known as "early Tennessee," obtained from Quebec, was also considered to be a failure. In 1913 the Royal Botanic Society took the matter up, apparently as a consequence of a visit from the agent of a German cultivator, who wanted to form a syndicate to grow the bean. Later a dried specimen of a plant of an acclimatized race was supplied by the German agent, but all the seeds had disappeared from the larger pods; however, from several small pods thirteen seeds were obtained, which in the following season yielded plants bearing 440 seeds. From this small beginning the society succeeded in raising its stock to over 12,000 fully developed seeds. This year the plant is being grown under crop conditions in several places, and the Board of Agriculture and the Ministry of Food are interesting themselves in the experiment. The object in view is not to produce a vegetable milk, but to afford a new source of oil supply in this country. The bean, it is said, has been cultivated in China for 4,700 years, and the production of oil from it is among the most important industries of Manchuria and Japan. The residue is made into bean cheese and bean cakes, which are used for feeding cattle. The beans and products made from them have in fact become important articles of commerce. The fresh expressed oil may be used in soap-making without further preparation, and it is owing to its value in the manufacture of soft soap that it has hitherto been of commercial importance in Europe. The average percentage composition of the bean is stated to be oil 18, albuminoids 40, carbohydrates 22, cellulose 5, ash 5, and water 10. The amount of oil is higher and the albuminoids and carbohydrates lower than in the analysis we published, and it is probable that the amount of fat there given as contained in the vegetable milk was too high. In Japan the soya bean is also used for making certain condiments by submitting the beans to a kind of fermentation. At one time soy was largely imported into this country from China, and it was one of the condiments Byron recommended his fellow countrymen to take to Rome if they did not wish to starve during Lent. Whether there is any considerable importation of soy condiment at the present day we have not been able to ascertain. We are informed that a plot has

¹ *Bull. de l'Acad. de Méd.*, T. LXXIX, No. 18.

been sown this year in the gardens of the Royal Botanic Society, Regent's Park, under the direction of the council and the honorary treasurer, Sir Malcolm Morris.

THE FOOD OF THE ROMAN SOLDIER.

THE diet of the Roman soldier was on a scale very far below the liberal rations deemed necessary for modern armies. Readers of Caesar's *Commentaries* know how careful he was in all his campaigns about the *res frumentaria*. Till the period of the Roman Empire the legionary made his own bread. He roasted his ration of corn, ground it in a handmill or between two stones, then kneaded the flour into a paste with a little water, and cooked it in an oven improvised with a few tiles. He also made of it a strong vegetable soup, something like the old English frumenty (wheat boiled in milk). On this food, says Edmund Alexander Parkes, the Roman soldier marched and conquered as men of no other race have done. Sometimes, as a punishment, the ration of wheat was replaced by barley, which by the ordinary Roman was left to slaves and animals. On campaign the legionary had, in addition to his corn, a ration of meat when it could be got. Strict generals like Scipio insisted that the meat should be simply boiled or roasted without seasoning and eaten without sauce. But just as the Romans learnt the use of some weapons from their enemies, so they got from them certain culinary recipes. Thus they borrowed two kinds of sausages from the Lucani and the Falischi. The only drink allowed the Roman soldier was the *posca*, a mixture of vinegar and water, such as was given in a sponge fixed on a reed to Christ when hanging on the cross. Wine did not come into general use till the period of the Empire.

SANITATION IN INDIA.

THE task of the sanitary medical officer in India is so gigantic that sometimes it may well cause discouragement. He has to deal not only with a population very fixed in its ancient ways and with diseases common in this country, such as tuberculosis—which is, perhaps, as frequent in India as in England—but with tropical diseases such as malaria, kala azar, dysentery, and sometimes cholera. Encouragement may be drawn from the results obtained by the medical administration of Indian jails. The initiation of the work was due to a minute made by Lord Macaulay in 1835, but the first administrator who took in hand the sanitary reform of jails in India was Surgeon James Hutchinson of the Bengal Medical Service; he published a book on the *Medical Management of Indian Jails* early in 1835. It appears from a paper by Lieut. Colonel Mulvaney, published in the *Indian Medical Gazette* last year, that the death-rate from all causes in the Bengal jails in the five years ending 1847 was 75 per 1,000; in the five years 1878–82 it was still 74 per 1,000, but since then there has been a steady improvement, until in the five years ending 1917 the rate was only 20 per 1,000, and Colonel Sir W. J. Buchanan, K.C.I.E., the Inspector-General of Prisons in Bengal, is able to report that in 1917 it was only 15.8. There has also been a steady decline in the death-rate from cholera. In 1883 it was 5 per 1,000, in the five years ending 1917 it was 0.3 per 1,000; in fact, cholera, once a terrible factor in prison mortality, has for the last dozen years or so ceased to have any very notable influence on the mortality rates. A certain number of cases among newly admitted prisoners must always be expected, but through the establishment of quarantine wards in every jail the disease is prevented from spreading to other inmates.

THE "SUGGESTION" FACTOR IN TREATMENT.

IN all medicinal treatment, however appropriate and however active, there is a certain dose of "suggestion," which is not without its effect on the results. This is especially

true of the treatment of chronic diseases, in which the curative effects of drugs are not forthwith apparent. This "suggestion" only lasts for a certain period, which has been calculated by an ingenious French physician to be about three weeks. If no change be made after the lapse of this period the patient's hopes begin to falter and he loses confidence. Now, it is well within our means to continue the treatment in principle while varying the particular mode of application, and by shuffling the cards, so to speak, by altering the form of the treatment and rearranging the scheme, we can imbue the sufferer with the pleasing conviction that he has accomplished one stage and is now entering on a second. This may sound trivial, but therapeutic success is largely dependent on small details. It is an essential part of the programme to foster the patient's hopes and maintain his courage by devices which, though hardly scientific, may yet help him. Take such a disease as phthisis, for example. There are several well-thought-out methods of treatment which, in favourable cases, make for recovery. These methods comprise physiological factors that constitute the basis of therapy along with others which, like the vehicle in a mixture, are so useful as to be almost indispensable. Prolonged treatment must be monotonous, and this very monotony in the long run militates against its success. It does not require very much ingenuity to obviate this drawback. We are familiar with the remarkable effects of any new treatment of a chronic disorder if only it be applied by someone who enjoys the patient's confidence. The buoyancy begotten of hope stimulates the circulation, and individual symptoms for the time being attract less attention, so that the general effect is one of "feeling better."

THERAPEUTIC USES OF SUGAR.

AN Italian physician, Professor Lo Monaco, has recently stated that remarkable results have been obtained in tuberculosis by the intramuscular injection of solutions of cane sugar. He injects, with proper precautions to ensure antisepsis of the skin, 5 grams of saccharose dissolved in 5 c.cm. of sterilized distilled water. This quantity is given daily in one or two intramuscular injections. It is said that after three or four days the temperature falls, night sweats cease, the cough is very much lessened, and the amount of expectoration greatly diminished. It is stated by *Le Journal* that the method is to be tried at the French sanatorium for tuberculous soldiers at Bligny. The results of this trial will be awaited with interest, for the effects claimed are rather astonishing. We have not been able to find any previous record of the administration of sugar by intramuscular injection, but sugary solutions have been used by hypodermic and intravenous injection chiefly to produce diuresis, and in place of saline injections in various toxic conditions. Their use has been condemned in Bright's disease and in arterial hypertension. Occasionally febrile reaction has been observed, and this has been attributed to the existence of latent tuberculosis in such cases. According to a recent note by Dr. G. Lyon,¹ an artificial serum containing sugar was first used by Hédon, Arrons, and Jeanbrau at Montpellier; but most of the recent work has been done by Fleig, who has prepared a number of formulae, and has suggested the addition of sugar to the ordinary saline injections. Most of the formulae direct the use of glucose, though lactose as well as saccharose has also been added. The use of a solution containing both glucose (3 per cent.) and sodium chloride (0.24 per cent.) has been suggested. An isotonic solution of saccharose is obtained by using 9.25 per cent. of pure crystallized cane sugar in distilled water; a hypertonic by using 30 per cent. As sugar has a nutritive value it has been suggested that when it is necessary to instil

¹ *La Press Médicale*, 1918, No. 20.

a saline injection during an operation it may be well to replace it by a glucose solution, with or without the addition of adrenalin (10 drops to the litre).

THE WAR HOSPITALS PROVIDED BY THE BOARD OF CONTROL.

AMONG the members of the medical profession who have received the honour of K.B.E. is Dr. Edward Marriott Cooke, chairman of the Board of Control, and we may take it that this honour is in recognition of the work done in connexion with the utilization of asylums as war hospitals. Sir Edward Cooke has been largely concerned in the initiation and development, on behalf of the Board, of this scheme, under which, by the conversion and adaptation of some sixteen county and borough asylums, a like number of large and well-equipped war hospitals have been formed, providing rather more than 26,000 beds; in them more than 300,000 sick and wounded soldiers have already been treated. In carrying this scheme through the Board of Control have had the cordial co-operation of the visiting committees, medical superintendents, and staffs of the whole of the county and borough asylums in England and Wales. Without this ready help the scheme could not have matured, and it is worthy of mention that, as respects the asylums offered to the Army Council, the services of every member of their staffs were taken over, and that these have proved of great value to the military authorities.

We regret to announce the death of Mr. L. A. Dunn, senior surgeon to Guy's Hospital. An obituary notice will appear in an early issue of the JOURNAL.

Medical Notes in Parliament.

National Service Medical Boards.—Upon a question by Sir H. Nield as to whether the constitution of medical boards for examining recruits in the London district and elsewhere had been altered, Mr. Beck stated, on June 10th, that it had been found necessary to increase the number of acting National Service Medical Boards in certain districts. It was expected that it might become necessary, in cases of urgency, for temporary emergency boards to consist of two doctors. He was glad, however, to say that it had been found possible to avoid the need of constituting any board with less than three doctors, and this was the minimum number responsible for the passing of a new recruit. Sir H. Nield inquired why boards which it had been promised should consist of five medical men were reduced to three without any notification to the House. Mr. Beck replied that he must have notice of that question, but he understood that those who dealt with the matter were perfectly satisfied so long as three doctors held the examination. Sir H. Nield asked whether the attention of the Director-General of National Service had been specifically called to a circular issued by the Assistant Director of Medical Service in London reducing the board from five to three without any intimation that it was a temporary arrangement. Mr. Beck answered that attention had been called to an alleged circular which suggested reducing the medical boards to two medical men. That was objected to, and his answer dealt with that point. Mr. Hogge asked that the secret orders should be laid on the table, and whether doctors in many places had refused to accept them. Mr. Beck said that he was not aware of such refusal. The evidence he had was to the contrary, but he did not understand that there were any medical instructions of the kind. Each recruit would be examined by three doctors. Sir H. Nield asked whether recruits at the close of their medical examination at 52, Conduit Street were being requested to put their signature to a paper containing a list of names but no heading nor explanatory statement, and were told in answer to any inquiry as to the object of the request that it was an acknowledgement that they had been carefully examined, or that they had had a satisfactory examination; whether the Minister of National Service was aware that these signatures were, as a rule, asked for before the grading had been determined or communicated, and while the recruit was still unclothed; and whether instructions would be given for the practice to be discontinued. Mr. Beck replied that the information was not quite accurate. It was desired to obtain the observations of the men themselves as to whether they had any complaints to make in connexion with the examination. It was thought that this was in the interest of the recruits themselves, and would be a valuable guide to those entrusted with the arrangements and conduct of their medical examination, but as it appeared from the question that the course adopted was open to misconception, he would undertake to see that a procedure was taken which could not give rise to any such misconception.

Sanatorium Treatment in London.—In reply to Mr. Booth, Mr. Haye Fisher, on June 5th, said that the population in the London County Council area in the middle of 1917 was slightly over four millions. The estimated expenditure of the London County Council in the treatment of tuberculosis during the last financial year was £35,000. The actual expenditure for the previous year, 1916-17, was £28,359. In addition, the Metropolitan Asylums Board incurred during that year a gross expenditure of £64,831, and a net expenditure of £33,557 on the treatment of tuberculosis. The London County Council did not erect or manage sanatoriums, but during the past year had contracted with the Metropolitan Asylums Board and with other sanatorium authorities for the provision of about 580 beds. The total number of beds provided in the institutions of the Asylums Board for the treatment of tuberculosis is about 780, apart from beds reserved for children under the care of guardians.

Plague-infected Rats.—In reply to an inquiry by Sir Shirley Benn, as to what precautions had been taken to prevent the cargo from ss. *Somali* conveying plague into England, Mr. Haye Fisher said, on June 5th, that no disinfection of the cargo was considered necessary. To prevent the risk of plague-infected rats reaching the shore with the cargo, the ship remained moored in the river and the cargo was discharged bale by bale from the deck into lighters alongside. This proceeding accorded with the recommendation of the International Sanitary Convention (Paris, 1912) and offered the best security available. The disinfection of the vessel after the cargo was unloaded was undertaken with the main object of destroying rats in the ship. The quarters occupied by the plague cases were disinfected as soon as the men had been removed to hospital.

Bombing of Hospitals.—Replying to Mr. Joynson Hicks, Mr. Macpherson said that a recent report from the Commander-in-Chief showed that during the period from May 15th to June 1st, hospitals had been bombed on seven occasions. The casualties occurring in hospitals were not given separately from those caused in the district by the same raid. The total casualties in these seven raids were as follows:

	Killed.	Wounded.	Total.
Officers	11	18	29
Other ranks	218	534	752
Sisters	5	11	16
Queen Mary's Army Auxiliary Corps ..	8	7	15
Civilians	6	23	29
	248	593	841

In reply to a further question by Mr. Joynson-Hicks, on June 12th, Mr. Bonar Law said that he was unable to make any further statement, as the report upon the subject had not yet been received.

Payments to Auxiliary Hospitals.—In reply to Colonel Sir Frederick Hall, on June 5th, Mr. Forster said that the rates paid to hospitals for military patients were not in all cases the same, but the standard maximum rate for the great majority of auxiliary hospitals was now 3s. 3d. per occupied bed and 6d. per unoccupied bed a day. In January, 1915, the corresponding rate was 3s. per occupied bed, and there was no grant for unoccupied beds. In response to a suggestion by Sir Frederick Hall that the increase was inadequate in view of the advance in cost of food, Mr. Forster said that the new grant of 6d. per unoccupied bed represented a substantial sum.

Dental Surgeons Commissioned in the Army.—Mr. Macpherson informed Mr. Pennefather on June 10th that the number of qualified dental surgeons holding commissions in the army was 640. Of these 92 had received their commissions since March 1st, including 26 from the ranks. Inquiry would be made how many remained in the ranks.

THE late Brigade Surgeon John Law, Indian army, left £49,953 gross. After several legacies, he bequeathed the residue of his estate to King Edward's Hospital Fund for London.

A FRANCO-PERUVIAN hospital was lately formally opened in Paris in the presence of the Peruvian Committee, of which the chairman is General Benavides, a former President of the Republic of Peru, and representatives of the Association of French Ladies. The hospital, which contains eighty beds, will be maintained at the expense of the Peruvian colony.

OWING to shortage of turpentine in Germany, benzol has largely been used as a substitute in paint, varnish, etc. The result has been widespread benzol poisoning among painters working in ill-ventilated interiors of ships. The Minister for Commerce and Industries has issued stringent regulations to combat this danger. No workman may paint in an unventilated limited space for more than half an hour at a time, and he must spend at least half an hour in the open before resuming work. Several other precautions are to be taken.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed in Action.

SURGEON PROBATIONER M. D. CADMAN, R.N.V.R.

Surgeon Probationer M. D. Cadman, R.N.V.R., was reported as killed, in the casualty list published on June 10th.

ARMY.

Killed in Action.

CAPTAIN F. A. J. R. BROOKE, R.A.M.C.

Captain Frederick Arthur John Robertson Brooke, R.A.M.C., attached Wiltshire Regiment, was killed in action on May 27th. He was educated at the London Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1894. He took a temporary commission as lieutenant in the R.A.M.C. on July 10th, 1916, and was promoted to captain after a year's service. He had recently been serving as physician at Tidworth Military Hospital. His son, Lieutenant Cecil Rupert Brooke, Gordon Highlanders, was killed in France on April 24th, 1917.

CAPTAIN T. MOHAN, R.A.M.C.

Captain T. Mohan, R.A.M.C., was reported as killed in action, in the casualty list published on June 5th.

Died of Wounds.

CAPTAIN E. E. MEEK, C.A.M.C.

Captain E. E. Meek, Canadian Army Medical Corps, was reported as having died of wounds, in the casualty list published on June 10th.

CAPTAIN F. G. THATCHER, M.C., R.A.M.C.

Captain Francis Geoffrey Thatcher, M.C., R.A.M.C., died on June 1st of wounds received on May 30th, aged 27. He was born on September 24th, 1890, the youngest son of Mr. C. H. Thatcher, F.R.C.S.Ed., of Edinburgh, and was educated at the university in that city, where he graduated M.B. and Ch.B. in 1913. He entered the R.A.M.C. as lieutenant on July 31st, 1914, and was promoted to captain on March 30th, 1915. His Military Cross was gazetted on June 3rd, two days after his death.

Died on Service.

LIEUTENANT T. FORREST, R.A.M.C.

Lieutenant Thomas Forrest, R.A.M.C., attached Indian Army, was reported as having died on service, in the casualty list published on June 10th. He was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1917, and, after acting as house-surgeon of the Western Infirmary, Glasgow, took a temporary commission as lieutenant in the R.A.M.C.

Wounded.

Lieut.-Colonel H. Moore, M.C., R.A.M.C. (temporary).

Major F. C. Chandler, R.A.M.C. (T.F.).

Major T. M. Furber, Australian A.M.C.

Major C. H. Westley, Australian A.M.C.

Captain D. C. G. Ballingall, M.C., R.A.M.C.

Captain T. H. Campbell M.C., R.A.M.C. (temporary).

Captain G. E. Charters, R.A.M.C. (temporary).

Captain J. C. Dunn, D.S.O., M.C., R.A.M.C. (temporary).

Captain F. Humphreys, R.A.M.C. (temporary).

Captain P. W. Kent, R.A.M.C. (T.F.).

Captain J. G. Lee, R.A.M.C. (temporary).

Captain E. H. Rainey, R.A.M.C. (temporary).

Captain G. P. Searle, Canadian A.M.C.

Lieutenant G. Blair, R.A.M.C. (temporary).

Missing.

Colonel A. Milne-Thomson, C.M.G., R.A.M.C. (T.F.).

Prisoners of War.

Captain A. J. Chillingworth, R.A.M.C. (temporary).

Captain A. B. Cluckie, R.A.M.C. (temporary).

Captain F. T. H. Davies, R.A.M.C. (temporary).

Captain C. E. P. Husband, R.A.M.C. (temporary).

Captain R. A. Leembruggen, R.A.M.C. (temporary).

Captain G. R. Lipp, M.C., R.A.M.C. (temporary).

Captain D. Macnair, R.A.M.C. (T.F.).

Captain C. O'Malley, M.C., R.A.M.C. (temporary).

Lieutenant W. H. Rowden, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Kennefick, John G. Hammertou, Captain Essex Regiment, son of the late Dr. Kennefick, of Clonmel, Tipperary, killed April 20th. He attained his rank on December 11th, 1914. His maternal grandfather was General Hammerton, C.B., who commanded the 44th Foot at Waterloo.

Spooner, Bernard, Royal Field Artillery, second son of Dr. Spooner of Clapton, died of wounds on May 23rd.

Stuart, Peter Dudley, Captain Royal Air Force, younger son of the late Dr. Peter Stewart, of Blundellsands, accidentally killed flying in Lincolnshire, on June 1st, aged 24. He got his first commission on September 3rd, 1914. He had gained the Croix de Guerre.

MEDICAL STUDENT.

Fraser, George D., Second Lieutenant Rifle Brigade, who recently died of wounds, aged 19, was the eldest son of Mr. Robert Fraser, registrar and inspector of poor, Inverary. He was a medical student at the University of Edinburgh, received his commission from the O.T.C. in September, 1917, and went to the front in the following month.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

BIRTHDAY HONOURS.

ORDER OF THE BRITISH EMPIRE.

THE following are among the promotions in and appointments to the Order of the British Empire, for services rendered in connexion with the war:

To be K.B.E.

Dr. Edward Marriott Cooke, Chairman of the Board of Control.

Dr. Alexander Cruikshank Houston, Director of Water Examinations, Metropolitan Water Board.

Dr. John Lumsden, Vice-Chairman of Joint V.A.D. Committee, Ireland.

Dr. Robert Fox-Symons, Head of Auxiliary Hospitals Department, British Red Cross and Order of St. John of Jerusalem.

To be C.B.E.

Sir Hector Clare Cameron, LL.D., Red Cross Commissioner for Western District of Scotland.

Dr. Cyril Goodman, Assistant Director-General in the Department, of Public Health, Egypt and the Sudan.

Dr. Thomas Morison Legge, Chief Medical Inspector of Factories.

Dr. Sarat Kumar Mullick, O.B.E., Honorary Secretary, Bengali Regiment Committee, Calcutta.

Colonel William Henry Parkes, C.M.G., Director of Medical Services, New Zealand Expeditionary Force.

Mrs. Sylvia May Payne, M.B., B.S., Commandant and Medical Officer in Charge, Torquay Auxiliary Hospital.

Mr. Charles Ryall, F.R.C.S., Assessor in Charge, London Medical Assessors for Examination of Men for Military Service.

Miss Jane Holland Turnbull, M.D., B.S., Controller of Medical Services, Queen Mary's Army Auxiliary Corps.

To be O.B.E.

Lieut.-Colonel John Kellerman Adey, Deputy Assistant Director of Medical Services, Australian Imperial Force Depôts.

Dr. James Allan, Assistant County Director, Kent, British Red Cross Society.

Dr. Thomas Cooke Barkas, Acting Deputy Commissioner of Medical Services, Ministry of National Service, Northern Region.

Rai Bahadur Sir Kailash Chandra Bose, C.I.E., Medical Practitioner, Calcutta.

Major Ernest William Charles Bradfield, I.M.S., Officer in Charge of the Madras War Fund River Hospital ship *Sikkim*.

Fleet Surgeon Frank Bradshaw, R.N., President of a Recruiting Medical Board.

Dr. William Albert Briggs, Medical Missionary in Siam.

Lieut.-Colonel Alexander Bruce, Army Medical Department, War Office.

Dr. Edwin Albert Chill, Assistant County Director, Central Division, Middlesex, British Red Cross and Order of St. John of Jerusalem.

Dr. Alfred Cox, Secretary, Central Medical War Committee.

Lieut.-Colonel James Muir Crawford, I.M.S., Buenos, United Provinces.

Miss Barbara Martin Cunningham, M.B., Ch.B., Military Hospital, Imtarfa, Malta.

Lieut.-Colonel Bertram Ramsey Dennis, for services with the British Expeditionary Force, France.

Mrs. Katharine Rosebery Druikwater, M.B., B.S., in charge of Military Families Hospital Staff and Department, Malta.

Major William Bickerton Edwards, Commissioner for Medical Services for Ministry of National Service, Welsh Region.

Dr. William Fairbank, M.V.O., Organizer and Instructor in Ambulance Work in the Windsor District, British Red Cross and Order of St. John of Jerusalem.

Major Charles Ernest Goddard, President of a Recruiting Medical Board.

Lieut.-Colonel William Ernest Grigor, A.A.M.C.

Captain John Molyneux Hamill, for services with the British Expeditionary Force in France.

Staff Surgeon Reginald John Edward Hanson, R.N.V.R.

Dr. William Hastings, Director of Hospitals in the Department of Health, Egypt and the Sudan.

Dr. Thomas Eustace Hill, M.O.H. County of Durham.

Dr. Joseph Willoughby Hodgson, V.D., Commandant and Medical Officer in Charge, Exmouth Auxiliary Hospital, Devonshire.

Major George Home, Officer in charge of Surgical Division, No. 2 New Zealand General Hospital.
 Dr. Edward William Hope, D.Sc., M.O.H. Liverpool.
 Dr. Alexander Hunter, Chief Medical Officer, Earl's Court Belgiao Refugees' Camp.
 Major Arthur Hammersley Johnston, Assistant County Director, British Red Cross Society, East Riding of Yorkshire.
 Dr. William Dunmore Loveday, designer of the Wantage crutch.
 Dr. William Halliburton McMullen, Specialist Member of a Recruiting Board.
 Major William Lewis Martin, Deputy Commissioner of Medical Services, Ministry of National Service, Perthshire.
 Lieut.-Colonel Frank Hamilton Mewburn, C.A.M.C.
 Major Henry Ross, Additional Assistant Director-General I.M.S., Bengal.
 Major Thomas Lindsay Sandes, M.B.E., Officer in Charge of the Surgical Division, South African Hospital, Richmond.
 Major Hugh Short, N.Z.M.C.
 Dr. Robert James Smith, Chairman Cardiff Local War Pensions Committee.
 Captain Hugh Stott, I.M.S., Medical Officer on board the hospital ship *Madras*.
 Dr. Charles R. J. Atkin Swan, Administrative Medical Officer, Royal Air Force Hospitals.
 Miss May Thomas, M.D., in charge of Sisters, hospital, and staff departments, Malta.
 Mr. Charles Todd, Principal Bacteriologist of the Department of Public Health, Egypt and the Sudan.
 Dr. Frederick Thomas Travers, Commandant and Medical Officer, Maidstone Auxiliary Hospital, Maidstone, Kent.
 Major Alexander Lewis Urquhart, R.A.M.C., for services with the British Expeditionary Force, Salonica.
 Captain Thomas George Wakeling, President of a Recruiting Medical Board.
 Captain John Wallace, Deputy Commissioner of Medical Services, Ministry of National Service.
 Fleet Surgeon Alfred Ernest Weightman, R.N., Medical Department, Admiralty.
 Fleet Surgeon Samuel Henry Woods, R.N.

To be M.B.E.

Temporary Lieutenant Henry John Andrews, I.M.S., medical officer in charge of the Thomas Emery Hospital at Moradabad, United Provinces.
 Dr. William Edward Audland, Assistant County Director, Northamptonshire, British Red Cross and Order of St. John of Jerusalem.
 M. R. Ry Tiruvadi Chidambaram Ramaswami Sarma Aiyang, Sub-assistant Surgeon, Madras.
 Ali Ibrahim Bey, Senior Assistant Surgeon at Kasr-el-Aynal Hospital, Cairo.
 Wadib Bey Birbari, P.M.O., Nagazig Hospital.
 Lieutenant George Thomas Brown, C.A.M.C.
 Dr. John Harold Burridge, Commandant and Medical Officer in Charge, Slough Auxiliary Hospital.
 Surat Kuarwar Chaudhuri, M.B., Benares State Service.
 Dr. Harry Gordon Cooper, Assistant County Director for Altrincham Division, British Red Cross and Order of St. John.
 Mrs. Barbara Grace Rutherford Crawford, M.B., Ch.B., Medical Officer at one of H.M. factories, Ministry of Munitions.
 Dr. John Edwards Cresswell, P.M.O. Suez.
 Miss Lucy Davis Cripps, M.B., Ch.B., Medical Officer at a national filling factory.
 Mrs. Mary Ariel Stewart Deacon, M.B., B.S., Medical Officer at a filling factory, Ministry of Munitions.
 Dr. Archibald Alexander George Dickey, Organizer, Colne Auxiliary Hospital, East Lancashire.
 Captain Wilherforce Vaughan Eaves, Medical Officer, Royal Arsenal, Woolwich.
 Dr. Duncan Forbes, M.O.H. Brighton.
 Captain William Harris Fox, C.A.M.C.
 Miss Catherine Fraser, M.B., Ch.B., Medical Officer at one of H.M. factories, Ministry of Munitions.
 Dr. William John Gilpin, Commandant, Bourne Auxiliary Hospital, South Lincolnshire.
 Dr. Arthur Stanley Green, Commandant and Medical Officer, Epsom Auxiliary Hospital, North Lincolnshire.
 Maurice Roberts Wilson Hart, I.S.M.D., Assistant Surgeon, Madras.
 Miss Eileen Mabel Hewitt, M.D., Medical Officer in Charge, Women's Hospital, Royal Arsenal, Woolwich.
 Dr. Thomas William Hicks, Staff Medical Officer to County Director and Officer in Charge of Red Cross Convoys, Middlesex, British Red Cross and Order of St. John of Jerusalem; Commandant, East Finchley Auxiliary Hospital.
 Dr. Edwin Andrew Cuthbert Hindmarsh, Officiating Civil Surgeon, Munzaffarpur, Bihar and Orissa.
 Khan Sahib Sayad Nazir Hussain, I.S.M.D., Civil Surgeon, Mianwali, Punjab.
 Captain Robert Kirkpatrick, C.A.M.C.
 Dr. James MacLachlan, Honorary Secretary Sutherland Branch, Scottish Branch, British Red Cross Society.
 Miss Florence Marie Morris, M.B., Commandant and Medical Officer in Charge, Paignton Auxiliary Hospital, Devonshire.
 Dr. Albert Alfred Osborne, Commandant and Medical Officer in Charge, Ilfracombe Auxiliary Hospital, Devonshire.
 Dr. Leslie Powne, Commandant and Medical Officer in Charge, Crediton Auxiliary Hospital, Devonshire.
 Lieutenant John Ritchie, Second in Command of Army Medical Store, Woolwich.
 Miss Mary Thompson Ritchings, M.B., Ch.B., Medical Officer in Charge, Y.M.C.A., Auxiliary Hospital, Swansea.
 Captain James Maxwell Ross, F.R.C.S.Ed., County Director, Dumfries, Scottish Branch, British Red Cross Society.
 Mr. Albert Charles Butler-Smythe, F.R.C.S.Ed., member of a Recruiting Medical Board.
 Mrs. Emma Christine Williams, M.B., B.S., Medical Officer at a Shell Filling Factory.

Mr. Frederic G. Hallett, secretary, Committee of Reference, is appointed an officer of the Order, and Lieut.-Colonel Orland K. Gibson, Deputy Director of Dental Services, Canadian Forces, Mr. Edmund T. Gaun, civil assistant to the Director-General A.M.S. and Miss A. L. Lawrence, assistant secretary, Central Medical War Committee, are appointed members.

The following members of the medical profession are among the recipients of the medal of the Order of the British Empire for services in connexion with the war in which great courage or self-

sacrifice has been displayed: Dr. Ernest James Berkley and Dr. Athol Raymond Moore, for rescue work on the occasion of a Zeppelin raid, and Dr. Edward Wright (Divisional Surgeon Metropolitan Police) for attending to the injured on the occasion of an air raid.

MENTIONED IN DISPATCHES.

THE following are among the names of those brought to notice in a dispatch, dated March 25th, by Lieut.-General G. F. Milne, K.C.B., D.S.O., Commander-in-Chief, British Salonica Force, for gallant and distinguished services rendered from September 21st, 1917, to February 28th, 1918:

Staff.

Colonel G. T. Rawnsley, C.B., C.M.G., A.M.E.
 Lieut.-Colonel P. H. Henderson, D.S.O., R.A.M.C.

Royal Army Medical Corps.

Lieut.-Colonel M. M. Lowlesley.
 Temporary Lieut.-Colonel C. M. Wenyon, C.M.G.
 Major (acting Lieut.-Colonel) F. J. Garland.
 Major R. K. White.
 Temporary Major H. W. Wiltshire.
 Captain and Brevet Major (acting Lieut.-Colonel) B. Johnson.
 Captain (acting Major) A. L. Urquhart.
 Captains E. Davies and A. M. McCutcheon.
 Temporary Captains: D. I. Aederson, G. V. Bakewell, D. M. Borland, R. C. Brown, P. C. Davie, T. E. George, L. G. McCune, J. H. McNicol, M. C. F. H. Merrell (Special List), E. C. Whita, A. Wilkin.
 Temporary Lieutenant E. Gardner.

Royal Army Medical Corps (Special Reserve).

Captains: T. Y. Barkley, M. C. Cooper, G. G. Drummond, J. A. Musgrave, H. B. Sherlock, M.C., H. W. Torrance.

Royal Army Medical Corps (Territorial Force).

Lieut.-Colonel J. R. Whait.
 Major and Brevet Lieut.-Colonel F. E. A. Webb.
 Captain (temporary Lieut.-Colonel) H. G. G. Mackenzie.
 Captain (temporary Major) A. W. Falconer, D.S.O.
 Captains: C. E. C. Ferrey, L. A. Harwood, W. H. Manson, B. E. Potter, P. S. Price, G. White, H. W. Weir.
 Quartermaster and honorary Captain G. W. Harris.

Indian Medical Service.

Temporary Lieutenant H. S. Rajan.

NOTES.

Fleet Surgeon William Wallace Keir, R.N., is among the officers mentioned in dispatches (*London Gazette*, June 7th).

L'ENTENTE MÉDICALE.

For a considerable time past, owing to the fact that French and British troops have been fighting in the same areas, French wounded have reached British casualty clearing stations and British wounded have reached the corresponding French units (*hôpitaux d'évacuation*). *Le Journal* has called attention to the fact that recently this has happened on a much larger scale, owing, no doubt, to the unification of the chief command and the consequent more intimate mingling of French and British troops. The intention is that a French soldier treated at a British clearing station or a British soldier treated at a French evacuation hospital should be sent on from there to the hospital on the lines of communication provided by his own country, but this has not always been possible, and many French wounded have, we believe, reached British hospitals on the lines of communication and even at the base. Our contemporary states that the converse recently happened on a somewhat large scale. After a recent offensive the large evacuation hospital under the control of the military Government of Paris received a large number of British wounded. The first arrivals were admitted to the hospitals at St. Cloud, Astoria, and the Bois de Boulogne, and the overflow were sent on to the French Red Cross hospitals, where our allies were thoughtful enough to send nurses who could speak English well. As soon as they were fit to be moved on the men were sent by hospital trains to ports of evacuation. On June 8th General Phillips, commandant of the British zone in Paris, formally thanked M. Louis Mourier, Under Secretary of State, for the great care and skill expended on the British wounded. M. Mourier immediately transmitted the thanks of the British general to the medical inspector of the district, General Février, and to his fellow workers, medical and nursing.

Scotland.

VENEREAL CLINIC IN EDINBURGH.

A BRANCH of the National Council for Combating Venereal Disease was formed at a public meeting called by the Lord Provost on June 5th. The scheme for a venereal clinic in Edinburgh, which Dr. Leslie Mackenzie said would shortly receive the sanction of the Local Government Board, covers not only Edinburgh but the three Lothians. Provision is made for a special department at the Royal Infirmary, to be open at convenient hours, and also for indoor treatment. Provision is also made for expert advice for medical men and institutions, and it is intended to establish pathological laboratories for diagnosis. The meeting was attended by Sir Francis Champneys and Mrs. Gotto (representing the

National Council). The latter spoke of the necessity of protecting the ignorant from the devices of quacks, the enactment against whom was not being enforced. The motion for the appointment of the local committee was made by Councillor Young, convener of Edinburgh Public Health Committee, seconded by Dr. McKenzie Johnston, President of the Royal College of Surgeons, and supported by Sir Robert Philip and Professor Russell, President of the Royal College of Physicians.

TREATMENT OF DISABLED SOLDIERS.

At the monthly meeting of the Joint Institutional Committee of Scotland, held in Edinburgh on June 8th, the chairman, Sir Arthur Boscawen, M.P., Parliamentary Secretary to the Ministry of Pensions, announced that Major Grant had presented his house and grounds at Kilgaston, Perthshire, to be used as an institution for permanently disabled men. It will be available for patients from all parts of Scotland, and will be managed by a committee appointed by the Central Area Committee. The orthopaedic annexe at Tynecastle, Edinburgh, will, it is expected, be ready in July. A scheme for providing after-sanatorium treatment for discharged men suffering from tuberculosis at the Polton Farm Colony was approved by the meeting, which also received a report from the South-Western Committee on the necessity for providing a hospital to give in-patient treatment to discharged men from the West of Scotland. A scheme was also considered for an annexe at the Moffat institution for pensioners for discharged men suffering from rheumatism.

WORKING OF INSURANCE.

Speaking at the first of a series of lectures arranged by the Scottish Insurance Commission, to be given in different centres, Sir James Leishman, chairman of the commission, said that in spite of the war the financial experience of last year had been satisfactory. Payments into the Scottish fund amounted in round numbers to 12 millions; payment out for sickness, disablement, and maternity benefit was very nearly 4 millions, and 3 millions had been paid out for medical benefit, sanatorium benefit, and the working of insurance committees and societies. Nearly 5 millions was invested. There were substantial balances to the credit of almost all the societies in Scotland, and there was no reason for the loose statements that the Insurance Act and the societies were bankrupt.

Ireland.

MEETING OF MEDICAL DELEGATES.

At a largely attended meeting of delegates of the Irish medical profession held in the Royal College of Surgeons, Dublin, on May 29th, 1918, the following resolutions were passed:

Reappointment of Irish Medical Committee.

- (a) That the Irish Medical Committee be reappointed; that it be constituted as arranged at the delegates' meeting July 13th, 1913, and that it be empowered, if it think desirable, to give adequate representation on its body to any medical association or organization for which provision was not made at the aforesaid delegates' meeting.
- (b) That for the purpose of recording the views of the medical profession in Ireland in connexion with Irish medical affairs, and, when necessary, promoting legislation thereupon, the Irish Medical Committee, owing to its representative character and constitution, be regarded the authoritative body with regard to such matters.

Salaries of Poor Law Medical Officers.

- (1) That this meeting of delegates, representing the medical profession in Ireland, is of opinion that the initial salary for dispensary districts should be £200 per annum, increasing to a maximum of £300 per annum after fifteen years' service; that in the case of existing officers these terms should have retrospective application, and that a special scheme of salaries be drawn up by the Irish Medical Committee for medical officers of workhouses.
- (2) That the Irish Medical Committee, acting in conjunction with the local medical committees, take such action that pressure can be brought to bear from the central committee to supplement the demands for increased scales of salaries put forward by counties or union areas; that in the event of boards of guardians refusing to grant adequate salaries, that the medical officers in the areas concerned communicate with the secretaries of the Irish Medical Committee before taking further action.

Medical Benefits under Insurance Act.

That we approve of the extension of medical benefits to Ireland on terms suitable and acceptable to the profession in this country.

Deputation to Local Government Board.

The meeting arranged that a deputation should be appointed by the Irish Medical Committee to wait on the Local Government Board, and that it should make strong representation to this Board to take the necessary steps:

(1) To fix or regulate the salaries of all Poor Law medical officers. (2) To introduce a bill in Parliament providing compulsory superannuation for Poor Law medical officers, and to urge, if possible, a provision for an increase in the superannuation of retired Poor Law medical officers. (3) To make alterations in the present system of sworn inquiries so as to protect the medical officers from frivolous and malignant accusations and their undue publicity. (4) To make changes in the rules for the presentation of tickets for medical relief.

Pledge.

The delegates having all signed the following pledge the meeting directed that secretaries of local medical committees take steps to have it signed by all the doctors residing in the areas covered by their committees:

That in case it should be necessary for any doctor to resign his appointment for the betterment of his position, I promise not to apply for or to accept his appointment, or to act as locumtenent in his district as long as it is vacant.

England and Wales.

MATERNITY NURSING IN LONDON.

A CONFERENCE on maternity nursing, arranged by the Central Council for District Nursing in London, was held on June 4th under the presidency of Sir William Collins, M.P., with whom was Sir Arthur Downes. The points for discussion were—

1. To what extent is it desirable and practicable that maternity nursing should be undertaken by district nursing associations in London?
2. The relation of maternity nursing to midwifery, and, in particular, whether it is essential that the maternity nurse should hold the C.M.B. certificate.
3. The question of co-operation with the hospitals for the purpose of nursing the extern maternity cases.

As these three subjects were taken together the discussion was somewhat disjointed, and all resolutions were ruled out, as it was not desired to tie the council's hands, but merely to elicit a free expression of opinion. With regard to the first point, Sir Arthur Newsholme, after detailing what the Local Government Board had done, said that the Board had no intention to supersede the work of the voluntary associations. The second point was the one which gave rise to most discussion. Sir Francis Champneys expressed the view that it was absolutely essential, if any scheme was to be successful, that the private practising midwife should be retained. He was convinced that poor women would not consider that any official, however competent, stood in the place of the women of their choice. In doctors' cases his view was that the nurses should not be midwives. With regard to the third point, Dr. Lauriston Shaw expressed the opinion that the hospitals would welcome any effort on the part of nursing associations to help their extern maternity departments. Some had provided nursing sisters in sickness, but not maternity nursing to any large extent. A large number of other speakers took part in the discussion, including medical men and women, practising midwives, and members of district nursing associations; and in summing up the various expressions of opinion Sir William Collins said that the interchange of views had been valuable. The ideal in all minds was to secure that no parturient woman should be unattended or inadequately or improperly attended. On the first of the specific points before the conference he had heard no negative opinion expressed, and the third point also as to co-operation with the hospitals had brought out no disagreement. It was really with regard to the second question that divergence of view was to be noted. The midwife had a great past, and would perhaps have a great future, but the fully qualified nurse was not disposed at the present time to work under a midwife who had had six months' training. Could the midwife be trained so as to become the equivalent of the obstetrician, and could a

midwife be expected to supply all the maternity nursing that her own case required? He gathered that Sir Francis Champneys's opinion was that this was hardly possible. A record would be kept of all the remarks and suggestions made at the conference, and a full report would be made to the Central Council, who would give it most careful consideration.

Correspondence.

PRECAUTIONS AGAINST THE SPREAD OF MALARIA.

SIR,—Your leading article (May 25th, p. 595) on the precautions which should be taken against the possible spread of malaria in this country is timely. The anopheles mosquito is always with us, and, if infected, as it may be, by the return of malaria-stricken soldiers, we may be faced by a problem of great magnitude.

Fortunately we can never suffer as in Cromwell's day, for Ronald Ross—*parvaque pars fuit*—has laid the foundations on which we should build. But the lesson has been imperfectly learnt and the traditions of forty years ago die hard. Constantly, in my consulting-room, I hear the old heresies stated, and even many medical men still adhere to the massive doses of quinine which are traditional in the tropics. Captain Yeates's letter, therefore, is a valuable contribution to the sum of our information. I agree with him most emphatically as to the evils wrought to the digestive organs by the administration of excessive doses of quinine. Many a man may be free from fever so long as his digestive functions hold out, but succumbs after an initial attack of gastritis induced by quinine and followed by anaemia and cachexia. In tropical countries the liver is prone to congestion, and one would naturally ask why its disabilities should be further increased by excessive dosage with quinine. Surely it would be more reasonable to give calomel in appropriate doses and to limit the doses of quinine to the lowest possible amount compatible with efficiency.

The effective dose of quinine varies with the individual, the environment, and the degree of exposure. But in Macedonia (1916), where a malignant malaria is prevalent, I never found it necessary to resort to the heroic doses I still find advocated by some physicians. The War Office recommend 60 grains a week—roughly 10 grains a day—this in my experience is not only excessive but positively harmful.

The malarial parasite is susceptible to quinine only in its earliest stages of development. The more mature forms are entirely uninfluenced. To drench, therefore, a man with quinine in the hope of perchance catching the parasite in its earliest stages is unscientific. If quinine upsets the digestion, congests the liver and reduces the natural resistance of the patient, then quinine, improperly given, may be an evil rather than a benefit.

I have found in West Africa, India, Burma, Malay States, Japan, and in Macedonia under war conditions, that 5 grains once a week is an adequate prophylactic dose. But if one is so unfortunate as to be exceptionally exposed then an extra dose of 5 grains is probably advisable as an additional precaution.

In cases of malaria the most favourable time to give quinine is, if it can be detected, the moment when the temperature is about to rise, for then the parasites are in their youngest and most susceptible stage; at this time only can quinine be of value. If this moment is missed, as it easily may be, no quinine should be given until the pyrexia has reached its height and is about to fall. The patient meanwhile may be immensely comforted by small doses of phenacetin. Quinine given with a rising temperature only tends to increase headache and malaise.

The salt of quinine employed is not a matter of indifference. The sulphate is less soluble and more irritating than the hydrochloride and much less easily absorbed. For years I have used only the hydrochloride. In one striking case from Mexico I found the hydrochloride entirely successful after months of treatment by the sulphate had proved ineffectual.

All who had experience in Macedonia would testify that many lives were saved by hypodermic injections of

quinine when all other methods of administration had failed.—I am, etc.,

R. FIELDING-OULD, M.D., M.R.C.P.

London, S.W., June 3rd.

PROTEIN "SHOCK" THERAPY.

SIR,—The leading article in the JOURNAL (June 1st) is timely, and invites a few observations. The article conveys the impression that the reaction or shock is exclusively produced by the injection of protein, whereas it is also capable of production by non-protein substances. This indicates that the reaction is not due directly to the substance introduced. For this and other reasons I suggested the term "pyrogenic therapy" in a paper on this subject published in the JOURNAL of February 16th, 1918 (which, so far as I know, is the only one hitherto published in this country). Therapeutically considered, there is no benefit without the rise of temperature. As to your view that much more investigation is needed, this is very true in the general sense, but I would submit that the scientific basis of the treatment is quite as well established as that of any other treatment, and a good deal better than some. It consists in the desensitization or immunization of the patient at a single stroke.

There is no conflict between the new treatment and the practice of specific artificial immunization. Their modes of action differ in a manner now fairly well understood, but that is too wide a subject to discuss here. Long ago Woodbridge demonstrated that tissue fibrinogen could confer an immunity against anthrax which was quite as effective as that obtained by bacterial inoculation. There is a certain class of cases, not amenable to specific immunization by small graded doses, which are rapidly cured by the new treatment, irrespective of the organism or organisms present. As you state, the clinical results are "surprising," and difficulties in regard to the correct understanding of the process should not deter medical men from conferring these benefits on their patients. Indeed, so far as I can gather, ours is about the only country in which the treatment is being neglected. It certainly demands care and skill on the part of the doctor, but what treatment worth anything does not?—I am, etc.,

London, W., June 7th.

A. G. AULD.

ADAPTATION AND DISEASE.

SIR,—In reference to the controversy between Professor Cunningham and Professor Adami on priority in the view that the mechanism of heredity is rather chemical than particulate (BRITISH MEDICAL JOURNAL, pp. 632, 658), I ask permission to quote the following passage:

Concerning the *modus operandi* we know nothing; the phenomena may be due, as Hering suggests, to molecular vibrations, which must be at least as distinct from ordinary physical disturbances as Röntgen's rays are from ordinary light; or it may be correlated, as we ourselves are inclined to think, with complex chemical changes in an intricate but orderly succession.—*Natural Science*, 1893.

The essay in which this occurs is reprinted as it stands (save for correction of press errors) in my *Problems of Life and Reproduction*, 1913, with an added footnote:

This view is essentially the same as that developed by Delage in his *Théorie des Causes Actuelles* (l'Hérédité, p. 7) and by J. T. Cunningham in his *Hormone Theory of Heredity*.

I confess to a feeling of disappointment that my position next to others should not have been recognized in your columns.—I am, etc.,

Cork, June 11th.

MARCUS HARTOG.

VINCENT'S ANGINA.

SIR,—In the JOURNAL of February 2nd, 1918, page 160, in a letter on Vincent's angina, Major Bowman, C.A.M.C., asks you to publish "finally when and where the first observations on this disease were made as occurring amongst British troops." From the context it would appear that Major Bowman is under the impression that Vincent's angina was first observed in British troops during the present war. The disease was frequently observed amongst the troops, especially young soldiers, at Woolwich, from the autumn of 1907 to the spring of 1912, about four and a half years, during which time I was clinical pathologist at the Royal Herbert Hospital.—I am, etc.,

J. COWAN,

Lieut.-Colonel R.A.M.C.

Station Hospital, Jubbulpore, C.P.,
April 10th.

Obituary.

THE RIGHT HON. ROBERT FARQUHARSON, P.C.,
M.D., LL.D.,

Formerly M.P. for West Aberdeenshire.

WITH deep regret we announce the death of Dr. Robert Farquharson, which occurred at Finzean House, Aboyne, Aberdeenshire, on June 8th. He was born at Edinburgh on June 21st, 1836. His father, Dr. Francis Farquharson, the second of a generation of doctors, is described as a man of good physique and of exceptional ability. He gained a considerable reputation as an ophthalmic surgeon, and was on the staff of the Eye Dispensary, where he had among his pupils Sir Charles Tupper, afterwards Prime Minister of Canada. His wife, Alison Mary Ainslie, daughter of an intimate friend of Robert Burns, was a celebrated beauty in her day. Robert received his literary education at the Edinburgh Academy, and entered the University of Edinburgh as a medical student in 1854. He had among his teachers John Goodsir, Hughes Bennett, Simpson, Syme, whose dresser he was, Christison, Gairdner, Warburton Begbie, and Matthews Duncan. After taking the L.R.C.S. he graduated M.D. in 1858, the subject of his thesis being the parasitic diseases of the skin, with special reference to treatment by epilation. He entered the Army Medical Service, and was first attached to the Royal Artillery, from which in 1859 he was transferred to the Coldstream Guards. After nine years' service with that distinguished regiment he was appointed medical officer to Rugby School, of which Dr. Temple was then the head. When Temple became Bishop of Exeter in 1869, Farquharson, "not caring much for the new régime," determined to seek his fortune in London. Before settling down he visited the medical schools and hospitals of Berlin and Vienna, and shortly after his return became assistant physician to St. Mary's Hospital and lecturer on materia medica at the medical school. In 1875 he succeeded Dr. Cheadle as physician to the skin department, and two years later became physician to out-patients. He was elected F.R.C.P. in 1877.

Francis Farquharson on becoming Laird of Finzean in Aberdeenshire threw up medicine. The estate covers 16,900 acres and includes Lumphanan, where, according to tradition, Macbeth was slain. When Robert Farquharson became laird on his father's death in 1878 he, too, abandoned the profession and retired from St. Mary's Hospital. He was elected M.P. for West Aberdeenshire as a Liberal in 1880, retaining his seat till 1906. He did very useful work in the House, where, as he modestly says, he eventually gained a kind of position as an authority on matters medical and scientific. Whenever he rose to speak on such subjects he was invariably called. He always spoke on the Army Estimates and was instrumental in securing substantive rank for medical officers. He strongly advocated the better feeding of recruits. When after the Boer war Mr. Burdett-Coutts attacked the Army Medical Department the Government did not see fit to defend the doctors and asked Farquharson to move the adjournment. He was fully prepared for the fray, but to his deep disgust his motion was blocked. The lunacy laws gave him the opportunity for an annual speech in which he never lost an opportunity of contrasting the Scottish arrangements with the English, to the disadvantage of the latter. He took an active part in the promotion of cremation, and once produced for the edification of the House a small hottle containing the ashes of a cow to show that this method of disposing of the dead is a clean and even artistic process. Farquharson served on a number of important Committees—on the Contagious Diseases Act, the Midwives Bill, the Shop Hours Regulation Act, the ventilation of the House, and other sanitary and medical questions. For six years he was Chairman of the Private Bills Committee, which gave him a kind of official status. But what he considered the crowning honour of his parliamentary career was his unanimous election as chairman of the Scottish Liberal party, a position which he held till his retirement.

When Farquharson retired from Parliament after a quarter of a century's service he found consolation in a distinction which he highly valued—the Privy Councillorship bestowed on him in 1906. The high regard in which he was held by his political associates is well expressed in

a letter written by Sir Henry Campbell-Bannermann to Mr. Eugene Wason:

The little troop of honest Scots will not seem itself in future without "The Doctor." His genial temperament, his courteous and kindly demeanour, his cheerful spirit, his keen interest in all public affairs, which was guided by a good share of natural common sense—these good qualities attracted the affection of us all. We are infinitely sorry to lose him from among us.

Robert Farquharson was a staunch but moderate Liberal, always earnest in the promotion of what he believed to be sound reforms, but cherishing no illusions as to the advent of the millennium through the action of politicians. He made no pretence to oratory, but could say what he meant in telling, if homely, speech. He was very successful as a speaker at by-elections. He was a picturesque figure, whether in the sombre raiment of civilized life in the House, or in the kilt as the chieftain on his ancestral heath. His walrus-like moustache made him a tempting subject for the caricaturists, but there was no touch of malice in their handling. He was popular with every section of the House, and at Finzean he entertained many persons of distinction in various spheres of achievement. He was not much of a sportsman, but could take his place in a shooting party without disgrace.

Farquharson took a great interest in the work and prosperity of the British Medical Association, and was a frequent attendant at its annual meetings. In his early days in London he was joint secretary with Dr. Patrick Stewart of the Metropolitan Counties Branch, and secretary of the Section of Medicine at the annual meeting held at Sheffield in 1876. He was afterwards president of the Aberdeen Branch in 1898–1899, and vice-president in 1900 and 1901. He was appointed chairman of the Parliamentary Bills Committee on the death of Mr. Ernest Hart in 1898, and continued to hold that office till 1900, when he declined nomination for re-election. He frequently introduced depositions from the Committee to the Government in connexion with public health and medico-political matters.

Dr. Farquharson had considerable skill as a connoisseur. In his youth he had some notion of taking up art as a profession, but the genius of his brother, Mr. Joseph Farquharson, R.A., as he confesses, overshadowed him. For many years he contributed an article on the pictures in the Royal Academy, and his knowledge of art combined with his trained medical eye made him an effective critic. We also had the privilege of publishing many letters from his pen on subjects of current interest, written in a vigorous and happy style. He was the author of several contributions to *Blackwood's Magazine*, including a plea for Scottish landlords (1904) and the case of the moderate drinker. He solaced the tedium of his closing years by the production of two volumes of reminiscences, *In and Out of Parliament*, published in 1911, and *The House of Commons from Within, and other Memories*, which appeared the following year. Though somewhat carelessly written, these books give an interesting sketch of a varied life and many portraits of the men of mark with whom he was brought into contact.

Dr. Farquharson was unmarried. He was a J.P. and Deputy Lieutenant for the county of Aberdeen. In 1883 the honorary degree of LL.D. was conferred on him by the University of Aberdeen.

DR. ARCHIBALD S. DICK, of 1, Bellahouston Terrace, Ibrox, Glasgow, died in his 47th year in a nursing home, on May 26th, from acute pneumonia. He was a graduate of Glasgow University, taking the degrees of M.B., C.M., with "high commendation," in 1894, and M.D. in 1899. After graduation he spent several years as resident physician in hospitals in London, Dublin, and Glasgow. Dr. Dick was a most popular figure at college, in the hospital, and with his many patients. At the annual gathering of his college year the want of his genial humour and his kindly voice will be an irreparable loss. His personality endeared him to all who came in contact with him, but those who knew him best will miss him most. He led a strenuous life, ungrudgingly attending to the numerous calls of his large practice. Not possessing an over-robust constitution his early death may be placed to the stress of these days. The earth has lost one of its grains of salt, but those who were privileged to look into his heroic

soul know well that he would not look upon his death as a disaster but as a well-earned promotion. The sympathy of many mourners goes out to his widow.

THE LATE DR. HEBB.

SIR BRYAN DONKIN writes: May I add a few words from my personal knowledge to the memorial article in your issue of May 25th on the occasion of the death of my great friend and sometime colleague, Dr. R. Grainger Hebb? I most cordially agree with your statement that

No member of the staff of the Westminster Hospital in the last thirty years exercised so great an influence over the students or was so universally esteemed for the precision of his knowledge, for his entire freedom from professional cant, and for his essential probity of character; to none did old students return in after years with more affectionate and grateful remembrances.

These telling words are indeed a splendid tribute to his memory, true to the letter, and a eulogy that but few can deserve. But I am anxious to emphasize the fact that, whether or no his systematic lectures on medicine or his clinical teaching beyond the mere elements of medicine were more or less unattractive to some students, Dr. Hebb never lost touch of the principle that clinical study and pathology should be regarded as inseparable. If, indeed, his long association with the pathological department and his extensive acquaintance with all-round pathology, so widely known to the profession in London, may have overshadowed his reputation as a clinical observer and an exceptionally thoughtful and able physician, I am sure that he may be ranked with the very best of those comparatively few physicians who have persistently obeyed this principle. Hebb was in this particular fully worthy to be classed with such men as Wilks, H. Gawen Sutton, of the London Hospital, and James Andrew of Bartholomew's. In my opinion his clinical intuition was unsurpassed by anyone's in my time. He was as good at the bedside as in the *post-mortem* room.

Nor do I think that Hebb lacked the scientific imagination. Rather he held it in check, partly from his great reluctance to write on any subject prematurely, and partly because he ever realized the frequent errors made by some who, having formed plausible and attractive hypotheses, proceeded all too soon to regard them, and induce others to regard them, as fully verified theories. His retiring disposition, and his long-standing illness, may have deprived him of the title "a great physician" in the usual sense of these words, but a great physician he certainly was.

In the brief obituary notice of the late Colonel James Forbes Beattie, R.A.M.C.(ret.), p. 633, it should have been stated that he was promoted Brevet Colonel for valuable services rendered in connexion with the war, with effect from June 3rd, 1917.

The Services.

INDIAN MEDICAL SERVICE.

THE *London Gazette* of June 11th announces the following alteration in the rank and titles of surgeon-generals of the Indian Medical Service: Surgeon-generals ranking as lieutenant-generals shall be granted the rank and title of lieutenant-general, and surgeon-generals ranking as major-generals shall be granted the rank and title of major-general.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on June 7th the following were admitted to medical degrees by proxy:

B.C.—W. N. Leak, A. W. Stott.

UNIVERSITY OF LONDON.

THE degree of D.Sc. in Statistics has been conferred upon Robert John Ewart, an internal student of the Lister Institute of Preventive Medicine, for a thesis on the influence of age of parent at birth on length of life, sex, susceptibility to zymotic diseases, stature, intelligence, and eye colour.

Dr. Janet E. Lane-Claydon has been appointed examiner in hygiene on the Board of Examiners for the academic diploma in sociology.

The Senate has expressed its gratification that the London Hospital has decided to open its medical college to women students.

The following were appointed staff examiners for medical degrees for 1918-19:—

Anatomy: Professors R. W. Reid and A. Macphail. Bacteriology: Professor R. T. Hewlett. Chemistry: P. Haas and Professor J. M. Thomson. Forensic Medicine and Hygiene: F. J. Smith and Professor Matthew Hay. General Biology: J. Stuart Thomson and J. T. Cunningham. Medicine: Professor Arthur J. Hall and Sir James Galloway, K.B.E., C.B. (Internal). Mental Diseases and Psychology: Robert H. Cole and W. H. B. Stoddart. Obstetric Medicine: G. F. Blacker and Comyns Berkeley. Pathology: Professor J. Martin Beattie and Charles Bolton, F.R.S. Pharmacology: Professor H. J. Campbell and Fred Ransom. Physics: W. Makower and F. Lloyd Hopwood. Physiology: Professor D. Noel Paton, F.R.S., and Professor E. H. Starling, C.M.G., F.R.S. State Medicine: Richard King Brown and W. G. Savage. Surgery: William Turner (Internal) and V. Warren Low, C.B. Tropical Medicine: C. W. Daniels.

The annual report of the Superintendent of the Brown Institution for 1917 states that 2,550 animals had been brought to the institution; they included 1,060 dogs, 840 cats, and 470 horses. Five lectures on dysentery and allied conditions were delivered by Mr. F. W. Twort, the superintendent.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD.

FOURTEEN medical entrance scholarships and exhibitions, of an aggregate total value of about £1,200, tenable in the Faculty of Medical Sciences of University College and King's College, and in the Medical Schools of Westminster Hospital, King's College Hospital, University College Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered for competition on Tuesday, July 16th, 1918. Full particulars and entry forms may be obtained from the Secretary of the Board, Mr. S. C. Ranner, M.A., Medical School, King's College Hospital, Denmark Hill, S.E.5.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

SURGERY.—*G. H. FitzGerald, *H. E. Lewis, *H. M. Waller.
MEDICINE.—*J. Gorsky, *F. Lyth, *H. Lyth, *G. G. Rigby, *J. Stephen, *T. C. Stephen.
FORENSIC MEDICINE.—J. Gorsky, T. Mensa Annan, J. Stephen.
MIDWIFERY.—A. M. Berman, A. G. Curzon Miller, S. V. Goldhurst, T. Mensa Annan, H. H. Selim.

* Section I.

† Section II.

Medical News.

DR. E. H. TWEEDY (principal medical officer) has been appointed a member of the executive committee of the colony of Sierra Leone.

OWING to the present position of supplies, it has become necessary to reduce the jam ration in the civil general hospitals scale from 8 oz. to 4 oz.

MR. HENRY EDGAR WILLIAM HOFFMEISTER, M.A., M.B., B.C.(Cantab.), M.V.O., of East Cowes, has by deed poll changed his name to Edgar William Seymour.

MR. WALTER SCHRÖDER, Coroner for Central London, and Dr. F. J. Waldo, Coroner for the City of London and Southwark (a past president), have been elected president and honorary secretary respectively of the Coroners' Society.

AT the last meeting of the Society of Public Analysts Mr. A. Chaston Chapman reported that he had worked out a method for the manufacture of plant nucleic acid on a large scale, and that considerable quantities of the acid and its salts are now being manufactured in this country.

THE annual meeting of the British Science Guild will be held at the Mansion House, London, under the chairmanship of the Lord Mayor on Wednesday next, June 19th, at 4 p.m., when an address on education, science, and leadership will be given by Lord Sydenham. Cards of invitation can be obtained from the Secretary of the Guild, 199, Piccadilly, W.1.

A MASS meeting will take place on Monday, July 1st, at 3 p.m.; a national conference on maternal and infant welfare will be held on July 2nd and July 3rd, and an educational mothercraft exhibition will be open throughout Baby Week, July 1st to 6th, at the Central Hall, Westminster. The address of the Baby Week Council is 27A, Cavendish Square, London, W.1.

THE late Sir George Hare Philipson, whose gross estate has been sworn at £26,235, has by his will bequeathed £2,000 to the University of Durham College of Medicine, Newcastle-on-Tyne, for the foundation of two Philipson scholarships to be awarded to the undergraduate of the college obtaining the highest marks at the M.B. final examination.

MISS FRANCES IVENS, M.B., M.S.Lond., Médecin-Chef of the Scottish Women's Hospital at Royaumont, Villers Cotterets, successfully evacuated the hospital last week in the midst of severe enemy fire and several successive air

raids. Miss Ivens carried on till the last permissible moment, operating under these trying conditions; no one among staff or patients was injured. Miss Ivens has been in charge of Royaumont since the hospital was opened in November, 1914, and received the Legion of Honour in 1917.

The third annual meeting of the National Council for Combating Venereal Diseases will be held at Caxton Hall, Westminster, on Monday next at 5.30 p.m., when the chair will be taken by the president, Lord Sydenham. A discussion will take place on the place of legislation in the campaign against venereal diseases. Among those who are expected to take part in it are Mr. Hayes Fisher, M.P., Mrs. A. C. Gotto, and Mr. E. B. Turner.

LIEUT.-GENERAL SIR ARTHUR SLOGGETT was entertained on June 10th by some members of the British Red Cross Society and the Order of St. John on the occasion of his relinquishing the post of Chief Commissioner of the joint societies at the expiration of his term of office as Director-General of Medical Services with the British armies in France. Among those present were the Earl of Donoughmore, the Earl of Lucan, Viscount Knutsford, Viscount Chilston, and Lord Cheylesmore. The Duke of Connaught was prevented from being present owing to his absence at Aldershot on military duties.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

Authors desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitology*, Westrand, London; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

INCOME TAX.

X. inquires as to his liability to pay tax on professional debts recovered since his retirement, and as to expenses incurred while acting in an "outdoor locumtenency."

*. The debts in question are not assessable to income tax; X. having paid tax on his assessed profits as a general practitioner is entitled to regard these sums as postponed receipts of profits taxed in previous years. On the other hand, he is liable to pay tax on his receipts as a locumtenent without any deduction for private expenses, notwithstanding that he is maintaining his former residence as well as paying for rooms, etc., where his work is now being done. A locumtenent on "indoor" terms is in a favourable position in that he receives (in effect) unassessable emoluments or benefits.

SALIVARY CALCULI.

G. P. desires advice as to treatment of a man aged 55, obese, and the subject of gout, who has salivary calculi. Several have been removed already from Wharton's duct, but after a period of days or weeks fresh ones make their appearance and cause considerable pain and irritation.

LETTERS, NOTES, ETC.

WRITING with regard to the difficulty of separating the parts of an all-glass hypodermic syringe which have become stuck, Dr. G. G. Davidson states that after leaving such a syringe, in which both the nozzle and piston were stuck, in strong nitric acid for three and a half months they came apart quite easily.

MR. W. J. GOODING (61, Burlington Road, New Malden) has patented a bedstead lift trolley to enable bedsteads without castor wheels to be transferred from one place to another. The trolley is wheeled beneath the bedstead, which by means of a lever is lifted a few inches clear of the ground.

THE TREATMENT OF PERNICIOUS ANAEMIA.

DR. THORNE THORNE'S note in the JOURNAL of June 8th, p. 645, has led a correspondent, "Locum," to send the following note: Nearly three years ago I took over a practice of a young friend who was joining the R.A.M.C., and one of the cases was a man with pernicious anaemia, as diagnosed by a professor of medicine. As the man was exceedingly ill and did not look as though he could last long, I gave him several doses of salvarsan cream (made by Allen and Hanbury) in the buttock, and he began to improve thereafter. The injections gave him considerable pain, and he refused to have as many as I had wished to give him; but he is alive and well to-day and going about superintending his work. He had been taking iron and arsenic before that, and I did not stop them, but a marked change came over him at that time. He is still taking the drugs at intervals, but possibly they may be unnecessary. I was afraid to stop them as he was doing so well.

ELECTRO-CHEMICAL TREATMENT OF GONORRHOEA.

CAPTAIN H. H. KING, I.M.S., writes with reference to the electro-chemical treatment of gonorrhoea to make the following suggestions:

1. That the same electrical treatment might possibly be of the greatest service in the treatment of ordinary infected gunshot wounds, helping the removal of bacteria and pus from the surface of infected tissues. I am not aware of this method having been tried.

2. That in the simple irrigation of all mucous membranes hypertonic salines should be more used, with or without the addition of compatible antiseptics such as potassium permanganate. I have used such with a little permanganate as large enemata in the treatment of dysentery. Knowles and Cole (*Ind. Journal of Med. Research*, January, 1917) have found enemata of 1 in 80 magnesium sulphate useful in amoebic dysentery. I see no reason why the ordinary weak permanganate solution used for the urethra should not be a hypertonic one.

3. For the irrigation and distension of the urethra a metal catheter might be used with a projection at the handle end for the entrance of the irrigating liquid, and with several small perforations in three rows along $\frac{1}{2}$ in. of its length starting from $\frac{1}{2}$ in. below the ordinary hole at the bladder end. The whole catheter should be traversed by another finer tube opening at the two ends of the catheter only, thus shutting off the bladder from the main channel of the catheter. Liquid would enter by the side nozzle, flow along the main channel, enter the urethra in its prostatic part through the small perforations, course along the urethra, and so out. The inner channel would drain the bladder of all leakage into it. Distension would be secured at will by squeezing the urethra. The catheter would be passed slowly, and stopped as soon as urine flowed from the inner tube.

I have no experience with such an instrument; the idea suggested itself on reading Captain Lumb's note (BRITISH MEDICAL JOURNAL, October 6th, 1917).

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the week ending June 8th:

	£ s. d.		£ s. d.
Dr. T. Rouse ...	1 1 0	*Anonymous ...	1 1 0
*Mr. J. H. Jacobs...	10 10 0	Mr. E. Spencer Evans (m.)	0 10 0
Dr. H. J. Mackenzie ...	1 1 0	Dr. Albert Lucas ...	2 2 0
Drs. Forsyth and Norman	1 1 0	Dr. Alfred Cox (m.)	1 1 0
Sir A. Pearce Gould (m.)	5 0 0	*Lady Cooper ...	10 0 0
Dr. W. A. Milne ...	3 0 0	*Mr. G. S. Albright	50 0 0

* Per Sir Rickman Godlee, m., Monthly.

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Voeux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE appointments of certifying factory surgeons in the following places are vacant: Cruden (Aberdeen), Dublin (Dublin), Mullingar (Westmeath).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£ s. d.
Seven lines and under ...	0 6 0
Each additional line ...	0 0 9
Whole single column ...	4 0 0
Whole page ...	12 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

An Address

ON

THE SIGNIFICANCE OF CARDIAC MURMURS.

READ AT THE ANNUAL MEETING OF THE KENT BRANCH,
HELD AT TONBRIDGE, JUNE, 1918.

BY

CLAUDE WILSON, M.D. EDIN.,

TONBRIDGE WELLS.

GENTLEMEN,—Four years ago you elected me to the presidency of your Branch. I expected to hold the position for one year, and I read an address on irregular action of the heart. Since then has come the Great War, and, as a minor consequence, I still hold the post to which you elected me, another being that during this period no general meetings have been held within the area of the Branch. The President of the Association has recently issued an appeal for the revival of clinical and scientific work in the Branches and Divisions, and I have thought that a paper on a sister subject which recent work has for the moment placed in a somewhat confused position might be of interest and of use.

Since the war cardiac murmurs have become rather generally suspect. Not very long ago any murmur, with the solitary exception of the pulmonary systolic, was regarded as a sign of serious trouble, either temporary or permanent, and the insurance offices still look askance at murmurs of all kinds. But a reaction has arrived, and there are, among those who have followed superficially the trend of recent research, men who are inclined to go to the other extreme and say generally that a murmur does not matter. The truth lies between these two extremes. Some murmurs do not matter, others do, and, in forming an estimate of their import, we should in the first place endeavour to differentiate between the varieties, and, in the second place, realize that in any case a murmur is only one sign, and must be read in conjunction with other signs and symptoms of cardiac efficiency or the reverse.

Here I may enunciate an aphorism, the result of recent work, which is already very widely held, and which I venture to predict will become universally accepted. It may be stated thus: "On no solitary sign shall any heart be condemned." There are those among the elders who may say that they have always held this view. But such are either very few or they deceive themselves, for there is no shadow of doubt that upon the presence of a systolic murmur, and especially a well-marked systolic mitral murmur, and in the absence of any other sign or symptom pointing to cardiac inefficiency, countless individuals have been refused or heavily weighted when applying for life assurance; have been cut off from participating in healthy sports and exercises; have gone through life under a sense of incapacity and often in the apprehension of a special liability to sudden death, and have perhaps suffered the apprehension of the condemned cell when an operation became imperative, because some doctor had told them, on this or equally slender grounds, that they must never take an anaesthetic.

Very early in my career I was confronted with a case which caused me to revise my outlook on murmurs. The patient was a young lady who exhibited the most remarkable murmur I have ever listened to. It was very loud—systolic—and heard equally all over the heart. It was also heard all over both lungs, in the carotids, in the abdominal aorta, and with diminishing intensity in both femoral arteries. The murmur had been discovered a few years previously by a general practitioner, and the advice of a specialist had been sought, with the result that the patient, at about 20 years of age, was told she must live on one floor, and must not walk uphill. Before that she had run about and danced. I was a young man, but I had had a fair experience of cardiac disease, as resident physician in a large hospital, and I began with caution to test the efficiency of this patient's heart. I made her swing her arms about, go up and down half a dozen stairs, and then more; and I found that, as her exercises increased, the pulse improved rather than the reverse, that no dyspnoea nor pain was caused, and that no cyanosis, oedema, nor albuminuria developed. I took her to see the late Sir William Broadbent, and stated my reasons for

believing that the heart was practically sound, though I could not account for the murmur. He acquiesced, and suggested an ingenious explanation of the murmur—a minute congenital patency of the ductus arteriosus, leaving a negligible communication between the aorta and the pulmonary artery. Anyway the result was that the lady was restored to a life of useful activity, and that she lived for about twenty-five years more without any signs of cardiac failure, and died of pneumonia a few years ago.

This case made a profound impression on my mind. I argued that if so remarkable a murmur might exist in a heart which, for the practical purposes of life, was healthy, there were probably many murmurs which might be ignored; and I gradually came to the conclusion that a heart which could play football or go up Monte Rosa could not have anything very serious the matter with it. The argument I found applied equally to irregularities of the pulse; though, until the work of Mackenzie and Lewis enabled us to differentiate between the varieties of arrhythmia and to understand their varying significance, I had not the confidence I now possess regarding irregularity of action.

Functional and Physiological Murmurs.

In the case already cited, the murmur, whatever may have been the actual cause, was undoubtedly organic in origin. It illustrates a type which is extremely rare. To-day I have examined a case of a very different kind, but having this point in common: a systolic murmur which may not only with safety, but with great advantage to the patient, be ignored.

A young lady, working as a V.A.D. nurse, got tired, thin and easily fatigued, but showed no symptom referable to the heart. I saw her in bed, and found the first sound in the mitral area inaudible, and replaced by a blowing murmur which was conducted to the axilla. On sitting up in bed the same phenomena were observed; but, on standing up, the murmur completely disappeared, and the sounds became normal. On lying down again, the first sound disappeared and the murmur returned.

To what was this murmur due? We do not know. We may conjecture; but people never die from such conditions, and if they die and an autopsy is performed, the heart is found to be quite normal. "Functional" would be the term most commonly applied; but "functional" implies some derangement of function, and in these cases, where a systolic murmur is present in one position and not in another—a common type—there is, as a rule, no derangement of function, and Mackenzie prefers to call these murmurs "physiological." Under this heading, too, come the numerous systolic murmurs which are present one day and gone the next; and also many systolic murmurs which are constant and do not vary with position. It is not uncommon to find a very definite murmur which at the apex accompanies but does not replace the first sound, while at the base it is still more emphasized, and may render the first sound in both aortic and pulmonary areas inaudible.

Another murmur, rarer, is that which follows a normal first sound but stops abruptly with the second. Similar murmurs may be caused by valvular lesions; but if there is no history of rheumatic fever, and the heart responds normally to effort, the chances are that the murmur is not organic in its origin. But, even if it were, the valvular lesion which produces a systolic murmur and yet leaves a heart with good response to effort, and capable of riding a bicycle uphill, or other strenuous exercise, is probably trifling, and in such a heart the musculature is pretty certain to be healthy. Again, many of these murmurs are observed in children and adolescents, and in such there is a ready means of satisfying oneself that the heart is really sound. Sinus arrhythmia is common in the young, and can generally be readily induced. Make the patient take long, slow breaths pausing at the end of inspiration and of expiration. During inspiration the pace of the heart-beat will become accelerated, while during the later part of expiration, and during the pause before inspiration, the beats become very obviously slower and perhaps irregular. If this sign is present, the heart may very safely be pronounced sound. The following case is very similar to the last cited:

Some five or six years ago I saw a boy, aged 12, for some trifling ailment, and found he had a well-marked mitral murmur in bed, but that when he stood up it completely

disappeared. I took the view that the thing was of no importance and let him play football and cricket, and no harm resulted. Recently, for the purposes of this paper, I went to see him. He is 17½, well grown, and is working at wireless telegraphy. I examined the heart and found precisely the same condition present. Sinus arrhythmia was easily evoked, and this confirms the opinion I formed before I was aware of the significance of this condition.

Among the cautious commentators on this modern disregard of systolic murmurs in the young are those who hold that this optimism is not justified. They have noted and watched cases which later on develop serious heart disease. Of course these patients are not more immune than are those with obviously healthy hearts, any more than adolescents with postural albuminuria are immune from the possibility of nephritis at a later period. But my own experience is that heart disease and kidney disease do not result from these conditions; and, while I cannot recall a case which supports the contrary contention, I can cite many cases which I have had the opportunity of following for years, and which point to the conclusion that there is no danger in allowing patients presenting these anomalies to undertake any forms of exercise they may be inclined to and can perform without producing distress which is either severe or enduring. The general health, and with it the heart's efficiency, suffers if such patients are restricted. If there is anything the matter which matters, it will soon reveal itself; and we shall do infinitely more good than harm by reassuring all such patients as to the soundness of their hearts and encouraging them to do what they incline and feel equal to and by discouraging them from dwelling upon their health.

The next case presents somewhat different features:

This is a boy I have watched for many years. His father had died suddenly from heart failure, and the element of heredity—an element which in these conditions is, in my opinion, quite negligible—had been impressed upon the mother, and had also, in conjunction with certain physiological peculiarities, caused various doctors and "specialists" to regard the child's heart as one requiring the utmost care and many restrictions. When I first knew him as a child of 7 or 8 he was a miserable specimen, and pining under the continual solicitous observation of his mother and a devoted nursery governess. I shortly sent him to a mixed day school for little children and he did well. Later he went as a day boy, and ultimately as a boarder, to a boys' preparatory school. I let him ride a bicycle and play the usual school games, and sanctioned his being entered for a public school, in spite of the fact that a systolic murmur was occasionally present, that the heart could be seen beating over a wide area, and that, though the impulse could not be felt lower than the fifth space, it was readily detectable opposite the nipple in the anterior axillary line—a condition which, with perhaps a sixth space apex beat, is not necessarily pathological. This child has gradually grown into a fine healthy specimen of boyhood. I had arrived at my conclusions somewhat cautiously, and had gradually trained the heart and general physique from a state of weakness to a normal state of strength. Sinus arrhythmia is now easily evoked, as was doubtless the case when first I saw him, though it was not noted at that time because I was then unaware of its significance, and did not—as I now do—look for it in any youthful case I am asked to examine. Two years ago, when he was 12½ years old, he went with his mother to Cornwall for the summer holidays. There he developed a cough, and his mother took him to a doctor, who, after carefully examining him, pronounced his lungs healthy, but said, "I suppose you know about his heart?" The mother had all her old fears revived, but told him that her own doctor at home had watched the boy carefully for years and pronounced his heart sound; had permitted games and bicycling, and sanctioned a public school. The Cornwall doctor said that, were he his own child, he would on no account permit any of these things. He prohibited all exercise for the time, but wisely advised the mother, when occasion offered, to seek Sir James Mackenzie's opinion. On her return home she came to me in a terrible state of agitation, and we shortly all went together to see Sir James, who, I am glad to say, confirmed my opinion in all respects. The boy has now been for two or three terms at a public school, and he comes to see me during each vacation. He is a bright, happy boy, healthy in mind and body, and joins in the studies and sports of the school without restriction, no more attention being paid to his health than to that of the other boys.

I could multiply these cases and cite similar ones in adults where a general test of cardiac response to effort will usually lead to a right conclusion, though we seldom, after 20 years of age, have the help that is given if long slow breaths produce their physiological and characteristic effect upon the pace of the heart-beat.

Of the cases hitherto recorded, the first was an example of negligible congenital defect and the rest were physio-

logical anomalies. The following is a case of quite a different kind:

A young lady, aged about 20, had a sharp attack of influenza. It left her enfeebled and with a mitral systolic murmur. On getting about she panted a good deal on going up gentle inclines. But I let her walk in the garden and roads near by in preference to keeping her in bed. A little later on she and her sister went to Switzerland, and I was not surprised to hear that she was taking walks and enjoying them. But I was surprised, when they returned home, to find that they had become Alpine climbers and had been up the Jungfrau and the Schreckhorn. I found the heart normal and the murmur had disappeared. This occurred twelve years ago and the patient has kept well ever since.

The case is an example of what Mackenzie calls the poisoned heart—the heart affected by toxæmia, a thing that may happen during any systemic infection. Such patients get well much sooner under good hygienic conditions than if they are kept for long in bed, as they often are. The difficulty lies in excluding organic disease, which may occur under similar conditions, but which far more commonly develops during an attack of rheumatic fever than in other acute febrile infections. A rough murmur is more likely to be organic, while a soft one is more probably due to a slight dilatation which, provided the myocardium is intrinsically sound, is set right pretty quickly if the patient gets about and gradually increases exercise as it is comfortably tolerated. The condition corresponds to the temporary weakening of the skeletal muscles from similar causes. I can well remember in my own case, when convalescing from measles, that on first going out I was obliged to sit down after walking a couple of hundred yards. Within a week I could do a five-mile walk, taking the hills as they came. This rapid recovery of muscular tone would have been delayed had I remained longer in bed, and the same is true of the heart muscle, poisoned but not damaged during fever.

Systolic Murmurs Resulting from Endocarditis.

These are more serious because they are apt to be permanent, to become associated with other murmurs which are not systolic, to be accompanied by vegetations, and because both in pericarditis and endocarditis the myocardium is very likely to be invaded, and the heart muscle damaged, perhaps permanently. It is not always possible at first to say whether a murmur is due to dilatation or to endocarditis, and a poisoned heart may give rise to signs of muscle weakness similar to those of early inflammatory invasions. But severe cases are generally obvious and the slighter can usually be diagnosed as time goes on. Organic disease may be assumed as the rule when cardiac signs and symptoms develop in the course of rheumatic fever. And when organic disease is obvious, or suspected on adequate grounds, caution during convalescence is clearly indicated. Later on diastolic murmurs may develop, or the missed beats of partial heart-block may be noted in the cases which go badly. On the other hand, if recovery of myocardial tone takes place, gradual but cautiously graduated exercise may be permitted in spite of any murmurs which may remain. The muscle will not regain its maximum potential of health and energy unless it is given the chance, and in the later stages of convalescence, whatever be the damage remaining, exercise that is easily borne, and which increases the patient's sense of well-being, may be safely permitted.

Auricular Fibrillation.

The effect upon the pulse will naturally be watched, and any undue acceleration will inculcate caution; while, if exertion habitually produces a noticeable irregularity, we are probably confronted with auricular fibrillation. This must be distinguished from irregularity which becomes emphasized as the heart slows down after exercise, and which may be due to one of three causes: (1) Sinus irregularity, which we look for in the young and which is of excellent augury; (2) extra-systoles, easily detected, and, apart from other signs and symptoms, fairly negligible; and (3) (much more rarely) the minor phases of heart-block—a condition which should never be out of our minds when dealing with hearts damaged during the course of acute fevers, and especially acute rheumatism. Missed pulse beats are generally due to extra-systoles, and the cardiac sounds which accompany them are usually characteristic. Missed pulse beats synchronizing with

missed heart-beats suggest heart-block, though they may be due to extra-systoles too faint to be audible.

The most important point to recognize regarding systolic murmurs developed during febrile attacks is that the condition of the heart muscle is the all-important factor. In one of the most obviously and permanently damaged hearts that I have seen, following acute rheumatism, there never was any murmur at all, but there were (and still are, fifteen years later) obvious signs of cardiac embarrassment on any attempt at really active exercise. Had this lad shown a systolic murmur his symptoms might have been attributed to a valvular lesion, whereas the inefficiency exists without it, and is due to myocardial disease.

Such cases are, of course, not uncommon. I have recently seen an elderly lady whose early history I have been unable to unravel. She has general cyanosis, clubbed fingers, breathlessness on exertion, and oedema of both legs, and she has often been "doctored for her heart." But the pulse when I saw her was regular and not very fast, the heart not obviously enlarged, and the sounds quite normal. The exact diagnosis admits of more than one hypothesis, but that there are degenerative changes in the cardiac muscle is obvious, and the addition of a systolic murmur would not materially affect the prognosis, which is certainly grave.

It would be easy to quote many cases of such cardiac entelebment in which a systolic murmur was the only audible sign, but in these cases there is always evidence of weakened muscle and often of auricular fibrillation. In this condition—and it is one in which the outlook is always menacing—a systolic murmur is very often the only audible anomaly, and I think there can be no doubt that it is this association, in conjunction with the accompanying gamut of serious signs and symptoms resulting from inaction of the auricles, which has given rise to the long-standing impression that this is the natural ending to mitral incompetence, and has invested the mitral systolic murmur with its halo of sinister augury. The signs and symptoms have been attributed to "back pressure," and we all know the classic chain of events which is supposed to be gradually and surely forged. But the familiar clinical syndrome is often found without any murmur at all, and is in reality due to the impairment of the cardiac mechanism as a whole consequent on disease of the muscular wall and on the failure of the auricles to contract; and, if there is any "back pressure" at all, it is a minor factor, and proceeds, apart from extreme narrowing of the mitral orifice, equally and simultaneously from both sides of the heart. In many such cases there was once a double murmur, and mitral stenosis was the really important valve lesion; but as with the onset of fibrillation the presystolic murmur necessarily disappears, the serious results have been wont to be attributed to the regurgitation of which evidence still remains.

In all cases of obvious cardiac embarrassment a general survey must be made, and one point which can generally be settled at once is whether auricular fibrillation is present or not. The point is so important, and is as yet so commonly misunderstood, that a short review of its most obvious signs may not be out of place, seeing that it is often associated with a systolic murmur. The pulse, which may be moderate or fast, presents an "absolute irregularity"—generally recognizable by the finger, or by the heart sounds, and always by the sphygmograph—in which no two consecutive beats are quite the same in time or volume, and the irregularity is increased by effort. This is sufficient to establish the presence of the rhythm, but corroborative evidence is often found by noting that the pulsation in the jugulars is simple and not undulating, and that it corresponds exactly with the ventricular contractions, to which it is directly due.

So much for systolic murmurs accompanying serious heart disease. The murmur does not indicate the real trouble, which may be associated with fibrillation, or with heart-block, or be due to degenerative changes without abnormal rhythm. But the common association need in no way bias our judgement as to the unimportance of systolic murmurs in the very numerous cases in which they are heard in hearts which show no evidence of inefficiency or other signs of structural impairment; and in all such cases a systolic murmur may be safely and wisely disregarded.

Murmurs which are not Systolic.

Here we are confronted with a difference between the physiological and clinical terminology. Clinically the systolic phase commences with the beginning of the first sound and ends with the beginning of the second. It coincides with the systole of the ventricles, and murmurs occurring during this period are always called systolic. But while the physiological systole commences with the contraction of the auricles, the murmurs caused by the auricular systole are clinically termed "pre-systolic."

As all the murmurs occurring during the diastole of the ventricles have a graver significance than that which attaches to systolic murmurs proper, it is convenient to group them under a common heading; and, provided we keep the above considerations in view, we may welcome Mackenzie's suggestion that they be grouped under the generic designation "diastolic."

The Three Chief Varieties of Diastolic Murmurs.

1. *The aortic diastolic murmur*, easily detected, replacing the second sound, generally accompanied by Corrigan's pulse, and due to aortic regurgitation.
2. *A murmur occurring early in the pause*, due to aspiration of blood from the auricle to the ventricle, found as a late sign of mitral stenosis and occurring alone in many cases of auricular fibrillation, with stenosis.
3. *The crescendo presystolic murmur* characteristic of mitral stenosis, running up to the first sound, or alternatively to a systolic murmur (double mitral), due to the systole of the auricle in conjunction with a narrowed outlet, and naturally disappearing when the systolic action of the auricle ceases with the onset of fibrillation.

It will be noted that, while systolic murmurs are often due to negligible or transient causes, the diastolic murmurs all indicate serious and hampering disease. Of this I shall have more to say, but may here state that, while aortic incompetence gives rise at once to a diastolic murmur and always implies the necessity of restricting effort to well within the limits of tolerance, the case of mitral stenosis is somewhat different; this condition comes on gradually after an attack of endocarditis, and it may be months or years before evidence arises on which to base a diagnosis. It at first results in only a very slight narrowing, and, while the process may become arrested at any stage, it may proceed till the orifice is represented by little more than a slit. But if a presystolic murmur is heard, a guarded prognosis must be given, and it may be stated generally that patients showing any one of the diastolic murmurs should be discouraged from running risks, and should always be protected from the strain of occupations which imply the necessity of strenuous effort.

Prognosis.

In the early part of my paper I cited several cases from the point of view of prognosis—cases which, in my judgement, were of good augury. I have also referred to cases, only too familiar to us all, of far more serious portent. I will now speak of two more patients, illustrating many of the points I have already alluded to, and taking up their history in retrospect, for both are elderly ladies, spare of body, and active in temperament, and both about 70 years of age. They are neighbours, and each of them is known to have had a systolic mitral murmur for thirty or forty years, and it may be more. Their condition is, however, very different.

The first has never had any cardiac symptoms at all. I examined her the other day, and found a rough systolic murmur heard all over the heart, quite replacing the first sound. The mitral area appears to be the point of maximum intensity, and the murmur is audible in the axilla and all over both lungs at the back. The apex is in the sixth space. Barring an occasional extra-systole there is no irregularity. She can mount stairs and walk up hills, and is exceptionally active for her age. How or when the murmur started no one knows. It may be a congenital affair, or it may have originated in endocarditis. But though no doubt there is an organic lesion (mitral incompetence) the murmur is obviously sound and the effect of the regurgitation is negligible so far as the calls of ordinary life are concerned. She is a good example to quote in favour of Graham Steele's dictum, recently unearthed by Mackenzie, that no one dies from mitral regurgitation, though at her age, with the degenerative period of life well advanced, the future can hardly be regarded with equanimity.

Her neighbour's condition is far otherwise. Her heart trouble began during an attack of rheumatic fever. She has had many attacks of heart failure, and at her best is easily made breathless and has to pause on an ordinary flight of stairs. But by taking small doses of digitalis two or three times a

week and keeping within her limits, she gets along fairly well. She has a softish blowing systolic mitral murmur; her heart beat is diffuse, the left ventricle slightly enlarged, and her pulse, which is always slightly irregular, becomes markedly so after very moderate exertion. What is the condition of her heart? Clearly, like the other case, there is mitral regurgitation; but that is not the main thing. Her heart muscle was doubtless invaded when the trouble first developed, and now her auricles are not acting at all. They are in a state of permanent diastolic dilatation, and their musculature is in a constant state of ineffectual fibrillary contraction (auricular fibrillation). I suspect that she, at one time, had in addition a presystolic murmur, that there is narrowing as well as incompetence of the mitral valve, and that the case is really one of mitral stenosis, accompanied by myocardial invasion and secondary degeneration.

These two cases form a very instructive contrast, and suggest certain reflections on the effect of valvular lesions in general.

Why should it be that systolic murmurs are often negligible, and diastolic murmurs not so? I cannot say that I have seen any convincing explanation, though I have been convinced as to the facts. And yet it seems to me that a consideration of the lesions which give rise to the murmurs, and of the effects which are likely to result on the cardiac mechanism and on the heart's nutrition, do afford an explanation. I do not now speak of the grave cases in which a systolic murmur has been known to exist for years, which terminate in progressive heart failure, and in which a widely dilated mitral orifice is found *post mortem*. As in the case of the clinical association of fibrillation with a systolic murmur, so it is with these. We have got so accustomed to the assumption that the whole of the disorganized *post-mortem* findings are the end results of mitral regurgitation, that it is not easy to reshuffle the conditions in our minds, and realize that the main factor lies in disease or degeneration of the heart wall, and that mitral incompetence on a large scale is a result, and only in the later stages a contributory factor to the eventual catastrophe.

Nor need I dwell, at the other end of the series, on the physiological and functional murmurs—always, by the way, systolic—which are so common, especially in the young. They are often associated with febrile and debilitated conditions, and these of course need care and treatment; but, where found in conjunction with a good cardiac response to effort, they are negligible, and the only difficulty lies in distinguishing them from murmurs due to organic causes. Fortunately this difficulty, which is sometimes a very real one, is of comparatively little importance if it can be shown that organic systolic murmurs, existing alone, and unaccompanied by other evidence of cardiac disease, depend on lesions which are in themselves not serious.

On the right side a tricuspid systolic murmur is known to be often physiological, and that the regurgitation is generally inconsiderable is clearly shown by the small size of the ventricular wave in the jugular tracing. It is probable that a similar state of things is common also at the mitral valve, while even a more considerable back-wave is not very serious in an otherwise healthy heart. In the cycle of events the left auricle contracts, and throws its blood into the ventricle, and then immediately dilates and begins to fill again from the large veins, which are not only full of blood ready to pour into it, but must also be actively aspirated by the intrathoracic pressure being lower than the atmospheric. When the ventricle contracts the blood will be driven in the direction of least resistance—into the open aorta—and any that regurgitates through the mitral valve is met by the contents of the auricle already rapidly filling. Unless the mitral dilatation is considerable, very little will get through, and even if it is considerable, the counteracting forces are far from negligible. The period, too, during which regurgitation is possible is limited to the duration of the ventricular systole, and there is no interference with the blood supply to the heart itself through the coronary arteries. This is, perhaps, the main point, for—as has been shown by Starling¹ and others—the reserve power of the heart is enormous, and depends essentially on an unrestricted blood supply to the myocardium. Certain it is, as we have seen, that such cases may go on for years without any interference with the ordinary calls of life.

The small importance attaching to aortic systolic murmurs is perhaps even easier to explain. Some of them are probably functional, as at the pulmonary orifice;

but, granted that a murmur is due to narrowing, it need have but little adverse effect. Stenosis is due to the adhesion of the margins of the cusps, and though a slight narrowing (extreme stenosis is very rare) may give rise to a loud murmur, it offers no serious barrier to the passage of the blood through the valve, and is easily compensated by a slight hypertrophy. If the process of adhesion continues, the margins of the cusps get shortened, and an aperture is left on closing, through which regurgitation takes place. So that, if there is much stenosis, we will also get incompetence, and we may be pretty sure that if there is no diastolic murmur the narrowing does not amount to very much; and further, unless there is incompetence, the circulation in the coronaries will not be interfered with.

I now turn to the diastolic murmurs, and hope to show that the lesions giving rise to them (mitral stenosis and aortic incompetence) produce effects which hamper the mechanical action of the heart, and also that interference with the circulation in the coronaries is, in both cases, a probable result. This latter factor is a most important one, for it must lead immediately to cardiac inefficiency and eventually to fatty or other degenerative changes. It is clear that any marked narrowing of the mitral opening must throw an extra strain on the auricle, which will hypertrophy to meet it; but if the narrowing proceeds and gets extreme, the auricular musculature at last gives way and fibrillation supervenes. But before this event, and apart from any inflammatory invasion of the myocardium, the nutrition of the heart wall is likely to have been impaired from inefficient blood supply. In stenosis that is more than very slight, the ventricle may fail to get adequately filled, the effect of which is seen in a general feebleness of the whole body, and, as the coronaries participate in the general failure of the circulation, the degenerative changes in the myocardium, which are the precursors of fibrillation, result.

In aortic regurgitation, the hampering effect on the machine is too evident to need dwelling upon. It is not, like mitral regurgitation, a process limited to the short period of the ventricular systole, but one which begins as soon as the systole terminates, and continues throughout the ventricular diastole, during the whole of which period the back-flow from the aorta into the ventricle, resulting from the systemic blood pressure in the aorta, is aided by the aspirating effect of the dilating ventricle. And further, as the force which normally fills the coronaries is derived from the high pressure in the aorta at the end of systole, and from the consequent back-kick which closes the aortic valves, it is obvious that in regurgitation there will be interference with this important function, and degenerative changes in the cardiac muscle are an almost certain consequence.

Having now reviewed the nature and significance of the commoner endocardial murmurs with which we are daily confronted, I come back to where I started, to remind you that our final judgement must always be based on a general consideration of each case as a whole, and in this estimate the presence or absence of definite signs of cardiac embarrassment, and a careful examination of the heart's response to effort, should always be given their due weight, and often a preponderating weight, in the formation of an opinion of the organ's capacity to meet the ordinary—and the extraordinary—strains of life.

The views I have expressed are those to which my own experience and reasoning have led me, and on which I have acted with increasing confidence for nearly thirty years. But I owe a debt of gratitude to Sir James Mackenzie both for personal encouragement and for his illuminating writings, which have both strengthened and clarified my opinions. Similar conclusions have been drawn by other workers, and it is satisfactory to find that the Medical Research Committee's "Report on soldiers returned as cases of D.A.H. or V.D.H."² after a very careful investigation, arrives at the view that systolic murmurs existing alone, and "without other disqualifying signs and symptoms," should be ignored. This has now come to be the modern teaching, and it has come to stay, though as yet many of the authorities have not accepted it, and the profession in general has hardly been able to divest itself of preconceived ideas. On the other hand, the subject is "in the air," and, as I stated early in my paper, the conclusion has been drawn by some that murmurs of all kinds may be discounted, and that consequently there is not much use in

spending time and trouble over them. Such is far from being the case, and the suggestion of the Medical Research Committee, that the issue, in estimating efficiency, is confused if the presence of a systolic murmur is noticed at all, does not appear to me to be a sound one. Every murmur is well worthy of attention, and those which can be classified as negligible should be noted as such. A knowledge of the nature and significance of the different types will lead to a reasoned conclusion as to how much weight should be attached to each. Diastolic murmurs have always a serious significance, and systolic murmurs are often associated with grave disease. But many systolic murmurs are negligible, and the general recognition of this truth will free a considerable section of the community from a needlessly restricted life, and from a cloud of unnecessary and haunting apprehension.

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TRANSFUSION WITH PRESERVED RED BLOOD CELLS.

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THERE is a definite need in front area medical work of a method for giving transfusions rapidly. At casualty clearing stations during the busy time of an attack, it is obviously impossible to perform transfusions by the usual methods in nearly all the cases in which transfusion is indicated. The difficulty of procuring sufficient blood under rush conditions, the time consumed in carrying out the transfusions, and the need of every available medical officer in the operating theatre, all tend to reduce the number of transfusions which can be given. The use of preserved human blood cells for transfusion suggested itself as a possible solution of certain of these difficulties. A quantity of blood sufficient for a number of transfusions could be stored up beforehand and used as needed. The technique of transfusing such blood is simple and could be handled by one medical officer.

History of the Subject.

The experimental basis for this work was laid by Rous and Turner¹ working at the Rockefeller Institute for Medical Research. They found that blood taken into a solution of dextrose and sodium citrate and kept in the cold could be preserved for several weeks. Not only did the red blood cells thus treated remain intact, but they retained their viability for a long period. The preserving fluid used consisted of 5.4 per cent. dextrose combined with 3.8 per cent. sodium citrate; both of these solutions are isotonic with blood plasma. The optimum proportions of blood and dextrose citrate solution were found to be as follows: Three parts of blood, two parts of citrate, and five parts of dextrose solution. This mixture was placed in the ice chest and the red cells allowed to sediment. The supernatant fluid showed no signs of haemolysis even after the red cell layer had been stirred up repeatedly. Furthermore, after washing these cells in Locke's solution there was no evidence of loss of integrity. It was found that the rabbit's blood preserved in this way could be kept intact for three to four weeks, and sheep's blood for as long a period as eight weeks. Human red blood cells showed no apparent deterioration at the end of four weeks. They determined the viability of preserved blood cells by means of transfusion of these cells in bulk. Rabbits were used for this purpose. A normal rabbit was bled a large quantity, up to half its blood volume, causing a marked drop in the haemoglobin percentage and red cell count. Immediately afterwards the rabbit was transfused with an amount of preserved rabbit's blood cells equal to the amount lost in bleeding. The haemoglobin returned promptly to its previous level. The animal showed no ill effects from the procedure, and the haemoglobin and red cell count remained normal. This demonstrated that the transfused preserved blood cells were behaving as normal red corpuscles. By this means it was found that rabbit's blood could be kept living for two weeks. Many similar experiments were carried out with the same result. Parallel tests were made with blood cells kept for longer periods. Rabbits were bled a large quantity as before and immediately transfused with preserved blood cells kept three weeks or more, but which still showed no signs of haemolysis. There was a prompt return of the haemoglobin to normal after the transfusion. This condition, however, was only temporary. The red cell count and haemoglobin soon began to fall, and by the end of the second day the transfused cells had practically disappeared from the circulation, leaving the rabbits markedly anaemic. The animals seemed normal

otherwise—that is, there was no apparent harmful effect from the transfusion of intact preserved blood cells kept beyond the period of their viability. On the other hand, the transfusion of preserved blood cells that were beginning to show haemolysis had an extremely harmful effect, and the recipients died often within twenty-four hours. At the necropsy evidence of marked haemolysis was found.

An opportunity to test the usefulness of this method of transfusion with preserved human red blood cells was afforded me by the medical authorities of the Third Army, B.E.F., at whose casualty clearing stations the work was carried out.

METHODS.

1. PREPARATION OF THE PRESERVING SOLUTIONS.

The solutions of dextrose and sodium citrate are made up on the basis of 500 c.cm. of blood, as this is the usual amount taken from a donor. This requires in round numbers 350 c.cm. "isocitrate" (isotonic sodium citrate solution) and 850 c.cm. "isodextrose." These two solutions must be made up and must be autoclaved separately. Freshly distilled water should be used for all solutions.

For the preparation of "isodextrose" powdered dextrose is preferable, but since this substance is no longer obtainable in any quantity liquid glucose is used instead, and thus far has proved satisfactory; 2 grams of the liquid glucose is equivalent to 1.6 grams powdered dextrose. Thus, to make up 850 c.cm. of a 5.4 per cent. solution, 46 grams of powdered dextrose or 57.5 grams of liquid glucose is needed. On account of the difficulty in weighing out and dissolving liquid glucose, it is convenient to make up a large quantity of a 20 per cent. solution. This can be used as a stock from which the "isodextrose" may be prepared. Enough stock for six lots of "isodextrose" is made by dissolving 360 grams of liquid glucose in sufficient distilled water to bring the total volume of the solution to 1,800 c.cm. It is then filtered through coarse filter paper. If the solution is to be kept it should be sterilized. For making "isodextrose" 287 c.cm. of this concentrated solution is diluted with distilled water to 850 c.cm. in a clean two-litre bottle (Winchester). The bottle is stoppered with a cotton-wool plug, which is covered with gauze and tied on. The solution is sterilized in the autoclave for one half-hour at a temperature of 105° C. (equals 3 lb. steam pressure). This temperature should be reached slowly, as bottles of this size are liable to break if the change of temperature is rapid. For this purpose a one-burner Primus lamp is suitable. Care should be taken that the temperature does not exceed 105° C., as glucose may decompose if heated above this point.

There are no difficulties in preparing the 3.8 per cent. sodium citrate solution, but it is convenient to make up a 20 per cent. stock solution. A quantity sufficient for six lots of "isocitrate" is prepared by dissolving 90 grams sodium citrate in distilled water to a volume of 450 c.cm. and filtering. If this concentrated solution is to be kept it should be sterilized. For making "isocitrate" 66.5 c.cm. of the 20 per cent. solution is diluted to 350 c.cm. with distilled water. These 350 c.cm. amounts are sterilized in small bottles of the size used for transfusing the blood (described later). The same precaution is taken to cover the mouth of the bottle as in the case of the glucose solution; 105°–110° C. in the autoclave for one half-hour is sufficient.

2. PROCURING THE BLOOD.

(a) Donors.

Persons belonging to blood group IV² only are used. This saves the necessity of doing agglutination tests before transfusion, since blood cells of this group are not haemolyzed or agglutinated by the blood of any individual. The writer has not had the slightest difficulty in getting volunteers for donors. The importance of transfusion is explained to them beforehand and they are told that it is now possible to keep blood for some time and have it immediately available when needed. The donors are chosen from among patients with trivial wounds or those who have recovered from slight wounds. Persons giving a history of malaria, trench fever, or syphilis are excluded.

(b) Apparatus.

The apparatus for bleeding and the method of measuring are shown in Fig. 1.

The Winchester bottle containing the sterile isodextrose serves as the bleeding bottle. Before mixing the solutions

a mark is made on the bottle at the upper level of the dextrose solution, A; 350 c.cm. isocitrate is then poured in and another mark made at the new fluid level, B. The distance A-B measures 350 c.cm., which is roughly two-thirds of 500 c.cm. A third mark is made at C, a distance

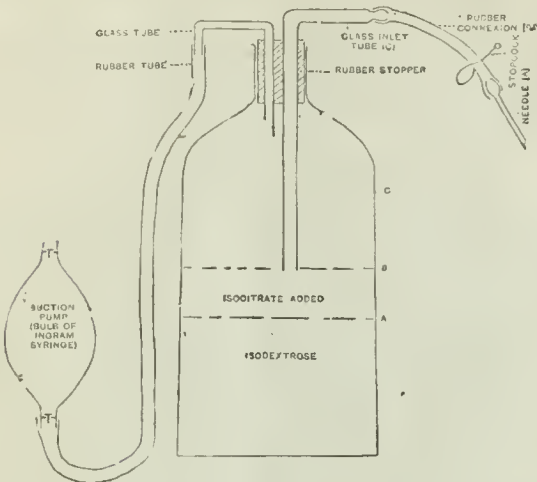


FIG. 1.

above B equalling one and a half times the distance A-B. This measures approximately 500 c.cm.

The chief points about the apparatus are these:

The needle (A) should be of a large bore—1.5 mm. diameter was found to work well—and not more than 1.5 in. long. It should have a fairly large olive-shaped base. The needle is the most important part of the apparatus, and requires careful attention. Before each bleeding it should be carefully sharpened. The most important consideration in the sharpening is to produce a good spear point. If the point is well protected when not in use by a metal barrel or piece of rubber tubing, sharpening will require only a moment or so. The needle must be kept scrupulously clean, and after each bleeding should be washed out at once, all fragments of fibrin or clot removed from the base, and small pieces of cotton-wool soaked in liquid paraffin thrust through the lumen with the stilette. The whole needle is well oiled before being put away.

The rubber connexion (B) should be flexible, and not more than 3 in. long. The inner surface should be smooth, and the lumen slightly smaller than that of the glass inlet tube (C). If the rubber connexion fits snugly over the base of the needle, tying it on is not necessary.

The glass inlet tube (C) is made of a large-bore glass tubing about 6 mm. internal diameter. It should extend below the level (B) of the solution in the bottle.

The glass tubing and the stopper are dry sterilized. The needle and attached rubber connexion are boiled for ten to fifteen minutes before use.

(c) Procedure of Bleeding.

The donor's arm is extended at a right angle to the body. The skin of the antecubital space is scrubbed with soap and water and the sterilization completed with alcohol. A tourniquet is applied to the arm high up and a suitable vein chosen, remembering that the needle is to be inserted towards the hand. It is very important to have as large a vein as possible. Opening and closing the fist and flicking the skin below the point chosen for venipuncture aids much in dilating the veins. At the point selected to puncture, a small amount of novocain is injected intracutaneously. The tourniquet is then released. The apparatus is assembled as shown in the diagram, great care being taken to keep all the open parts sterile. Sufficient pressure is made with the pump to fill the system with solution. When the air has been driven out of the needle, the stopcock on the connecting tube is closed. The pump-bulb is reversed so that suction can be made when needed. The apparatus is now ready for use.

The tourniquet is again tightened sufficiently to make the veins stand out well, but not enough to obliterate the pulse. The cuff of a blood pressure apparatus makes an excellent tourniquet with a pressure kept at 50–60 mm. A small nick is then made through the skin with the point of a scalpel. The bottle is placed on a stand close to the patient's arm in such a position that there will be no kinking of the rubber connexion when the needle is in the vein. Slight suction is next made in the bottle. The

skin opening is mopped dry with a piece of sterile gauze and the needle inserted for a short distance beneath the skin before entering the vein. The stopcock is then opened and the needle is pushed into the vein immediately. The blood follows the column of solution down the tube without leaving an air space. A moderate degree of suction is maintained and the donor continues to open and close his hand slowly, care being taken that he does not move his arm. It is essential to keep the needle immobile. The operator should hold it throughout the bleeding, steadying his hand against the donor's arm. With these precautions 500 c.cm. of blood can be easily and quickly obtained.

If clotting occurs for any reason, such as the needle slipping out of the vein or air leakage, and the blood ceases to flow, the tourniquet should be released, the stopcock closed, the needle withdrawn from the vein, and another attempt made with a fresh apparatus (needle, rubber connexion, and glass tube) using the same receiving bottle. It is usually better to take another vein.

It is not necessary to agitate the bottle until after the bleeding. When the 500 c.cm. mark has been reached the tourniquet is removed, the stopcock closed, and the needle withdrawn. The bottle is then given a gentle rotary motion in order to mix the blood thoroughly with the preserving solution. After this the rubber stopper is removed and the original cotton plug, which has been kept sterile, is replaced. The blood is labelled with date, quantity, and name of donor, and placed in the ice-chest to sediment.

If the donor's veins are small and the needle method fails, the vein can be cut down upon and a cannula used. Inserting a cannula into a vein is more difficult and time-consuming than the needle method, and offers greater possibility for infection.

The glass tubing, rubber connexion, and needle are cleaned thoroughly immediately after the bleeding. The donor is kept on the table for fifteen to twenty minutes in order to avoid the feeling of faintness which may be caused by getting up at once. The withdrawal of this amount of blood—500 c.cm.—has no harmful effect.

In order to give transfusions of varying amounts it has been found convenient to procure quantities of 250 c.cm. of blood as well. For this purpose quart bottles are used in place of the Winchester, and contain half quantities of the glucose-citrate solutions. It is best to bleed 250 c.cm. from each arm, using a fresh suction apparatus for the second bleeding.

3. STORING THE BLOOD.

An ice-box is necessary for storing the blood. A suitable one can be improvised. The box, made of wood, should be double-walled with an air-space between. Two packing cases fitting one inside the other serve the purpose well. The space between the two boxes is filled with sawdust or some such non-conducting material. A tight fitting door or lid is necessary. It is well to line the inside box with tin, and one end of this space should be fenced off to contain the ice.

This large bulk of blood, 500 c.cm., settles rather slowly. The supernatant fluid increases at the rate of 150 to 200 c.cm. a day. This is one real objection to the method, since it means that the blood is not available for immediate use. However, at the end of four to five days the blood will have settled to about 800 or 900 c.cm., and can then be used, as this amount of cell suspension does not contain any more sodium citrate than is given in an ordinary citrate transfusion. The additional fluid and sugar solution is an advantage rather than otherwise. Smaller quantities of blood, 300 and 400 c.cm., when taken into the same amount of preserving fluid that is used for 500 c.cm. of blood, settle more quickly, and could be used at the end of three or four days. If there is an indication that blood will be needed soon, 300 c.cm. amounts may be collected in place of the usual 500 c.cm., and the sediment of two or more bottles combined for a transfusion.

The supernatant fluid seen through the green thick-walled bottle has a slightly opaque bluish-white appearance. This opacity is due chiefly to blood platelets in suspension. Sometimes it has a yellowish or yellowish-green appearance if the blood plasma is highly coloured. Occasionally a scum of fat collects at the surface. This is of no significance. A pink tinting of the supernatant fluid

should be regarded with suspicion as it signifies haemolysis probably due to infection. Such a blood should be discarded. This has not occurred in the present work thus far, but has been seen experimentally. Cultures of the supernatant fluids have all been negative. Occasionally the supernatant fluid shows a pink tint during the first two or three days of sedimentation, which gradually disappears. This is not haemolysis. It is due to unequal settling of the red cells. A thin suspension of cells remains above the main bulk of the blood and sediments more slowly. Beginning disintegration of the red cells may occur at the end of the fourth week of keeping, and is marked by a pink colouring of the supernatant fluid just above the cell layer which soon increases in intensity and rises toward the surface. This blood, of course, should be thrown away as its use would be dangerous.

4. TRANSFUSION OF THE BLOOD.

(a) Preparation of the Blood for Transfusion.

The supernatant fluid is drawn off by means of a siphon apparatus shown in Fig. 2. The glass tube and stopper are sterilized either by dry heat or boiling. The tube is placed in the bottle so that its lower end reaches almost to the blood layer. Suction by mouth is made at the end of

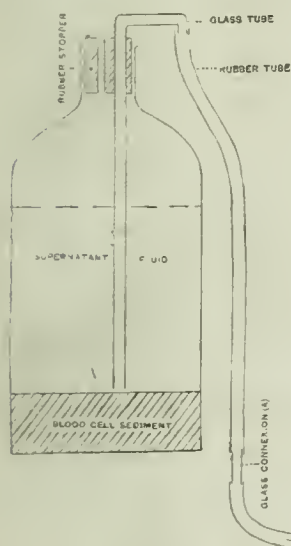


FIG. 2.

the rubber tube, which need not be sterile. The only precaution necessary is that the liquid should be sucked up steadily and the suction released only when the column of fluid has reached the glass connexion (A), which is below the bottom of the bottle.

If the blood has been stored for some time the cells may have sedimented to a volume below that of the original amount of blood withdrawn. In this case a diluting fluid is added to bring the volume of a cell suspension at least to that of the original amount of blood. A 2.5 per cent. solution of gelatin in normal saline* was used for this purpose, on the theory that such a solution would remain in the circulation much longer than salt solution alone.

Transfusions of large fluid bulk were found to be desirable, so that the total volume of each transfusion was always made up to 1,000 c.cm. with gelatin solution. The diluting may be done either in the original bottle or in the transfusion bottle, which should always have a mark at the 1,000 c.cm. level. However, blood cells should not be poured when they are in a sediment more concentrated than normal blood.

The blood cell suspension is then gently agitated by a rotary motion, and poured through two layers of sterile gauze into the transfusion bottle described below (Fig. 3). Filtering the blood is necessary because occasional small clumps may form during sedimentation. The gauze is tucked into the wide-mouthed bottle with a pair of sterile forceps. The bottle is tilted slightly so that the blood flows down the side instead of falling to the bottom, which might injure the blood cells. The bottle is restoppered and placed in a glass jar containing water at a temperature of 106° to 107° F. If the water is maintained at this temperature, and the bottle is occasionally agitated, the blood becomes warm in a few minutes.

* This is Hogan's solution slightly modified. It is most easily prepared as follows: 25 grams of purest quality gelatin (gold seal, finest quality) are dissolved in 200 c.cm. distilled water, to which is added 2 grams of NaCl. The mixture is boiled for fifteen to twenty minutes in a water bath to bring about complete solution of the gelatin. It is then filtered while hot through coarse filter paper (Chardin agar)—preferably in a hot filter—and autoclaved for one hour at 124° C. When desired for use, the gelatin is melted in warm water and poured into 800 c.cm. of sterile 0.9 per cent. NaCl solution to which has been added 0.2 per cent. sodium carbonate— Na_2CO_3 (10 H₂O). The water used for this solution should be freshly distilled.

(b) Apparatus.

The apparatus for transmission is shown in Fig. 3.

A wide-mouthed quart bottle is chosen for giving the blood, the stopper and neck of which should be protected before sterilization by a gauze covering. The needle employed has a bore about half the size of that used for bleeding. The length is not important. As shown in the illustration, the needle is attached to a short glass tube by means of a small piece of rubber tubing. The free end of the glass tube is thrust into the end of the long rubber tube (D) after the needle is in the vein. The rubber tube (D) may be of any convenient length. The glass tube (G) is bent so that the end projects into the lowest part of the bottle. In this way almost every drop of blood in the bottle may be given. The needle, with connexions (B) and (C) and the stopcock, are boiled up before use. The remainder of the apparatus is dry sterilized.

(c) Procedure of Transfusion.

The recipient's arm is prepared in a manner similar to that described for the donor, and a small amount of novocain injected into the site chosen for the vein puncture. The apparatus is assembled according to the diagram in Fig. 3. The bottle is kept in warm water during the entire process. It is well to tie the rubber stopper down to the bottle with two strips of adhesive plaster in order to prevent it from flying out when the pressure increases. After these preparations have been completed sufficient

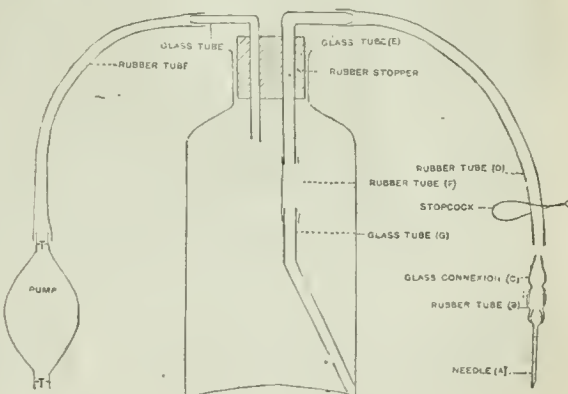


FIG. 3.

pressure is put on the pump to fill the apparatus with blood, and the stopcock is closed. The tourniquet is then tightened. As soon as the needle enters the vein blood flows out through the short glass tube, the tourniquet is immediately released, the apparatus is connected up, the stopcock opened, and the pump started. This technique is simple, and, if carried out carefully, there is no danger of forcing air into the vein. If the veins are collapsed or constricted, as is the case with certain patients in shock, it may be necessary to cut down on the vein and use a glass or silver cannula instead of the needle.

By using a needle it is scarcely possible to force the blood in too rapidly. With a cannula care must be taken to go slowly. Ten minutes should be the minimum time for the introduction of 500 c.cm. of blood. Care should also be taken to close the stopcock before the air bubbles begin to pass up the tube.

RESULTS OF TRANSFUSION.

The blood used for transfusion had been kept varying periods of time up to twenty-six days. The majority of the transfusions were given with blood preserved from ten days to two weeks. The patients transfused included cases of haemorrhage, shock, and sepsis—chiefly the two former. An attempt was made to choose only those cases who would probably die without transfusion and yet who had a chance of recovery if given blood—that is, the only moderately serious and the apparently hopeless cases were excluded. (Indications governing the choice of cases for transfusion will be discussed in detail in a subsequent paper.) The amounts given in a single transfusion varied from 500 c.cm. to 1,000 c.cm., depending on the type of case. If the condition was one of

marked anaemia the blood sediments of two large bottles were combined. Where the anaemia was less severe a large bottle and a small one—750 c.cm.—were given. In cases judged to be chiefly shock 500 c.cm. amounts were used. The total fluid bulk of the transfusion, as before stated, was always made up to 1,000 c.cm. with gelatin solution.

The effect of transfusion with preserved blood was fully as striking as that observed after the giving of freshly drawn blood. There was the same marked improvement in colour, the pulse became slower and stronger, and the blood pressure showed an increase of 20 to 40 points. Furthermore, this improvement was maintained and increased. Patients transfused before operation stood the operation procedure well, and subsequent progress was quite as good as in those cases transfused by the usual methods.

Haemoglobin estimations* were made before and after transfusion, and in certain cases the red cells were counted as well. It was hoped that these determinations would give fairly accurate information as to the length of time the preserved blood cells remained in the circulation. The results of the tests, however, were inconclusive in many cases on account of the progressive fall in haemoglobin per cent. which occurs after acute blood loss and shock. Haemoglobin estimations after transfusion with fresh blood showed variations identical with those occurring after preserved blood cell transfusion. In some instances there was a rise of 5 per cent. to 20 per cent. afterwards, which was maintained during the time the patients were under observation—periods of from two to eight days. In other cases the haemoglobin per cent. showed a temporary increase after transfusion, followed next day by a drop to the previous level, or in one or two instances to a point even lower than it had been before transfusion. Still others showed very little change in the haemoglobin following transfusion. These findings had no apparent connexion with the length of time the blood had been kept previous to transfusion.

There were no reactions either during the giving of the blood or afterwards. The only possible exception to this was in a case of gas gangrene who complained of slight chilliness and shivered a little immediately after transfusion, which very soon passed off without other symptoms.

No evidence of increased blood destruction after transfusion was observed. The urine was studied for three to four days subsequent to transfusion in patients who had received blood kept nine to twelve days. Spectroscopic tests for haemoglobin and urobilin were negative except in two cases who developed gas gangrene two to three days after transfusion when a faint trace of urobilin appeared in the urine. Tests for bile made by the nitric acid method were negative. Unfortunately it was not possible under the conditions obtaining to test the urine of patients transfused with blood kept for longer periods than twelve days.

In all, twenty-two transfusions were given to twenty individuals. Of these, eleven were discharged to the base in good condition and nine died—a mortality of 45 per cent. Those patients who later died all showed the immediate stimulating effect of transfusion with one exception, a case of profound anaemia who died just after transfusion. Four died within forty-eight hours, of gas gangrene; and four lived from two to six days, dying ultimately from the same cause. Three of the four patients in this last mentioned group showed very marked improvement subsequent to transfusion; they stood operation well and were making satisfactory progress several days afterwards when gas infection appeared.

The length of time the blood had been kept appeared to have no influence on its beneficial effect. The improvement in those cases transfused with blood kept three weeks or more seemed to be just as marked as in those who received blood preserved for much shorter periods. It is probable that four weeks represents about the limit to which blood can be kept for transfusion, as the red cells usually begin to disintegrate soon after this. Judging by the experimental results quoted in the beginning of the paper, it will do no harm to inject blood cells kept beyond the period of their viability provided they are still intact,

but much benefit cannot be expected from such a transfusion.

The criticism may be raised that blood deprived of its plasma cannot be as efficient a restorative as whole blood. In conditions of low blood pressure due to shock the plasma is probably a valuable part of the transfused blood. For this reason gelatin solution is added to the red cells in order to approximate more nearly the normal consistency of blood. However, in cases of simple exsanguination, the red blood cells alone are probably quite sufficient to restore the circulation to its normal condition. Abel, of Johns Hopkins, has shown this experimentally by removing large amounts of blood from dogs and replacing only the corpuscles suspended in Locke's solution. Bleedings were repeated in the same animal until all his plasma had been replaced by Locke's solution. The animal suffered no apparent ill effects from the procedure.

ADVANTAGES OF PRESERVED BLOOD CELLS FOR TRANSFUSION.

The chief value of this method lies in the convenience of having a large quantity of blood on hand for a rush. Just before a recent attack the writer laid in a store of twenty pints of blood, which furnished sufficient material for fourteen transfusions. During the first two or three days of the fighting it would have been difficult to give transfusions in the usual way, not only on account of the time element involved, but also because of the scarcity of donors. This was due to the fact that the casualty clearing station at which this work was done received at first an unusually large proportion of the more seriously wounded, the slightly wounded being sent further on. As donors are picked from among those with trivial wounds the immediately available supply was small. This state of affairs became apparent when the stock of preserved blood had been exhausted, which occurred on the third day. It was then necessary to resort to "immediate" transfusions, and much time was consumed in finding suitable donors.

Another marked advantage is the time saved in giving the transfusions. The procedure can be carried out in a relatively short space of time by one medical officer and an orderly assistant. The technique is simple, and can be acquired easily.

The blood can be given at the bedside. A patient in shock may be considerably injured by carrying to the operating room or even lifting him out of bed on to a table near by. Furthermore, under rush conditions it is a great convenience to be able to do a transfusion without the necessity of having the donor and recipient together. Another consideration is the operating room space saved by giving the transfusions in the resuscitation ward.

It is possible by this method to give a large amount of blood in a single transfusion. This is particularly desirable in cases of severe anaemia. Very often it is not feasible under the conditions existing during an attack to give large "immediate" transfusions because of the fact that the withdrawal of amounts of blood greater than 600 c.cm., or at most 700 c.cm., from donors who are frequently suffering from varying degrees of exhaustion, may weaken them to an unjustifiable extent. In those cases of marked anaemia who were given preserved blood cells a single transfusion of 1,000 c.cm. was sufficient, while similar cases transfused with 500 to 600 c.cm. of fresh blood not infrequently needed a second transfusion.

Fluid may be added to the preserved blood cells before transfusions to any amount desired. In conditions where the circulation has been depleted, the introduction of a large quantity of a suitable fluid is indicated. Solutions of gelatin or gum acacia serve this purpose best. It was found that transfusions of large fluid bulk obviated the necessity which might otherwise arise of a subsequent injection of fluid or even of a second transfusion.

During periods of only moderate activity, when there is no need of a large store of blood, it has been found very convenient to keep a small quantity of preserved blood on hand for use at night. This has two advantages: One is the time saved; the other is avoidance of the difficulty which may arise in finding a suitable donor at night, as it is not always possible during busy times to keep a list of Group IV donors in reserve.

Transportation.

It has been found possible to transport preserved blood cells for a considerable distance. On several occasions

* Haemoglobin tests were made with a modified Sahli haemoglobinometer.

bottles of sedimented blood were carried in an ambulance for six or eight miles over rough roads without any damage to the cells. There was a slight stirring up of the surface of the sedimented layer, which coloured the supernatant fluid to a moderate degree. Judging by the colour, this contained perhaps 10 c.cm. of suspended blood cells, not more. Thus, if the blood had been used immediately after transportation, very little would have been lost in the siphonage. On standing, the blood cells soon settled, leaving a clear fluid above. It was considered possible that the red blood cells below the surface might have been injured during transit and the resulting haemolysis concealed in the deeper layers. Accordingly, the whole sediment was thoroughly stirred up, then allowed to sediment. As before, the supernatant fluid showed no sign of haemolysis.

SUMMARY.

As first found by Rous and Turner, it is possible to preserve living human red blood cells for several weeks in a solution of dextrose and citrate, when kept at ice-box temperature. This method of keeping blood has been made use of recently for giving transfusions at casualty clearing stations during a rush period. A quantity of blood was stored up beforehand ready for use when needed. The blood was kept for varying periods up to twenty-six days before transfusion. Twenty-two transfusions were given to twenty cases by this method. The majority of these were cases of haemorrhage. The results of preserved blood transfusion were quite as striking as those seen after transfusion with blood freshly drawn. There was the same marked improvement, the patients stood operation well, and subsequent progress was quite as good as in those cases transfused by the usual methods. The introduction of kept red blood cells had no apparent harmful effect, as there were no reactions or evidence of increased haemolysis after transfusion.

The chief advantage of this method over other methods of transfusion in current use is the great convenience of having a stock of blood on hand for busy times. The transfusions can be given relatively quickly, and the technique, which is simple and easily acquired, can be carried out entirely by one medical officer.

Experiments in the transportation of preserved blood have shown that it can be carried a considerable distance without injury.

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BLOOD TRANSFUSION IN A FIELD AMBULANCE.

BY

CAPTAIN NORMAN M. GUIOU, C.A.M.C.

THE work described in this article was undertaken as the result of lectures delivered by Major McNee and Captain Sladden, R.A.M.C., and Major Harrison, C.A.M.C., and is an endeavour to show that the operation of blood transfusion is easily applicable to the forward area, where it is most needed.

Group Testing.

As the mobile laboratory was busy preparing serums for casualty clearing stations, a few cubic centimetres of II and III serums were obtained from the Lisler Institute. A group of dressers of different sections was assembled and shown the macroscopic test as used by Major McNee. A drop each of II and III serums are placed at opposite ends of a slide, and into these are stirred small quantities of blood picked up in the eye of the needle used for pricking the finger. After rocking gently, the slide is covered with a Record syringe box lid for four minutes, rocked again, allowed to stand another minute, and then read. After two demonstrations the dressers could do the test, and proceeded under supervision to test one another and their comrades. Stock serums were prepared from a clear-cut II and III by bleeding into a 2 oz. conical graduate, loosening the clot round the top one hour later with a probe, and next morning transferring the supernatant serum to boiled antitetanic serum bottles with an eye dropper and

adding one drop of 5 per cent. carbolic for every ten drops of serum. These bottles, together with two eye droppers marked II and III and a safety-pin box of slides, fitted easily into an ordinary oblong cigarette box. On the inside of the lid the following table was pasted:

	Red Blood Cells.	Red Blood Cells.	Red Blood Cells.	Red Blood Cells.	Frequency of Group
Serum 1 ...	1-	2	3	4	Per cent
Serum 2 .	+	-	-	-	10
Serum 3 ...	+	-	-	-	10
Serum 4 ...	-	+	+	-	42

+ = Agglutination. - = No agglutination

The important point is the effect of the patient's plasma on the cells to be introduced.

This test case fitted readily into one of the spaces in the field medical pannier allotted to tubes of vaseline. With it a dresser could determine the blood group of a volunteer and a patient in a few minutes.

The Operation.

The syringe method with glass cannulae in the veins was used; needles were tried once, but the dresser assistant got his out of the vein and trouble resulted. Two inches of the thick-walled rubber tubing of the aspiration set were fitted to each cannula, one inch being free to receive the end of the syringe. Five per cent. carbolic was used for numbing and sterilizing the skin; the veins were dissected out and ligatures placed by the medical officer, and then he and the dresser together cut their respective veins and introduced the cannulae—that in the donor being directed distally. The cannulae were held in place and blocked by pinching the rubber tubing. The 20 c.cm. glass syringes, four in number, fitted snugly into the rubber connexions and were kept going in a cycle, being washed out each time in a vessel of boiled saline by a second dresser, and laid on a piece of sterile gauze ready for use. Plugging of the donor's cannula by the wall of the vein being drawn against its end may be overcome by stopping the suction on the syringe and sliding the cannula slightly in or out. The syringes and cannulae may be carried, sterile, in an old tablet tin (obtained from advanced dépôt medical stores) with the partitions removed.

Illustrative Cases.

CASE I.

Severe lacerated shell wound of the left thigh, and fracture of the femur, admitted to dressing station with tourniquet and Thomas splint applied. Intravenous injection of one pint 5 per cent. gum and 4 per cent. sodium bicarbonate* produced a slight improvement in the pulse. The blood was tested, and found to belong to Group IV. A robust infantryman, buried by shell, offered some blood, but turned out to belong to Group II, and had to be rejected. A slightly wounded corporal, Group IV, volunteered, and a pint of his blood was transfused without difficulty by the syringe method. Some improvement was noted, and the patient was warmed up and sent on. He died just before reaching the casualty clearing station. We have since thought that if this case had been given more blood, and allowed to warm up longer in the dressing station, he might have survived the long ambulance journey.

CASE II.

Shell wound of the thigh and fracture of the femur brought into dressing station with legs tied together and considerable blood in the stretcher; morphine gr. 4 had already been given. A tourniquet was at once applied and 1 oz. 50 per cent. ether in liquid paraffin given between mouthfuls of port wine (Gwathmey's oral analgesia). He was allowed to warm up for fifteen minutes; meanwhile his blood was found to belong to Group II. A Thomas splint was then applied without pain, the wounds packed, the tourniquet removed, and one pint gum solution given intravenously; he was wrapped up and allowed to remain on a heated stretcher. In less than an hour he was found to be in shock—extremely pale with bloodless conjunctivae and lead-blue lips, barely conscious, but the radial pulse still faintly perceptible. A donor (Group IV) with a sprained ankle was found and 800 c.cm. blood transfused. After the operation the patient's neck and face were definitely red and his cheeks warm to the touch. His mental state improved immediately, and he raised his head and smiled and talked to the dressers. After drinking some tea and cafe-au-lait, resting meanwhile on a heated stretcher, he was sent on to a casualty clearing station surrounded with hot-water bottles, where he

* Since the publication of Professor Bayliss's article we have changed our gum formula to 5 per cent. gum and 0.9 per cent. sodium chloride.

arrived, according to the officer on duty, "recovered from his shock and in excellent condition." It seems probable that if this case had been transfused immediately he would never have developed the shock which, untreated, would undoubtedly have meant his death before he reached the casualty clearing station.

Conclusion.

Although there has been opportunity to carry out the operation on a very few cases as yet, there is no doubt that blood transfusion by the syringe method can be done easily in an A.D.S., and, in the writer's opinion, could be done in an average regimental aid post; and by its use some cases of severe primary haemorrhage which would in the natural course of events die in the forward area will live to reach the casualty clearing station.

Indebtedness is especially acknowledged to Captain Cowell and to the teaching of the — Army R.A.M.C. school, as well as to Lieut.-Colonel T. J. F. Murphy, D.S.O., C.A.M.C., commanding the field ambulance.

AMOEBI ABSCCESS OF THE LIVER.

BY

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AMOEBI abscesses of the liver are by no means uncommon in Mesopotamia, and are of interest for the manner in which the signs and symptoms frequently differ from those usually described in surgical textbooks. During the last twelve months over twenty cases have come under my observation in this hospital, besides many others already treated and passing through in various stages of convalescence during the course of evacuation from other hospitals.

As thousands of men have returned and will continue to return to England with active amoebae in the large intestine, I venture to record some of the principal features of the last twenty cases admitted to this hospital among British troops.

Signs and Symptoms.

Patients usually give a history of former attacks of diarrhoea or actual passage of blood and mucus, and *Entamoeba histolytica* can usually be found in the stools. The onset of the disease is usually insidious, loss of appetite, malaise or wasting causing the patient to report sick. In a few cases, however, the disease runs an acute course and the onset is surprisingly rapid. In one case in which one abscess was opened and four more found *post mortem*, the patient was apparently well and doing full duty until eight days before the operation; as death occurred ten days later, the whole illness lasted only eighteen days. In another patient, who had been some days in hospital under observation, the temperature was not above 99° until three days prior to a large abscess being opened.

Pain may be a marked symptom, indicating that the abscess is near the surface of the liver, and is sometimes a useful guide to its position. Referred pain in the right shoulder suggests subdiaphragmatic irritation of the phrenic nerve, whereas pain in the epigastrium or loins may indicate an abscess in the lower part of the liver.

Vomiting occasionally occurs, but jaundice is rare; a slight icteric tint, with a trace of bile in the urine only, was noticed in one case.

With an abscess of large size or long duration, cachexia and signs of septic absorption—oscillating temperature, sweats, rigors, furred tongue, etc.—are well marked, but an interesting feature is that the pulse-rate is often relatively slow in proportion to the temperature. (The chart shows the temperature in a typical case.)

The cytological examination of the blood is of great importance; the leucocytosis and an increase in the percentage of polymorphonuclear cells so characteristic of pus are usually well marked. The most striking blood picture in this series of twenty cases was a total white cell count of 43,000 per cubic millimetre (with 89.8 per cent. polymorphs), and the least striking showed 12,500 white cells (74 per cent. polymorphs). There seem to be no other constant blood changes, and eosinophils are not usually present in greater numbers than normally.

The x-ray screen is useful in diagnosis in doubtful cases, or to afford confirmation where a liver abscess is suspected. Three points are of assistance: first, increase in the size of the liver in an upward direction; secondly, limitation of movement of the diaphragm, the normal 1 in. to 1½ in. being reduced to ½ in. or ¾ in. even on deep inspiration; and thirdly, the normal dome-shaped diaphragmatic convexity may be distorted by a bulging representing a pointing abscess.

Course.

There is some clinical evidence to show that small abscesses may be absorbed, and this is especially probable in cases where the resistance of the tissues to amoebic invasion has been increased by emetine injections.

The usual course in Mesopotamia seems to be rapidly progressive, and sometimes surprisingly so, and is well illustrated in one case in which the patient had never left England prior to his embarkation for Mesopotamia, so that the possibility of previous amoebic infection is very remote. He had been in Mesopotamia less than a month when he was admitted and an abscess containing nearly a pint of pus evacuated from the liver, amoebae being found in the pus in the course of a few days.

In most cases the abscess apparently increases steadily in size and may rupture through the diaphragm or into the peritoneal cavity; this being a comparatively slow process, it is well shut off by adhesions among the neighbouring organs.

In one case liver abscess was diagnosed, and it was decided to operate on the following day, but the patient suddenly collapsed and died in a few minutes. *Post mortem* it was found that two large abscesses were present, one of which had ruptured into the inferior vena cava, death occurring from the resultant haemorrhage.

Diagnosis.

In well marked cases the diagnosis presents little difficulty—the enlargement of the liver, signs of toxæmia, blood picture and x-ray screen, all pointing to the correct diagnosis. It may be difficult to distinguish between a right-sided empyema and a liver abscess. The latter, if situated in the upper right lobe, may cause compression of the lung, with dullness and feeble breath sounds as high up as the angle of the scapula; also some fluid in the pleural sac may accompany a liver abscess, as in one case admitted as pleural effusion in which the liver abscess was discovered subsequently. In these cases the final appeal may be to the exploring needle, the diagnosis resting on the site of the discovered pus.

The increase in the percentage of polymorphonuclear cells in the blood is of much assistance in distinguishing between simple and suppurative inflammation of the liver. A good illustration of the value of the differential cytological examination was that of a patient admitted with an enlarged and painful liver, slight fever, and diarrhoea. His total white cell count was 18,500 per c.mm., but of these only 60 per cent. were polymorphonuclear. A diagnosis of dysenteric hepatitis was made, and the condition cleared up with dieting and hypodermic injections of emetine.

In two cases where the abscess was in the lower part of the right lobe and situated near the mid-line, the

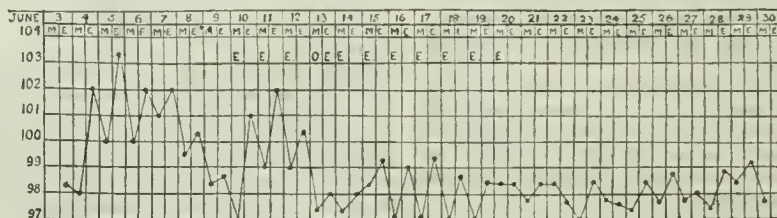


CHART I.—E, Emetine, gr. 1; o, operation. Quinine, gr. 30, was given on June 7th and June 8th. Blood film examined for malaria on June 6th, and blood culture for enteric group on June 12th; both gave negative results. The patient was sent to the base on June 30th.

physical signs so much resembled those of an enlarged and infected gall bladder that the diagnosis of liver abscess was only confirmed on the operating table. A liver abscess in the posterior part of the right lobe may simulate a perinephritic abscess, especially as this latter condition is frequently seen in connexion with dysentery. An examination of the urine and signs of psosas irritation help to clear the diagnosis. Other cases of subdiaphragmatic suppuration—for example, those of gastric or intestinal origin—can usually be traced to their primary lesion.

Treatment.

The presence of pus is confirmed by the exploring needle; the exploration should always be conducted in the theatre, so that, if successful, the complete operation can be proceeded with. It is important to use a wide-bore needle, as the pus is usually thick and contains clots of lymph liable to block the needle. In one case in which the presence of pus was a moral certainty eight punctures were made before the abscess was discovered, and thick pus aspirated; probably the needle had on one or more occasions tapped the abscess, but the pus did not flow.

In this hospital it is the practice to leave the needle in the abscess cavity and excise a sufficiency of the ribs immediately below the needle. Well formed adhesions may be found between the parietal pleura and the diaphragm; it is, however, safer not to trust to them to protect the pleural cavity, but to insert a few points of suture between the parietal pleura and diaphragm. The diaphragm is then incised, and, using the needle as a guide, liver tissue is gently broken down until the abscess cavity is reached, when a drainage tube wrapped in gauze is inserted. The sinus usually heals readily, and in some cases syringing with weak quinine solution or eusol expedites closure. A course of emetine, 1 grain daily for twelve days, is usually given. I have seen cases in which the abscess was aspirated and a solution of quinine bichloride (30 grains in 10 oz. of water) injected into the cavity; the patients apparently were convalescing satisfactorily, the evacuated pus doubtless being sterile. However, in one case which was drained in the usual manner the convalescence was retarded until a second abscess discharged itself into the existing sinus. This abscess was unsuspected.

When the abscess is in the lower part of the liver, or has already ruptured into the general peritoneal cavity, the abdomen is opened with the usual precautions for the protection of the peritoneum, and drainage carried out in the usual way.

Prognosis and Summary.

The prognosis of liver abscesses in Mesopotamia is unfavourable, the chief reason being that although one abscess may be satisfactorily drained others are present which may be undiscovered or undiagnosed. In one case in addition to one abscess drained, five others were found *post mortem*; live amoebae were found in the pus.

Another factor which increases the severity of the disease is the acuteness of the course and the consequent grave toxicæmic symptoms. Coupled with this is the fact that the patient is often already debilitated from trying conditions in a climate which taxes the resources of the most robust, and consequently has little resistance to any infection.

I append a summary of twenty cases upon which these notes are based:

Apparently cured and patient evacuated*	...	8
One or more abscesses drained at operation, but further abscesses found <i>post mortem</i> ...	...	8
Abscess suspected, undiscovered on needling, found <i>post mortem</i> to be in the Spiegelian lobe ...	...	1
Two abscesses, one of which ruptured into the inferior vena cava; death from hæmorrhage ...	...	1
Death due to post-operative shock (no other abscesses) ...	...	1
Single abscess drained, but patient did not respond and died seventeen days later from æsthenia ...	...	1
Apparently cured ...	...	7
Minimum mortality, 65 per cent.		

* One of these cases subsequently died at another hospital from a second abscess.

It will thus be seen that liver abscess contributes substantially to the mortality and disablement among troops

in this campaign, and during the last hot season in this hospital more cases of liver abscess found their way to the *post-mortem* room than cases of actual dysentery. Owing to the numbers of men who will return to England infected with *Entamoeba histolytica* there is every possibility that this disease will manifest itself among them. Practically every one who has been resident in Mesopotamia for a few months is a carrier of *E. histolytica*, besides many another protozoon, and until we know more about the amoebic group it is difficult to trace their connexion with suppurative processes.

We are told by Knowles and Cole¹ that the "different species" of amoebae "are all one and the same organism . . . *Entamoeba coli communis*." Probably the *E. histolytica* is on the same pathological basis as the *B. coli*, and decreased resistance of the tissues or some stimulus applied to the organism causes it to become pathogenic, in which case the majority of the Mesopotamian Expeditionary Force are potential cases of liver abscess.

The most striking features of the condition as seen in Mesopotamia are the severity of the disease, often the acuteness of the onset and rapid course, and frequently the multiple nature of the abscess (in contradiction to the old name of "solitary abscess").

I am indebted to Lieut.-Colonel Davis, R.A.M.C., for permission to publish these notes, and to Captain J. Maitland Downie, R.A.M.C.(S.R.), for his assistance in collecting them.

REFERENCE.

¹ *Ind. Journ. Med. Research*, vol. iv, No. 3, 1917.

ACUTE INTESTINAL OBSTRUCTION BY TAPEWORMS (*T. SAGINATA*):

MECHANICAL BLOCKING OF ILEO-CAECAL VALVE,
NECESSITATING LAPAROTOMY.

BY

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AMONGST the causes of intestinal obstruction due to the impaction of foreign bodies in the lumen of the bowel, accumulation of faeces, gall stones, intestinal calculi, and articles swallowed, such as teaspoons, are perhaps the best known.

The occurrence of intestinal worms causing acute obstruction is so infrequent in those countries where surgical textbooks are compiled, that authors as a rule do not even mention them as a possible cause. Nevertheless intestinal parasites are a very real source of danger in tropical countries, and they should be borne in mind as a possibility when exploratory operations are undertaken for acute intestinal obstruction.

Perret and Simon¹ summarize the histories of eleven cases of intestinal obstruction all due to *Ascaris lumbricoides*, all recorded since 1887. Most of these cases were diagnosed at the necropsy or during operation. They themselves record in the same paper another case. De Mello² and Masters³ have each recorded one case of intestinal obstruction due to *Ascaris lumbricoides*; in none of the three last was laparotomy resorted to.

No doubt *Ascaris lumbricoides* is the principal offender amongst intestinal worms, but the following case proves that laparotomy may have to be done for acute intestinal obstruction due to tapeworms (*Taenia saginata*).

O. H., male, Sudanese, aged 40, working as a gardener in the Palace Gardens at Khartoum, was admitted into Khartoum Civil Hospital with a very much distended belly and total suppression of faeces and flatus for sixteen hours. The attack seemed to come on suddenly but without pain at 5 p.m. He vomited twice during the night and the belly became more and more distended.

On admission to hospital the following morning the belly was much distended and tense, and the coils of intestines were very evident; peristalsis was plainly seen, and considerable discomfort was experienced owing to the distension, but there was no obvious pain; the pulse was 84, full and regular. He could pass neither faeces nor flatus; rectal examination revealed only an empty rectum. Two or three enemata were given without

effect. Vomiting of intestinal contents occurred twice after admission, and exploratory operation was decided on.

Operation.

Chloroform was given, and a median incision from the xiphoid cartilage to the symphysis pubis was made. The small intestines were explored from duodenum to ileo-caecal valve; they were very much distended. The large intestines were collapsed from the caecum onwards. No cause for the obstruction being found, it was thought to be a "kink" or some equally unsatisfactory thing.

The small intestines were taken from above downwards and passed through the gloved hands, segment by segment, to squeeze onwards the flatus. This was not satisfactory and the imprisoned air was evacuated by puncturing the bowel wall in at least six places with a medium sized trocar and allowing the air to escape. When the small intestines were thus relieved and collapsed they were replaced inside the peritoneal cavity—the whole of the distended small intestines (ileum) having been lying in a towel outside the abdomen whilst the abdominal cavity was searched—the wound was sewn up in one of the usual ways and the patient sent back to bed with the distension altogether relieved.

After-History.

No flatus or faeces were passed on the day of the operation, and next morning the abdomen was a little distended again, but during the morning flatus was passed and he felt more comfortable; two enemata (turpentine) were given.

On the third day after the operation a long tube was passed by the rectum and a dose of 1½ oz. of castor oil administered by the mouth; a large mass of tapeworms was passed. The patient passed bits of tapeworms on several occasions during the next three days.

Owing to a little leakage from one of the trocar punctures in a coil situated in the pelvis an abscess formed. This was localized, however, and although it became infected with *B. coli* and was very foul, recovery was retarded not more than two or three weeks.

Undoubtedly the mass of tapeworms (there were probably four or five separate ones, which measured when freed from intestinal debris two or three pints, had become blocked against the ileo-caecal valve, causing mechanical obstruction; and if this had not been relieved by manipulation of the intestines and evacuating the flatus, the patient would probably have died.

The principal points about the case appear to be the following: Absence of pain even at onset, or afterwards, although the obstruction was acute. There was discomfort certainly due to over-distension. There was very little, if any, collapse. The pulse was fairly good and, sixteen hours after symptoms commenced, was only 84. There was, however, fairly frequent vomiting of intestinal contents (in the cases recorded of obstruction due to *Ascaris lumbricoides* the worm was frequently vomited), but absence of acute pain and very little collapse, together with acute obstruction symptoms, may be taken, we think, as a characteristic of obstruction due to intestinal parasites.

In the case here described there was no question of delaying the operation, such a course was contraindicated by the vomiting, distension and peristalsis and total suppression of flatus and faeces. The obstruction was complete.

The diagnosis of the cause of intestinal obstruction is such an important subject that we do not think any apology is necessary for recording this case. Operations for intestinal obstruction are amongst the most fatal in surgery. Statistics place the mortality at 60 to 70 per cent., doubtless due to the fact that most cases are operated on when too late; but it is also due to the fact that diagnosis remains so often uncertain until after the abdomen has been opened, and to the fact that, even if a correct diagnosis is established before the abdominal incision is made, the condition of the parts involved is a matter of speculation, and is usually worse than is apparent from the symptom. Cases occur—as, for example, that here reported—in which the distension of the intestines is relieved (and presumably the cause of the obstruction), the intestines replaced, and still it is impossible to say what has been the cause, and we have to fall back on an unsatisfactory speculation—such as a "kink," for want of better knowledge. Let us have in mind that a mass of intestinal parasites may, especially in tropical countries, be the cause of acute intestinal obstruction.

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- ² de Mello: A case of intestinal obstruction due to ascarides (600). *Bol. Gen. Med. e Farmacia Nova Gôa: Tropical Diseases Bulletin*, vol. xi, 1918, No. 2.
- ³ W. E. Masters: Intestinal obstruction due to *Ascaris lumbricoides*. *Journ. Trop. Med. and Hyg.*, October 1st, 1917, vol. xx, No. 19; *Tropical Diseases Bulletin*, vol. xi, 1918, No. 2.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTESTINAL OBSTRUCTION DUE TO DIAPHRAGMATIC HERNIA.

J. B. was admitted to hospital on March 17th, 1918, in a collapsed condition. He complained of severe abdominal pains, with vomiting, and gave a history of several previous attacks of a similar nature. The abdomen was slightly distended, but no rigidity was present, and no acute tenderness on palpation. When first examined there was some tenderness over the descending colon, and on a second examination, a little later, tenderness was located in the middle line, between the umbilicus and pubes. The temperature on admission was 95° F., and remained sub-normal. The radial pulse was imperceptible. The heart was displaced to the right side, the left border being about half an inch to the left of the sternum; the sounds were feeble and the action rapid. Breathing was slightly laboured, but the respiratory sounds showed no sign of lung trouble. Over the lower half of the chest, on the left side, intestinal rumblings were heard mingling with breath sounds. The tongue was dry and slightly furred. The bowels had not moved for three days. A soap and water enema was given, but was returned, showing slight trace of blood and no faeces.

As pain still continued severe, morphine (2 grains) was given, and the general condition was treated by administration of brandy in small doses and hot-water bottles. No improvement resulted, though the pain was considerably eased. He got gradually weaker, and died on March 18th, 1918.

At the *post-mortem* examination the stomach was found to be greatly distended, extending to midway between the umbilicus and pubes. The caecum and large intestine were normal; the appendix was bound by adhesions to the caecum. There was at first sight no sign of small intestine in the abdominal cavity, but the ileo-caecal junction was found, and the ileum, when traced back, was found to disappear through the oesophageal opening of the diaphragm. Practically the whole of the small intestine was lying in the chest cavity on the left side, displacing the heart and left lung. Both the ascending and the descending portions of the loop of intestine passed through the oesophageal opening of the diaphragm along with the oesophagus. The stomach was full of faecal fluid under considerable tension. Two ulcers were found on the stomach wall, one near the pylorus and the other on the greater curvature. The part of the duodenum between the stomach and diaphragmatic opening was similarly distended and full of faecal fluid. The coils of intestine inside the chest cavity were slightly distended. The portion of ileum in the abdominal cavity was empty and contracted. The caecum and large intestine were normal and contained only a very small quantity of faeces. All the other organs in the abdomen were normal.

L. S. DICKIE.

Rebivus.

TREATMENT OF VENEREAL DISEASES.

The Diagnosis and Treatment of Venereal Diseases in General Practice,¹ by Colonel L. W. HARRISON, D.S.O., R.A.M.C., is a book addressed by a specialist to general practitioners, and, in spite of some faults of arrangement, will be found remarkably complete in its discussion of syphilis, and highly practical in its directions for treating both that disease and gonorrhoea. Most readers will turn to the section in which Colonel Harrison summarizes his experience of the treatment of syphilis. He would at present choose one of the organic arsenical compounds, either salvarsan or one of its chemical equivalents—arsenobillon, kharsivan, or diarsenol—which are given intravenously, or one of the "neo" compounds given intramuscularly. He advises the simultaneous use of

¹ *The Diagnosis and Treatment of Venereal Diseases in General Practice*. By L. W. Harrison, D.S.O., Lieut.-Colonel R.A.M.C. London: H. Frowde, and Hodder and Stoughton. 1918. (Demy 8vo, pp. xvii + 482; 16 plates; 84 figures. 21s. net.)

mercury, and employs potassium iodide also in suitable cases. He gives full directions for the injection of the arsenical remedies, and in discussing their value observes that though undoubtedly many cases have apparently been cured by comparatively short courses of treatment, yet others have relapsed after most careful and repeated courses. With regard to the question whether the treatment will prevent the later nervous disorders, such as tabes and general paralysis, Colonel Harrison adopts a cautious attitude; he admits that the time has not yet come to pronounce judgement. For early primary cases he gives an arsenical compound weekly for three weeks, and then again on the fifth and sixth, and eighth and ninth weeks. He prefers the intramuscular injection of one of the neo compounds. One grain of mercury is given intramuscularly weekly for the first eight weeks. For modifications of treatment according to circumstances the book itself must be consulted. In early secondary cases he follows the same general plan, but after an interval of three or four weeks gives another course of three or four injections of a salvarsan compound at intervals of seven or ten days. If the Wassermann reaction be positive at the end of 100 to 110 days, he considers it advisable to repeat the whole course after an interval of about eight weeks. In later cases with active symptoms he advises a series of short courses of four injections each, with an interval of about eight weeks between the courses, and potassium iodide for two weeks in each interval. Before deciding to suspend treatment the cerebro-spinal fluid should be examined as well as the blood, and if anything pathological is found the treatment should be renewed after a suitable interval. Subsequently, during the first year the patient should be examined clinically at intervals of not more than a month and his blood tested at intervals of not more than three months. When treatment has been suspended for a year a small provocative injection of one of the arsenical compounds should be given and the blood serum tested on the second, fourth, seventh, thirteenth, and twenty-first days. When so many tests are not possible it is on the seventh day that provoked reaction is most likely to be caught. The cerebro-spinal fluid should also be examined a week after the provocative injection. In the second year a test every six months should suffice. We cannot follow Colonel Harrison in his discussion on the treatment of syphilis of the central nervous system, which is very detailed. He has short notes on galy, luagol, and on mercurial preparations, and the methods of administration are fully described. Altogether the sections of the book dealing with syphilis are very complete. The sections on gonorrhoea are less full, but there is an excellent chapter on local treatment. It will have been gathered from what has been said that the book, while comprehensive in its treatment of the subject, is at the same time thoroughly practical in its discussion of details.

Dr. OTTO MAY's small work on the *Prevention of Venereal Diseases*² is written mainly from the standpoint of preventive medicine, but with full recognition of the social and educational side of the campaign against these diseases. The keynote of the book is struck in this sentence: "The elimination of venereal diseases is a complex problem, incapable of solution by any single method." What the various measures are and how much the author expects from each are clearly set out in five short chapters and a summary. The first three chapters—on education and instruction, on treatment in relation to prevention, and on prostitution and venereal disease—bring these questions to a practical focus without raising controversial issues. The admirable work of the National Council for Combating Venereal Diseases is bringing home to the public the fact that science, ethics, and common-sense have reached a working agreement upon these matters. In the fourth chapter, as he gives due warning in the preface, Dr. May parts company with the National Council upon the vexed question of personal prevention or artificial prophylaxis, which was debated at some length in our columns a year or so ago, and has been brought to the notice of the educated public by the outspoken writings of Sir Bryan Donkin. From what has been said it will be clear that Dr. May

does not belittle other means of checking the spread of venereal disease; but in this chapter and elsewhere he states the case, as strongly as it can be put but with fairness to those who hold the opposite view, for looking on "prophylaxis" as a legitimate and valuable ally in the campaign against these diseases; without its aid, he believes, the battle cannot be won. His argument should be read by all who wish to form an unbiassed opinion, because, although he holds strong views on one side, he is at pains not to misrepresent the position of others who with equal sincerity have come to a different conclusion. In contrasting the value of "early treatment" with that of the "prophylactic outfit" he recognizes that neither method is infallible: the former is often not early enough, and the latter is apt to break down in practice. But his contention is that both methods are decidedly useful; that there is no fundamental ethical difference between them; that both should therefore be encouraged; and that their provision ought not to be left to private enterprise.

Captain LUMB's little book on the systematic treatment of gonorrhoea³ is a useful handbook for those engaged in the treatment of this disease, whether at civil or military centres or in private practice. It is clear and concise, and its principles are sound. The chief feature of the author's scheme of treatment is a combination of gonococcal and staphylococcal vaccines, which is recommended both in acute and chronic gonorrhoea. Captain Lumb's original article on this subject appeared recently in this JOURNAL (October 6th, 1917).

BIPP.

PROFESSOR RUTHERFORD MORISON has put into a small volume⁴ his considered opinion of the value of bipp—that is to say, a paste consisting of iodoform 16 oz., bismuth subnitrate 8 oz., and liquid paraffin 8 oz. or a sufficient quantity—in the treatment of wounds. A satisfactory paste, the author says, should leave a thin adherent even smear over the surface of the wound, and adds that many of the preparations sold do not fulfil this requirement. He gave an account of his methods in the JOURNAL of October 20th, 1917, so that we need not go through the recommendations of the book at length. We may note incidentally, however, the remarkable results obtained in the treatment of cerebral hernia. Professor Rutherford Morison's general conclusion is: "That if it is possible to get to the bottom of an infected wound so that it can be thoroughly cleansed mechanically, and suitable antiseptics be applied, the wound can be closed at once with interrupted sutures, always with impunity, and many times with the prospect of finding it healed when the dressing is removed for the first time at the end of three weeks." But he does not recommend the method for use at the front, for four reasons: the first is the danger of gas gangrene following closure of fresh wounds; the second is that the method must be carried out with such careful attention to detail as to take considerable time; the third is that both bismuth and iodoform may prevent satisfactory x-ray pictures; and the fourth that there may be more danger of poisonous absorption of bismuth or iodoform in fresh wounds than later on. The book is a convenient guide to a method which is undoubtedly of very considerable value. The appeal the author makes to surgeons to test it will have all the more force because he confesses in his preface that it took him a long time to realize the truth of what he saw, so opposed was it to all ordinary surgical canons. In conclusion we may quote his opening words: "War has taught surgeons once more the value of Lord Lister's work on the use of antiseptics in wound treatment, and now it has proved that with their aid primary union after suture of infected suppurating wounds is possible."

NOTES ON BOOKS.

*The Medical Register for 1918*⁵ has just been published, and contains as usual the list of registered medical practitioners, including the colonial and foreign lists. The

² *The Systematic Treatment of Gonorrhoea*. By N. P. L. Lumb, temporary Captain R.A.M.C. London: H. K. Lewis. 1918. (Cr. 8vo, pp. viii + 129. 4s. 6d. net.)

³ *Treatment of War Wounds*. By Rutherford Morison, Professor of Surgery, Durham University. London: Henry Frowde, and Hodder and Stoughton. 1918. (Fcap. 8vo, pp. 72. 2s. 6d.)

⁴ *The Medical Register for 1918*. London: Published for the General Medical Council by Constable and Co. 1918. (Pp. 1280. 10s. 6d.)

⁵ *The Prevention of Venereal Diseases*. By Otto May, M.A., M.D., M.R.C.P., late Honorary Secretary National Council for Combating Venereal Diseases. London: Henry Frowde, and Hodder and Stoughton. 1918. (Crown 8vo, pp. 240. Price 7s. 6d. net.)

total number of names is 43,819, giving a net increase of 338 over the total for the previous year. The number of names added by registration during 1917 was 1,134, being 68 less than in 1916, and 159 less than the average for the last five years. The number of names removed from the *Register* on intimation of death is given as 801, but, as the President pointed out at the last session of the General Medical Council, it is certain that the losses of the year are not yet fully known. The *Dentists' Register* for 1918⁶ has also been issued. The total number of names is now 5,524, as compared with 5,512 in 1917. The number of dentists registered without licence or degree is now 1,274, or 23 per cent. of the whole.

⁶ The *Dentists' Register* for 1918. London: Published for the General Medical Council by Constable and Co. 1918. (Pp. 167. 3s. 4d.)

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.

THE third annual meeting of the National Council for Combating Venereal Diseases was held at Caxton Hall, Westminster, on June 17th. Lord SYDENHAM, who presided, said that the Council had fifty-four branches, including three in Scotland and one in Ulster. In the year ending May 31st, 1,323 lectures to civilians had been arranged by the branches, as well as 168 lectures by the central body in areas which the branches did not cover. A central council had been established in South Africa, and it was hoped that shortly Canada and every state in Australia would follow suit. In Bombay there was also an affiliated branch. The Council was in communication with the War Office on the difficult problem of demobilization, and was also doing all that it could in the matter of dealing with infected pregnant women and with mentally deficient persons who were contaminated.

Mr. HAYES FISHER, M.P., President of the Local Government Board, said that 135 local authorities in this country had now arranged for laboratories, and 136 had submitted schemes under the regulations, of which 127 had been approved. The hospitals which were actually treating these cases at the present time numbered 124, and all were provided with free supplies of salvarsan substitutes for the treatment of syphilis by qualified practitioners. The returns for 1917, the first full year of the system, were not yet complete, but, so far as they went, they showed that 22,000 cases had been dealt with in these hospitals, and that there had been 197,000 visits to the out-patient departments. Some areas were less active in this matter than others, but London and the Home Counties set a good example, as did some districts in the north, notably Durham. Mr. Hayes Fisher said that there was little chance of legislation this session, if, indeed, there was any during the lifetime of a war Parliament. But, short of legislation, more provision might be made in the way of lying-in hospitals for expectant mothers who had been infected; and another work which the local authorities, especially in industrial districts, might undertake was the establishment of hostels for shop assistants and domestic servants who had got into trouble. With regard to the Criminal Law Amendment Bill, he thought that Clause 5, which dealt with both sexes alike, might well be formed into a one-clause measure, which would have good hope of passage, and this would do away with Regulation 40 D, at which many took umbrage.

Mrs. GORTO, the general secretary of the Council, dealt with the question of notification, which, she said, was already on the statute books of Western Australia, New Zealand, and, in a limited sense, Canada, but apparently it was not very vigorously in effect in any of the dominions. In Western Australia there was a record of the results of the first fifteen weeks of working, which showed that only 135 and 153 men had been notified as suffering from syphilis and from gonorrhoea respectively, and only about 20 or 30 women in each of the categories. That showed that any effective notification must wait until the public themselves were convinced of its need. She thought it was urgent to educate the British public up to the point of notification in some form or other to be operable before demobilization.

Mr. E. B. TURNER said that if a doctor, knowing that a patient suffering from venereal disease was about to be married, spoke of it to the other contracting party or to

his or her parents or guardians, he laid himself open to an action for libel, and, what was an even greater deterrent, he violated the confidence of the consulting-room. It was of no use to alter the law of libel in this matter, as had been suggested, so long as the professional ethics in the case remained as they were. No doctor would violate confidences unless it was laid upon him as a statutory obligation to do so. If it was made necessary for the doctor under penalty to inform the other party to the contract he was sure that the medical profession would accept it, but they would not take such a course of action so long as it remained merely permissive. Mr. Turner also urged administrative action against quacks, one of whom, he said, was well known to be administering salvarsan in London at the present time.

The proceedings closed with a vote of thanks to Lord Sydenham, proposed by the BISHOP OF SOUTHWARK.

ROYAL MEDICAL BENEVOLENT FUND.

At the meetings of the Committee held on May 14th and June 11th thirty-five cases were considered, and £393 voted to the applicants. The following is a summary of some of the cases relieved:

Widow, aged 50, of M.R.C.S.Eng. who died in 1916. Unable to work owing to ill health. Has three children, aged 18 to 14, but none able to help. Income about £100 a year from friends and relations. Rent £36. Voted £10 in two instalments.

Widow, aged 50, of L.R.C.P. Edin. who died in 1891. Was left with three daughters and without means. Only permanent income now £20 a year from the Hospital for Incurables. Relieved nine times, £108. Voted £12 in twelve instalments.

Daughter, aged 62, of L.S.A.Lond. who died in 1874. Only income £25 a year from friends and about £5 from sewing. Pays 4s. 9d. a week rent. Relieved twelve times, £115.

Daughter, aged 48, of M.D.Dubl. who died in 1882. Has suffered for many years from arthritis, and is unable to work. Friends allow £40 a year, and she has £7 10s. from investments. Relieved three times, £12. Voted £5.

Widow, aged 62, of L.R.C.P. and S.Edin. who died in 1913. Endeavours to earn a living by taking boarders. Her son, who used to help, has joined the army, and applicant only receives 9s. 3d. allowance. Relieved once, £10. Voted £12.

Daughter, aged 70, of M.R.C.S.Eng. who died in 1890. Applicant unable to work. Income from other benevolent societies, and other sources, about £50. Has to pay £1 a week for board and lodging. Relieved nineteen times, £204. Voted £12 in twelve instalments.

Widow, aged 44, of L.R.C.P. and S.Irel. who died in 1903. Was left entirely without means, and before the war was able to earn her living by teaching languages. At present urgently in need of assistance. Relieved twice, £22. Voted £10.

Daughter, aged 63, of M.R.C.S.Eng. who died when applicant was a child. Owing to a serious accident in 1916 applicant can only get about with the aid of crutches, and is quite unable to work. Lives with relations who cannot afford to keep her. Relieved four times, £22. Voted £12 in twelve instalments.

Daughter, aged 54, of M.R.C.S.Eng. who died in 1894. Applicant, with two sisters, was left without means. In consequence of ill health not able to earn sufficient to keep themselves. One of the sisters receives help from the Fund. Relieved eight times, £118. Voted £12 in twelve instalments.

Widow, aged 44, of M.R.C.S.Eng. who practised in North Wales and died in 1910. Applicant is left without means, with two children, now aged 12 and 9. Lives rent free in return for services, and has occasional help from friends. Relieved six times, £60. Voted £10 in two instalments.

M.R.C.S.Eng., aged 75, married, who through increasing age and ill health is unable to work; owing to this and the high cost of living and illness of wife, applicant finds he cannot manage with his income of about £100 a year. Relieved once, £18. Voted £26 in twelve instalments.

Widow, aged 68, of M.R.C.S.Eng. who practised at Leighton Buzzard and died in 1904. She lost the whole of her income through fraudulent executors. A niece allows her 11s. a week, which is all she has. Relieved once, £12. Voted £12 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.1.

British Medical Journal.

SATURDAY, JUNE 22ND, 1918.

MEDICAL PRACTITIONERS UNDER THE MILITARY SERVICE ACT.

IN recent issues we have endeavoured to place fully, early, and frankly before the profession the position about the last Military Service Act. We have some evidence, however, that misapprehension exists in some quarters, and this we are disposed to attribute to the flood of words through the eight-lined channel of the statement (M.N.S.R. 61) issued to members of the medical profession last week. There are few epigrams that stick so firmly in every man's memory as that which declares that language was given to us to conceal our thoughts; when a man finds that it takes eight pages of close print to state what the Act means and how the Ministry of National Service proposes to administer it, he begins to ask himself what trap is being hidden behind this cloud of four thousand words. We can confidently assert that the Ministry had no desire to conceal anything, but that it succumbed to the forensic cacoethes by which the younger ministries are so apt to be afflicted.

The Act itself is plain enough; it is a military conscription act. It makes every man born in Great Britain who was not more than 51 on the appointed date, April 18th, 1918, liable to military service, but for medical men it extends the liability to 56. In both cases the person concerned must be found physically fit on medical examination, and in both cases the Ministry of National Service may intimate to him that he can be more usefully employed for the good of the nation in carrying on his occupation in a civilian capacity. The Ministry has the power under the Act and Regulations to tell him where he can most usefully carry on his occupation during the currency of the Act, and if he refuses without good cause he may be drafted into the ranks of the army to serve in any capacity the army may think fit, and it is improbable that the recalcitrant conscript will be employed by the military authorities at his own work. When he receives notification from the Ministry of National Service that his case is under consideration, which cannot be until after he has been medically examined, the person affected may apply to the appropriate tribunal for a certificate of exemption on two grounds: He may apply on personal grounds—that he would suffer serious domestic or financial hardship, or that he is ill or infirm, or that he has a conscientious objection to undertaking combatant service. On the other hand, he may apply on the ground that it is expedient in the national interests that, instead of being employed in military service, he should go on doing the work he is doing. Or he may apply both on personal and occupational grounds. His right to apply for a certificate of exemption is indefeasible. If the application is made within the limit of time—fourteen days—after the notification is sent to him by the Director-General of National Service, the

tribunal must hear his appeal, unless, with the assent of the Director-General, it decides to grant exemption in accordance with the application without hearing the case. At the hearing the applicant may call evidence, and he may have the assistance of a friend, and there is nothing to prevent this friend being a lawyer. This would open up an endless vista of hearings before the tribunals—in the case of medical men before the tribunals constituted by the Central Medical War Committee and the Scottish Medical Service Emergency Committee, or before the Committee of Reference—were it not that the medical tribunals have power on occupational grounds to grant only conditional certificates of exemption from military service. The condition attached to the certificate will be that the practitioner, if not required for medical service with the armed forces, "shall undertake such professional service, and under such conditions, as the Director-General of National Service may, after consultation with the Medical Tribunal and in concert with any Government Department concerned, from time to time deem best in the national interests."

The documents issued by the Ministry of National Service do not seem to carry us further than this. The actual procedure in the case of medical men in England and Wales has been set out in the circular letter addressed by the Central Medical War Committee to Local Medical War Committees. Full particulars were given last week (p. 674). The Committee will first ascertain the areas from which doctors should be spared, either for commissioned service with the forces or for substitution in civilian practice, if and when required. A notification will then be sent to medical men in the areas selected, who will previously have been examined medically by special National Service medical boards; the notification will be accompanied by an intimation that they may exercise their statutory right to apply for exemption; with the notification will go also a "certificate of protection" issued by the Director-General of National Service. This certificate appears to owe its name to the fact that it renders its possessor immune to the attentions of the recruiting officer. The certificates will be issued to medical practitioners by the Ministry of National Service area by area, and a general instruction has been given to recruiting officers not to call up medical practitioners for service pending the issue of the protection certificate. The phrases "protection certificate" and "protection" are defined generally in the recruiting code of the Ministry of National Service. These expressions are held to relate to "cases in which it is desired to secure for the time being the retention in civil life of men who are liable to and available for military service; and in order to secure this object administrative directions are given that such men are not for the time being to be called up for service. In order that the men concerned may be in a position to establish that they are rightfully continuing in civil life, certificates are issued by the authority of the Minister of National Service, recording the fact that the holder is not to be called up for service while the certificate remains in force."

The "certificate of protection," if accepted, will have the same effect as a certificate of so-called "standard exemption" granted by the medical tribunal. This standard exemption is conditional. It will hold good until the practitioner is offered a commission, but it is meanwhile subject to the condition that if required he will undertake such professional work as the Director-General of National Service, after consultation with

the medical tribunal, may offer him. Thus the hearing of an application on occupational grounds can result only in the issue of a certificate of exemption subject to the same condition as that attached to the "certificate of protection." Acting on information supplied by the Local Medical War Committee, the Central Committee will have ascertained the names of all medical men in an area who are available for commissions or for civil medical work other than in their own practices. From these practitioners the local committee will select those who they think can be most easily spared; but those so selected, if not satisfied with the recommendation of the local committee or the provisional decision of the central committee arrived at without a hearing, have the guarantee of the central professional committee to a hearing at which all relevant circumstances will be taken into consideration, as, for instance, personal difficulties, and any claim for retention at home as compared with the claims of other practitioners liable under the Act. The hearing in these circumstances will take place before the central professional committee acting as an advisory body to the Ministry and not as a statutory tribunal. A statutory hearing in accordance with the regulations can only be held should the practitioner refuse the "certificate of protection" and make formal application to the tribunal for exemption within fourteen days after receiving notice from the Ministry. The point for each practitioner to decide is whether he will gain any practical advantage by refusing the "certificate of protection" and making an application to the tribunal for exemption. As to his legal right to do so there can be no doubt.

It is hoped that the method of procedure worked out by the Central Medical War Committee, in consultation with the medical department of the Ministry of National Service, will result in providing, with the least amount of inconvenience to the profession, a reserve of doctors known to be available either for military or civilian work; this reserve will be drawn upon if and when required. But the Ministry of National Service has stated that the probability is that most of the practitioners made liable under the new Military Service Act will in fact never be required to do anything but their own professional work in their own locality, and that where substitution is necessary the arrangements would in the majority of cases be local only, and would not entail the removal of the substitute from his own practice.

Before dismissing the subject we are bound to add one observation, which is that the reason alleged for the special provision as to medical men contained in the last Military Service Act is primarily the needs of the military forces. We must assume that the Ministry of National Service has satisfied itself that the army cannot practise greater economy in its use of medical officers already serving. Much of the information which reaches us is to the effect that though certain economies have been practised there is still great room for more, especially at home. It is not possible for us to establish the truth of these views, partly because the mouths of witnesses are closed; but it is, we think, greatly to be regretted that the report of the special committee which went to France last September has not been published and that a similar committee was not appointed to investigate the position of affairs in this country. We believe that the War Office has itself instituted such an inquiry, but any action which may have been taken in consequence has not been made public.

THE PATHOLOGY OF EARLY CARDIAC BREATHLESSNESS.

IN an article under this title we published in April, 1917, p. 459, an account of a report then recently published by the Medical Research Committee upon soldiers returned as suffering from disordered action of the heart (D.A.H.) or valvular disease of the heart (V.D.H.). These men are sent to hospital during training or on active service because they complain of breathlessness, fatigue, palpitation, precordial pain, and giddiness, or actual fainting, experienced for the most part during or after exertion. In order to avoid any implication not justified by the present state of knowledge, Dr. Thomas Lewis suggested the term "effort syndrome" for this group of symptoms arising under the condition mentioned. The group is to be found in a variety of pathological states—for example, in heart disease, in early phthisis, and in exophthalmic goitre—but it is also found, and with much greater frequency, among soldiers who present no physical signs of structural change of the heart tissue. The Medical Research Committee has now printed a supplementary report by Dr. Thomas Lewis, founded on a comparison of a number of patients of whom some had valvular affections and some had not, but all presenting the "effort syndrome." Persistent and incapacitating symptoms of cardiac disease, accompanied by valvular lesions, are usually recognized during the period of training, and the man is discharged from the army as permanently unfit. The cases of valvular disease considered in the report include, therefore, only minor degrees which have not incapacitated the men during training, or, at any rate for some time, under actual service conditions. Subject to the qualification indicated, it is said that, speaking generally, the physical disability in non-valvular cases is not appreciably less than the disability produced by the early phases of grave structural damage of the heart.

The etiological factors which underlie the symptoms comprising the "effort syndrome" are found to be similar whether the soldiers belong to the valvular or non-valvular group. In the earlier report stress was laid upon the frequency with which non-valvular cases gave a history of having suffered from infections of various kinds, and it was estimated that infectious disease played a chief part in promoting the condition in at least 50 to 60 per cent. of patients in whom the "effort syndrome" was not combined with clear signs of structural disease. In the new report comparison is made in this respect between three groups of men—101 cases of valvular disease of the heart, 558 non-valvular cases, and 100 cases of men invalidated for gunshot wounds who did not present any symptoms of cardiac disorder. Any infection which had kept the subject in bed for more than two or three days was reckoned as an illness, and quinsy and repeated or severe tonsillitis were included. Any uncomplicated exanthema before the age of ten years was not reckoned. Among the 100 wounded men 82 had suffered from no serious illnesses; the 18 who had so suffered had had 32 illnesses among them. Amongst the 558 men belonging to the non-valvular group 459, or 82 per cent., had experienced serious illnesses, or such accidents as shell shock, gassing, and wounds. These men were returned to hospital for breathlessness, fatigue, palpitation, and so on, and often assigned the wound, gassing, or shock as a primary or aggravating cause of the symptoms. Amongst the 101 valvular cases 90 gave a past history of serious illness, and in 11 only was there no such history. The incidence of infectious disease and accidents, though higher in the valvular than the non-valvular

cases, was extremely high for both. The most notable difference was with respect to rheumatic fever. There was a history of rheumatic fever or chorea in 61 per cent. of the valvular cases, and in only 23 per cent. of the non-valvular cases. Among the wounded men taken for comparison only 4 per cent. gave a history of rheumatic fever or chorea. The evidence does not indicate that army life is chiefly responsible for the high incidence of a rheumatic history among the patients suffering from valvular disease. When the patients were subdivided into three groups—according as the symptoms first appeared before joining the service, during training, or on active service—the percentage incidence was found to be heaviest in the first group, and least in the last group. This distribution, it is considered, may be explained, in part at least, by the relative frequency of rheumatic causation among the young and by its relative infrequency as age advances.

In the earlier report it was stated that a history of venereal disease was rare among the valvular cases: it was obtained in only 2 per cent. It is concluded that venereal disease plays little or no part in the production of the "effort syndrome." It is not established that a history of venereal disease is much rarer in these men than in soldiers as a body; amongst the 100 men suffering from gunshot wounds a venereal history was obtained in five only, and in four only of 101 cases of grave valvular disease. While it is recognized that these figures may not represent the total incidence of venereal disease, since the man may wish to conceal the circumstance, it is believed that the incidence is comparatively small, and that the prevalence of syphilitic affections among the new armies has been exaggerated in many quarters. Among the aortic cases admitted during 1916, in which year the statistics were obtained, syphilis played but a small part, for precisely the same reason that rheumatic fever played a large part—namely, because of the youthfulness of the soldiers: but it is added that another and important reason is the morality of the men. Of the purely aortic cases, 29 were subjected to the complement fixation test; in 16 there was no rheumatic history, and the complement tests were all negative. Of the remaining 13, who all gave a rheumatic history, only one gave a positive complement test. A positive reaction was obtained in two of the 13 cases of aortic disease associated with mitral stenosis. Syphilis was suspected to be a causal agent in only four of the whole series of 50 aortic cases, and three of these four were over 40 years old, and in all three the symptoms dated to a period before joining the army.

Summarizing the effect of infection, it is said that in cases of valvular disease the onset, when marked by a special event, dated most frequently from rheumatic fever. Rheumatic fever also headed the list in non-valvular cases, although various other incidents taken together were a good deal more frequent. The symptoms came on gradually without special incident in 41 per cent. of the non-valvular, and in 52 per cent. of the valvular cases. With regard to the possible operation of gassing or shell shock as a cause, the facts are not conclusive; such incidents were given as a starting point in a small proportion of cases (2 to 3 per cent.), both among valvular and non-valvular cases. The most probable conclusion seems to be that the gassing or shell shock aggravated the effects of a lesion which previously did not produce symptoms, or symptoms so slight that they passed unheeded. The evidence as to the consumption of alcohol does not favour the view that it has anything to do with the production

of the "effort syndrome"; so far as the figures go, they would rather point to the greater frequency of both non-valvular and valvular disease among teetotalers, but few of the men admitted consuming more than a moderate amount of alcohol. As to tobacco, both the non-valvular and the valvular cases smoked less than the men suffering from gunshot wounds taken for purposes of comparison. It is suggested that one reason for the smaller consumption in the medical groups is that the patient learns that tobacco has an injurious effect upon the symptoms. Many of the men smoked little because they found that more upset them.

The concluding part of Dr. Lewis's report raises questions of very wide import. He points out that the etiological factors underlying those symptoms which comprise the "effort syndrome" are similar, whether the soldiers belong to the valvular or non-valvular group. The chief difference in the clinical histories is the higher incidence of rheumatic fever in the first group. This fact and the high incidence of infectious disease in the histories of both groups is suggestive. It is pointed out that if patients in whom the heart is seriously damaged present symptoms which are not to be distinguished from the symptoms of other patients in whom there is every reason to believe the heart to be sound, and if the symptoms in both groups follow or are aggravated by similar events, then the symptoms in the former must not be ascribed to deficiencies in the circulation, and in the latter to some different cause. If the symptoms in valvular cases are assumed to be due to deficient circulation, are they due to the same cause in non-valvular? This question is answered in the negative, for it has not been possible to detect signs of circulatory embarrassment.

The question then arises whether in the valvular cases the symptoms have an origin other than improper distribution of the blood. Breathlessness on exertion, which is the cardinal symptom, can be discussed upon a chemical basis. In the non-valvular cases the breathlessness may be due not to imperfect circulation, but to altered chemistry of the blood—namely, to a "buffer-salt" deficiency. The theory of "buffer" salts is explained in a report to the Medical Research Committee published in the JOURNAL some time ago.¹ The blood is at all times receiving and parting with acid and alkali. These variations, if effected in an ordinary saline solution, would produce changes in relative acidity and alkalinity which would be physiologically intolerable. A given addition of carbonic acid to the blood only produces a quarter of the change in reaction which it would produce in a corresponding quantity of physiological saline solution. The reason is that the blood contains such substances as sodium bicarbonate, monacid and diacid sodium phosphates, and protein, which tend partly to fix the acid so that in a sense it loses its chemical freedom. The salts mentioned are therefore called "buffer" salts because they ease the shock to the reaction of the fluid caused by the addition of acid or alkali. In early mitral stenosis deficiency of the circulation has been assumed, but has never been proved to exist. There is no question that deficient oxygenation of the blood plays a part in the late stages of mitral stenosis, when there are signs of venous stasis, or obvious failure of the heart muscle, but this does not apply to those early cases of mitral stenosis which exhibit breathlessness on exertion. Mr. Barcroft has tested three such cases and

¹ Breathlessness in Soldiers Suffering from Irritable Heart. By Lewis, Barcroft, Cotton, Dufton, Milroy, and Parsons, BRITISH MEDICAL JOURNAL, 1916, vol. ii, p. 517.

finds a deficiency of buffer salts. The conclusion from this would be that an altered chemistry of the blood may be, and often is, responsible for breathlessness in early mitral stenosis, and that in such cases it is a sufficient explanation. If these observations are confirmed, the resemblance between the histories and symptoms of the two groups of cases will become less difficult to comprehend. They may be regarded as essentially similar, though in the one, as a result of a higher incidence of rheumatic fever, damage to the heart is the rule. In the non-valvular cases the condition may be regarded as uncomplicated, in the others as complicated by structural disease. Finally, it is said that there is no reason for a belief that the causes of the several conditions, other than those which are purely aggravatory—that is to say, those which lay bare the latent weaknesses—differ materially amongst civilian and military populations.

THE WORK OF NATIONAL SERVICE MEDICAL BOARDS.

Those, probably a decreasing number, who follow questions in the House of Commons will have observed the remarkable interest shown by a certain knot of members in the medical examination of the older men affected by the new Military Service Act. It has led to a number of attacks on the Ministry of National Service which have taken the form of attempts to blacken the character of the members of the National Service Medical Boards now set up all over the country. Normally such a board consists of a chairman and four medical practitioners engaged in general or consulting practice in the locality. In a time of pressure such as the present it has often been necessary to reduce the number to three. The duty of the medical boards is to put each man in one of four grades; its decision is based solely upon medical considerations. The decision as to the indispensability or otherwise of men in different classes of the community for different classes of work is a matter for the tribunals. These bodies have pressed for a more detailed medical grading of men, for if the grades were multiplied it would in many cases be easier for the tribunals to determine whether a man of a certain grade was more necessary for civilian than for military duties. It was, however, clear that such multiple grading could not be made on medical grounds solely; it would necessarily be complicated with the problem of the man's fitness or indispensability for civilian or military work, as the case might be—a matter for the tribunals themselves. The matter of the grading of men of older years was carefully considered by the Medical Department of the Ministry of National Service before the new Act came into force. Two courses were open to it, either to devise a new system of grading for the men of older years, or to apply the system already in use to them. The reasons which were felt to militate against the first alternative were that it would not be easy to decide at what age any system of older grading should commence, for to establish the lower limit at the age of 43 would have afforded no firm foundation either on medical reasons or on grounds of efficiency for military or civilian work. The ages between 43 and 51, or in the case of medical practitioners 56 years, could not be made equivalent to any age periods related to military efficiency on the one hand, or to physical life changes on the other. Again, it was realized that it would be extremely difficult to work out conditions to determine grading for the older men which could be dealt with on lines parallel with those determining the grading of younger men. The Medical Department of the Ministry consulted the medical authorities who had previously assisted in drawing up the system of grading, and the opinion was expressed clearly and firmly that it would not be possible to establish different systems of grading for men of different ages,

as no scientific or medical basis could be found. Medical boards were accordingly instructed to place the older men in Grade I if they possessed the full normal physical fitness to be expected of their age. Those who varied from this normal standard in certain particulars were to be placed in Grades II or III, while those totally or permanently unfit for any form of service would be placed in Grade IV. Among the older men are some fit for certain classes of military work, and the army has given an undertaking that they shall be trained and employed according to the ability and efficiency to be expected of their years. The task which the Medical Department of the Ministry of National Service has had to undertake was quite novel in the history of this country. Continental military powers had already their older armies—Landwehr and Landsturm—established out of their younger army. The work now imposed upon the medical boards of selecting from the older men of the country those suitable to form the various classes of the new older army is of a most responsible character. A large proportion of civilian medical practitioners are giving their services to the country for this work on the invitation of the Government, and the patriotic purpose underlying their effort should be understood and recognized. They should be immune from captious criticism, and such incidents as that provoked by Sir Frederick Banbury on Tuesday ought not to be allowed to waste the time of the House of Commons and the time of officials, which is, perhaps, of more value. The story Sir Frederick Banbury had to tell is set out with sufficient detail in our Parliamentary Notes. Sir Frederick Banbury relied upon an *ex parte* statement, which gave an altogether erroneous impression of what actually happened. The gentleman of whom the story is told was a haemophiliac, and produced a certificate from his ordinary medical attendant to this effect. Evidence of the existence of the condition indicated in the certificate was at once recognized and the gentleman was within a few minutes placed in Grade III, which includes those who, presenting physical disabilities which unfit them to undergo military training, may be called upon to perform duty in military establishments under conditions approximating to their home life and surroundings. The letter Sir Frederick Banbury read out to the House of Commons contained a paragraph to the effect that the medical board disbelieved the statement that the gentleman was a haemophiliac, and made him get into a bath to try and bend his knees by swimming. After reading this out Sir Frederick Banbury said: "I do not think I have ever made a statement [to the House] that I have not verified, or perhaps only in one instance." We are afraid that the member for the City of London will have to add one more. The examination, it is true, was made at the Camberwell Baths, but the bath was boarded over a year or two ago and forms a large hall, which has since been in use for the medical examination of recruits. This gives a measure of the care taken to verify statements made to the House of Commons—*ex pede Herculem*.

INTER-ALLIED SCIENTIFIC FOOD COMMISSION.

LAST week we gave some account of the work of the Inter-Allied Scientific Food Commission, and mentioned that it was holding its third meeting in London. This meeting, which has now been brought to a close, was chiefly concerned in examining the figures which would render it possible to determine the calorie value of the home production of each of the allied countries, and then, by comparing the figure thus obtained with the needs in calories of the population in each country, to determine the amount of imports necessary for the maintenance of the population, or the exportable surplus, as the case might be. The Commission completed this task during the London meeting, and its results, which will shortly be presented to the allied Governments, will serve

as a basis for the action to be taken by the different inter-allied executives in allocating to each country its proper proportion of the supplies of food which will be available for export from the American continent and from such other parts of the world as shipping facilities may allow. The Commission has thus performed for all the allied countries a work somewhat similar to that carried out by the Food (War) Committee of the Royal Society for the United Kingdom. For the first time it will be possible for the inter-allied pooling of resources and supplies to be carried out equitably in accordance with the impartial decisions of science.

SODIUM CYANIDE A RESPIRATORY STIMULANT. Though praised as a respiratory stimulant ninety years ago by Michael Ryan, hydrocyanic acid has long lost any reputation in this respect, but the experimental and clinical results obtained by Loevenhart, Lorenz, Martin, and Malone¹ from the intravenous injection of pure sodium cyanide, which has the same action as the acid, show that its use should be revived. A freshly prepared solution of pure sodium cyanide in sterile physiological salt solution was given intravenously to dogs with respiratory depression due to morphine, chloroform, and ether narcosis, and especially in artificially increased intracranial pressure; sixty-two experiments were carried out in connexion with the last condition. The sodium cyanide was preferred to the potassium salt on account of the depressing effect of the latter on the heart. In increased intracranial pressure, such as occurs in man from tumour, haemorrhage, and fracture of the base, sodium cyanide is the most powerful respiratory stimulant known. After a single injection there is a latent period of a few seconds, and then the respiration is stimulated for ten to fifteen seconds. A slow continuous intravenous injection will ensure a continuous stimulation of respiration. After animal experiments had shown the safe limits of intravenous injection, ten cases were treated by injection of a fiftieth normal sodium cyanide solution (0.1 per cent.) into the median basilic vein with a 20 c.cm. Record syringe. The cases selected were examples of increased intracranial pressure from any cause with respiratory depression, and the injections were given not instead of a decompression, but pending operation; in respiratory failure due to chloroform or ether, and in bed-ridden cases of advanced paresis with developing hypostatic pneumonia the drug proved in every instance a reliable stimulant, and the results in animals were fully confirmed. After a latent period of twenty seconds respiration was stimulated by a single injection for a period rarely exceeding thirty seconds. Slow continuous injections are more conveniently given by means of a burette, the fluid being run in at a rate of 1 c.cm. in fifteen to thirty seconds; one patient received over 100 c.cm. in sixty-four minutes. The cyanide is apparently transformed rapidly in the body into a non-toxic product, but the injection should be slowed or temporarily stopped on the appearance of any untoward symptoms such as well-marked pallor, nausea, much increase in pulse-rate, or depression of respiration from too rapid injection or from an excessive amount. As a matter of fact, no bad symptoms were observed in any of the patients, and many of them were obviously benefited. The method is suggested also for resuscitation from drowning, but no case was available for trial.

ANTIVIVISECTIONISTS AND THE RED CROSS.

WHILE crediting the opponents of animal experimentation with honesty of purpose, it can scarcely be denied that the effect of this good quality is neutralized by an obliquity of moral vision which makes them in the literal sense *hostes humani generis*. While the philo zoist loves animals by nature, he suffers his fellow man, as Miss Frances Power Cebbe said of herself, only by grace. His fanaticism leads

him much farther, for he is willing to sacrifice the welfare of mankind to the comfort of certain animals. A particularly shocking example of this perversity of mind has recently been seen in America, where, owing to the action of antivivisectionists, the Red Cross was induced to revoke its decision to appropriate money for animal research work in the interest of sick and wounded soldiers. Advice plainly intended to discourage enlistment and efforts made to safeguard the health of the troops was widely disseminated. The impudent statement was made that, "although it (vivisection) has been practised for many years, nothing has been discovered by means of it that is at all beneficial to the human race." In face of what has been accomplished in the present war for the treatment and prevention of wound infection, tetanus, gas gangrene, trench fever, shell shock, and other conditions, we can only wonder at the mental blindness which prejudice can produce in otherwise intelligent persons. We have credited antivivisectionists in general with honesty of purpose, as we believe that their opposition to medical research is due to ignorance. But it is difficult to acquit some of their leaders of deliberate bad faith when we read certain statements made in a pamphlet entitled "Why is my Soldier Sick?" issued by the National Antivivisection Federation of New York, and forwarded to the United States Secretary of State for War. In protesting against the compulsory inoculation of soldiers, it is asserted that Great Britain had been forced to rescind the enactment of compulsion after the alarming effects of inoculation were disclosed. Professor W. W. Keen of Philadelphia, *clarum et venerabile nomen* of American surgery, who, though over 80, is serving as a major in the Medical Reserve Corps, has come forward, not for the first time, as a champion of experimental research, the beneficial effects of which he has seen in his long career, extending from the Civil War to the present day. He refutes the allegation that this country was obliged to rescind compulsion by showing that it has never existed. Antityphoid inoculation has never been compulsory in the British army. Nevertheless, in spite of the persistent misrepresentation of antivivisectionists, 99 per cent. of our troops have voluntarily submitted to vaccination against typhoid fever. In an article published in *Science* of February 22nd, 1918, Dr. Keen showed by a mass of facts, which must carry conviction to every unbiassed mind, how great is the measure of protection against typhoid afforded by inoculation in the American and British armies, and the immense progress in the art of healing which has been the outcome of animal experimentation. On the other hand, the antivivisectionists have done nothing whatever for the benefit of man or even of animals.

FOOD, HOUSING, AND TUBERCULOSIS IN GERMANY.

THE Prussian Food Department issued an order on November 9th, 1917, permitting a considerable increase of the food ration for the subjects of pulmonary disease, both in institutions and at home. The order states that for some months the 1913 mortality from tuberculosis has been exceeded by 50 per cent. This is attributed to lack of food, particularly in the case of patients living at home. Special efforts are therefore to be made to bring the ration for these patients up to that obtainable in institutions for the tuberculous. The revised weekly ration is: Potatoes, 5 kilos; meat, 500 grams; bread, 2 kilos; butter, at least 250 grams; and 4 eggs. To this is to be added a monthly ration of 400 grams of cheese, 2,000 grams of cereals and leguminous foods, and 1,000 grams of marmalade, artificial honey, etc., together with 1 litre of milk a day. These are minimum quantities. There is no reference in the scheme to sugar as such. The need for giving the tuberculous sufficient food is considered so urgent that, failing other means, the ration for the tuberculous is to be brought up to the desired

¹ A. S. Loevenhart, W. F. Lorenz, H. G. Martin, and J. Y. Malone, *Arch. Int. Med.*, Chicago, 1918, xxi, 109-129.

level at the cost of the healthy in the same district. The *Allgemeine Ortskrankenkasse* of Berlin has investigated the housing conditions of 9,933 of its sick members. Over 1,300 lived in rooms with a floor surface of less than 10 square metres, and 25 per cent. of them shared these rooms with one or more other persons. The cubic capacity was in the case of 3,400 persons under 20 cubic metres a head and in that of 263 persons under 10. Of the 3,542 patients with lung disease only 715 had bedrooms to themselves; 21.46 per cent. of the men and 28.94 per cent. of the women had relatives who had died of, or were suffering from, pulmonary tuberculosis. Of the 2,830 married women suffering from pulmonary tuberculosis 94 had lost their husbands from tuberculosis, and of the 946 married men 7 had lost their wives from this disease.

MILITARY HEART HOSPITALS.

WE refer elsewhere to a report by Dr. Thomas Lewis setting out some of the conclusions which have been reached as the result of the intensive study of heart disorders occurring among soldiers at the central heart hospital, established first at Hampstead, but afterwards removed to Colchester. Active steps are now being taken to extend this organized work to all the other Commands, and the intention is to establish a hospital on the same lines as that now at Colchester in each. The results reached at the inquiry instituted at the instance of the Medical Research Committee, so far as it has yet gone, are of the utmost importance, not only at the present time in their military relations, but also as a permanent contribution to cardiac pathology generally. We have often had occasion to admire the readiness with which American medical men, both before their country entered into the war and, naturally, with even greater eagerness since, have taken advantage of every opportunity to make themselves acquainted with what has been done by their European allies. Such opportunities have, of course, been readily afforded, and this matter of heart disorders in soldiers is no exception. The American military authorities have been for some time systematically sending men to work in the hospitals directed by Dr. Lewis, with a view to organizing similar work for the American armies.

DR. ALFRED COX, O.B.E.

THE inclusion of Dr. Alfred Cox's name among the Birthday Honours announced in the *JOURNAL* last week has been observed with warm approval by all medical men and women to whom he is known personally, or through his unremitting public services as Medical Secretary of the British Medical Association, and co-secretary of the Central Medical War Committee. This general feeling was expressed by the Stratford Division of the British Medical Association, which at a meeting on June 12th passed a unanimous resolution congratulating Dr. Cox upon his appointment as an Officer of the Order of the British Empire.

THE splendid response made by the students of Trinity College, Dublin, to the call of duty is well illustrated by the great diminution in the number of students on the college books shown for each year in the second volume of the *Calendar*. Since the war began the number of men students has fallen steadily. In the year 1913-14 there were 1,074 men students on the books, this term there are only 576, including many South Africans and others who have already served in the war. The number would be still lower but for the fact that the Royal Navy and the War Office have sent back a number of medical students to complete their medical course. The number of women students has remained nearly constant in spite of larger entries. This has been brought about by the fact that many women students have temporarily given up their studies to undertake war work. At the moment there are 192 women on the college books. Of the total number of students on the books a very large proportion are in the medical school.

Medical Notes in Parliament.

Pay of Territorial Medical Officers.

COMMANDER BELLAIRS asked Mr. Forster on June 18th (1) whether the Army Council had refused the request of the British Medical Association that the position of the officers of the Royal Army Medical Corps who patriotically came forward before the war as Territorial and Special Reserve officers should, in regard to pay, allowances, and gratuities, be brought to the same level as that of the Temporary Commissioned contract officers by an increase in the gratuities to which they were entitled on demobilization; (2) if he would say on what grounds the Government negatived the recommendation of the Departmental Committee of 1917 that officers of the Royal Army Medical Corps, Territorial Force, and Special Reserve, who joined before the war, should be put on a level with temporarily commissioned contract officers as regards pay, allowances, and gratuities, where they would gain thereby; and whether he was aware that dissatisfaction was felt by the junior medical officers of the Territorial Force and Special Reserve at the refusal of the Government to remove this injustice. Mr. Forster said he had nothing to add to his previous replies. The British Medical Association brought forward no considerations that were not fully appreciated by the Cabinet Committee which decided this question.

Commander Bellairs asked what criterion the War Office adopted in this matter. Did it not consider that those who joined first should be treated at least as well as those who joined last? Mr. Forster said that with these officers, as with others, it was partly a matter of the terms of contract of service.

Examinations by National Service Medical Boards.

IN reply to Mr. P. A. Harris, Mr. Beck, Parliamentary Secretary, Ministry of National Service, said on June 13th that certain complaints of cursory and inadequate examinations by National Service Medical Boards had been made. They were comparatively few, and on investigation had generally proved not to be well founded. Under the sectional method of examination adequate time must be devoted to the examination of each man. Great care was exercised under instructions issued by the Ministry to take into consideration any information given to the board, either in the form of medical certificates or verbally by the men themselves. Moreover, any man who was dissatisfied had a right to lodge an application with the Appeal Tribunal for examination by medical assessors appointed by the Local Government Board. Mr. Beck added, in answer to Mr. Harcourt, that most explicit instructions were issued that certificates of private practitioners should be taken into account. In every medical board room he had seen there had been a notice posted asking men to produce any medical certificates that they had brought with them. On further questions by Mr. Morel, Mr. Beck said the instructions issued to the boards were most elaborate and were published.

Reduced Membership of Medical Boards.

IN a written answer to Sir Herbert Nield, who asked whether any of the provincial boards had been reduced from five to three members and under what authority this change had been effected, Mr. Beck stated that the information was not available, and could be obtained only by asking for daily returns, which would seriously increase the work of the already over-worked boards. The normal National Service Medical Board consisted of five doctors, but in times of pressure these might be reduced to three. This course was quite unavoidable owing to the serious shortage of doctors. Sir H. Nield also asked whether any, and, if so, how many, members of the medical board had resigned since November 1st, 1917; in how many cases such resignations were due to alleged differences of opinion between the members of medical boards and the president of the board, owing to his action in disregarding the opinions of members of the board and placing men in a higher grade than that in which the members thought the man should be placed; what proportion of men so examined were personally examined by the president; and what opportunities were afforded other members of the board for further examination or for discussion before the grade was determined by them. Mr. Beck replied that out of some 2,500 doctors serving as members of medical boards sixteen had resigned since November, 1917. So far as he was aware, none had resigned on the grounds suggested. In reply to another question by Sir H. Nield, he said that the National Service Medical Boards at Conduit Street, which had been specially dealing with men coming under the extended age limits, had, during this temporary high pressure, necessarily been composed of three members, and it had not been practical as yet to increase that number. With regard to the other boards in the London region he should require to have detailed inquiries made, as the composition of the boards had varied with the pressure of recruits attending for examination, and the number of doctors available for service on the panel. Mr. Beck stated, on June 19th, that of the men of the

new military age examined at Conduit Street down to June 15th the percentage passed in Grade I was 29.1.

Examinations of Older Men.

In reply to Sir Francis Lowe, on June 18th, the Minister of National Service said that there had been no change in the standards of medical fitness required for classification in Grade I and II. When introduced in October last, the term "Grade I" was defined as meaning men "who attain the normal standard of health and strength and are capable of enduring physical exertion suitable to their age." This definition had never been varied. Current statistics covering large numbers of examinations showed that there is no increase in the proportion of men placed in Grades I and II. There was no difference in principle in the grading of men above and below 45 years of age.

Sir F. Lowe asked whether some definite action would not be taken to counteract the alteration of policy which was undoubtedly taking place in the tribunals all over the country. Sir A. Geddes replied that there had been no alteration of policy in the Government department concerned. There had been announced by certain chairmen of tribunals and appeal tribunals a change in policy in their action, but that had nothing whatever to do with the Ministry of National Service. The number of complaints received was extraordinarily small, less than 1 per cent. among the last 1,250,000 examinations by National Service Medical Boards.

Sir Francis Lowe next asked if the Chairman of the House of Commons Tribunal had not expressed very strong views on this matter. Sir A. Geddes replied that he could only believe that the chairman of that tribunal did not know the meaning of Grade I when he made the statement. In answer to Mr. Snowden Sir Auckland explained that from the last one million and a quarter men examined they had received 11,441 protests of one sort or another; that number included appeals. Of the total number of appeals against medical examinations, 7,800 had already been dealt with by the appeal tribunal, and 4,266 cases dealt with by the tribunals had been allowed to go forward to the assessors; in 3,679 cases permission to go to the assessors had been refused by the tribunals. He could not say whether all these 11,000 cases occurred subsequent to the last Military Service Act.

In reply to a question by Mr. Hogg, Sir Auckland said the Chairman of the House of Commons Tribunal had stated, according to the press reports, that all Grade I men of the new military age were to be regarded by him as being Grade II. In view of the fact that Grade I was defined as meaning "a man who attains the normal standard of health and strength and is capable of enduring physical exertion suitable to his age," that statement of the Chairman of the House of Commons Appeal Tribunal could have no meaning.

Examination of Haemophiliac.

At the close of the debate on June 13th on the vote of credit, Sir Frederick Banbury read a long letter from the cousin of a solicitor in the City of London, aged 43, who was a haemophiliac, and belonged to a family known to be subject to that disorder. The gentleman when examined at Camberwell on May 31st produced a statement from his ordinary medical attendant and also from a specialist. It was alleged that he was nevertheless put through certain exercises and made to bend his knees, and that he shortly afterwards suffered from pulmonary haemorrhage, which endangered his life. He was put in Grade III. Sir Frederick Banbury added that though it might be untrue that the doctors had received private instructions to pass everybody that they possibly could, there was a strong feeling that something of the sort had been done. Sir Auckland Geddes, in his reply, said that there were no instructions that every man should be passed in some grade or to do some service. He had made it his business since the allegation had been made to search not only at head quarters, but in twenty-four places where examinations were going on; there were no secret instructions in the ordinary sense, and he could find no trace of such instructions existing. With regard to the case at Camberwell, he said he had made inquiries of the three doctors concerned, who stated that the gentleman referred to was not put through the ordinary routine examination. The certificate he presented to the board showing that he was suffering from haemophilia was received and accepted. The gentleman was asked to bend his knees, but when he explained that he could not the request was not persisted in. Sir Auckland Geddes thought that the bleeding from the lung might have been brought about by the excitement of the examination or the exertion involved in going to be examined, and added that he would investigate this particular case further.

Duties of the Inspector of Medical Services.—Mr. Alden asked Mr. Macpherson, on June 17th, whether Sir William Babbie had been appointed Medical Adviser to the Adjutant-General, and, if so, whether, having regard to the findings of the Mesopotamian Commission, he would consider the advisability of placing some other medical man in this position. Mr. Macpherson replied: Sir William Babbie, V.C., has not been appointed Medical Adviser to the Adjutant-General. At present he is Inspector of Medical Services for such duties as he may from time to time be directed to carry out. He is an officer of wide experience, and has an intimate knowledge of everything connected with the medical services of the army. On account of the reference to Sir William Babbie in connexion with the inquiry of the Mesopotamian Commission, his case was referred

to the Army Council, which, after full consideration of all the facts, decided that the explanation he had been called upon to offer was satisfactory in all respects, and that his services should not be lost to the army. Sir H. Craik: Is it not the case that the findings of the Mesopotamian Commission threw no personal aspersion whatever on Sir William Babbie? Mr. Macpherson: Not only is that so, but they recommended in so many words that he should be re-employed.

Medical Cases in Training under Pensions Department.—Mr. Hojce, in reply to Mr. Anderson on June 12th, said that the number of medical cases receiving training in the week ended June 5th, 1918, and the number which had received training under the Ministry up to that date, were 6,526 and 7,613 respectively, or a total of 14,139, made up thus:

	Under Training.	Trained.
General subjects (Institutions and Workshops)	4,477	2,722
Blind (St. Dunstan's)	551	422
Lord Roberts Memorial Workshops	755	1,385
Munition work	733	3,084
	6,526	7,613
Total	14,139	

In practically every case men who had completed courses of training had been put in employment.

Midwives Bill.—The Midwives Bill, Introduced in the House of Lords by the Lord President of the Council on June 13th, is designed to bring the English law into line with the Acts passed for Scotland in 1915 and for Ireland this year. These Acts were based on the Midwives Act of 1902, with amendments suggested by experience. Most of these changes and additions were included in the recommendations of the Midwives Act Committee of 1909.

Cheadle Board of Guardians: Medical Officers.—Sir Watson Cheyne asked Mr. Hayes Fisher, on June 17th, whether the recent appointment by the Cheadle Board of Guardians and District Council of a whole-time medical officer to take the place of six part-time medical officers in a district of 54,000 acres and 26,000 inhabitants, was strongly disapproved locally both by the public and by the medical profession; whether, as had been represented to the Local Government Board, it would be impossible for one man to carry out the duties efficiently, and the interests of the sick poor in the area would suffer seriously, especially having regard to the difficulty of access to many parts of the area and the impossibility of securing a deputy or of obtaining assistance in difficult cases or those requiring anaesthetics or operations. Sir Watson Cheyne further asked whether the Local Government Board would reconsider the sanction it had given to the appointment to the new post of a young man of military age, when the work could be and was being done by older men resident in the area and occupied in other civilian medical work. Mr. Hayes Fisher referred Sir Watson Cheyne to the answer given to a similar question put by Colonel Wedgwood. That reply stated that the appointment was made jointly by the Cheadle Guardians and the Cheadle Rural District Council, whose areas coincided, and was approved by the Local Government Board for the period of the war. The arrangement was fully considered, and appeared to be the best practicable in existing circumstances. While Mr. Hayes Fisher did not think there was any ground for apprehending that the health of the district would suffer from the arrangement, he would have further inquiry made into the matter. He now added that the doctor appointed was of military age—38 years—but, being a native of India, was ineligible for a commission in the R.A.M.C. Sir Watson Cheyne then asked whether it was not a fact that the dispute arose owing to the local doctors asking for an increase in salary, and was that not desirable in view of the great increase in the cost of living? Mr. Fisher admitted that was the origin of the dispute, but he understood that the local authorities were willing to grant the increase in some cases but not in others. He had no means of judging as to the merits of that decision.

Army Dental Service.—Taking up a number of questions put by Mr. Pennefather and Mr. Whyte, on June 18th, Mr. Macpherson announced that the number of dental surgeons employed in the Royal Army Medical Corps is about to be largely increased. Mr. Whyte put it that the number at present employed with the British Expeditionary Force in France was less than one-half that employed in a similar capacity in the Canadian Expeditionary Force. On that Mr. Macpherson said that before our soldiers went to the front their dentures were looked at by dentists, but the Canadians were not so examined before they left Canada. Mr. Pennefather said that according to his information the teeth of every Canadian were examined before crossing, and there was a re-examination before the man went to the front. There was a further re-examination every time a man came back wounded.

"Manipulative Surgery."—It is announced that an Army Council Instruction has been issued to all commands in the United Kingdom directing that "no obstacle will be placed in the way of an officer or soldier who desires to avail himself of the services of a practitioner in manipulative surgery who is not a qualified practitioner." This follows on a statement by Mr. Macpherson last August that he saw no objection to a soldier going for treatment to an unqualified man, but that if he did he went on his own responsibility.

NOTES ON THE PRESERVATION OF FRUIT.

BY

HERBERT E. DURHAM, Sc.D., ETC.,

PRESIDENT, DEREKENDSHIRE ASSOCIATION OF FRUIT GROWERS
AND HORTICULTURISTS.

THE methods by which fruit may be preserved for a more or less indefinite period are as jam, by bottling or canning, by making into a paste or "massa," and by simple drying. Certain fruits, such as apples and pears of suitable kinds, will keep for many months if properly stored. There are many extremely good sorts of apples which will keep till April, May, and even June. Unfortunately this year the crop of fruits of all kinds in most parts of the country will be poor, and possibly the amount of sugar allowed to the private owner for jam making may be sufficient for his fruit.

As the making of jam in factories is now largely under Government control, it seems not unreasonable to suggest incidentally that the manufacturers should be required to make a declaration as to the substances other than the named fruit used in making the jam. If the basis of a jam is pulp made from apples, plums, or vegetable marrow, the named fruit being practically used only as a flavouring agent, the fact should be declared. One of the merits of jam is that it affords a mode of obtaining in the diet necessary labile substances, vitamins or what-not, when fresh fruit is not available. In a jam factory the fruit, such as currants, is usually "pulped," and kept; it is recooked when the apples are ready, and in this way the vitamins may be lost. The label, "Currant jam: made solely from sound fruit and sugar," may prove misleading to the purchaser, who is apt to assume that the fruit referred to on the label is currant and not largely diluted with apple or vegetable marrow.

Much can be done without sugar at the time of preservation, and the following notes may be of use:

Bottling.—When water without sugar is used in bottling a diffusion of the sugar and other substances in the fruit takes place from within it into the water, until an equilibrium is established. The individual fruits then become little more than tasteless bags, which can only be satisfactorily served at table when mashed into a *purée* or "fool." This may be obviated and a permanent equilibrium established by making juice from some of the fruit and using it to fill up the bottles. The juice may be made either by cooking some of the fruit in a small amount of water and then straining off the juice and squeezing the residue well in a cloth; or by the use of a fruit press—the Enterprise or some similar pattern—which is far more economical and saves time, for leaves and stalks need not be separated from the fruit, the juice thus obtained should be heated before it is put into the bottles. The fruit, of course, may be pulped or the juice only bottled, and then it is perhaps a good plan to use small bottles, so that a whole bottle is soon consumed. The same sort of juice need not be used; for instance, raspberry or red currant juice may be used the one for the other. Plum or apple decocted to a moderately thick syrup might be used, judging from the very fair blackberry jam that can be made by the addition of apple juice from the cider press concentrated to a syrup.

Paste or Massa.—This is a valuable mode of conserving various fruits. It can be utilized in several ways, as by making sauces to eat with puddings, to work up into jam, or, in the case of quince and medlar, to add to apples. Whilst it is more ideal to use sugar in some cases (for example, apple) in the preparation, a product of perfect keeping quality can be made without it. Taking apple and tomato as two types, the treatment is as follows:

Apples are cut up, or waste cores and skins only may be used; they are cooked with the smallest quantity of water possible; then, cooked soft, they are allowed to cool and passed through a fine cloth gauze or sieve to separate pips, etc. The pulp is then slowly reduced with stirring to prevent burning, which may also be partly fended off by wire gauze or a sheet of iron interposed between the direct flame and the saucepan; the reduction is completed when the wooden spoon stands stiffly alone in the pulp (when sugar is available one-tenth to one-fifth the weight of the pulp may be added). The pulp is then poured into well-greased baking trays, or greased paper may be used to line them or plain paper, but in this case it will have to be moistened when ultimately removed. The layer of pulp should be a quarter to half an inch thick. The trays are then placed to dry, either in the rack over the range, in a slow oven, in the linen cupboard, or in bright sunlight, and dried until the residue is fairly hard but still plastic; it is then rolled up (after removal of the paper, if that has been used) or cut up into squares or lozenges, and stored in paper bags or cardboard boxes in a dry, warmish place, when there is no fear of mouldiness ensuing.

Tomatoes are carefully boiled in water without breaking the skins, the water drained away as completely as possible and the pips and skins strained off (or they may be put direct

through an "Enterprise" press), a little salt and, if desired, cayenne and allspice may be added. The *purée* is then slowly reduced to a fairly thick jam, poured into trays, dried and rolled up. Small pieces stirred up with water may be used to flavour soups, stewed haricots or spaghetti, etc. The "massa" keeps perfectly. Should fruit be available, we propose to store black currants, raspberries, etc., by this plan, using, however, the press; as then by two or three passages there is practically no loss of the juice.

The advantage of the paste or massa is that it needs no bottles or jars for its preservation; sugar, where needed, may be added at the time of consumption or final preparation. Apple or quince paste may be made into a jam or *purée* by adding about five times its weight of water, warming slowly for twenty minutes, then just raising to the boil for a short stir.

Simple Drying.—For the simple drying of fruit none of the special outfits advertised is necessary. On a small scale a fair amount can be done with the ordinary baking oven. In a house which possesses a linen or airing cupboard containing a hot-water cylinder, fruit can be dried on a larger scale. Using mainly this method we did last year twenty pounds of dried plums, representing six or seven times their weight in the fresh state. When dried hard they keep perfectly in paper bags. Preliminary treatment in a caustic soda bath or by sulphuring is not necessary, and neither method is likely to add to the dietetic value of the fruit.

Only fruit which is of good size, perfect, and at least nearly ripe, should be used. Fruit which is not perfectly ripe may be spread out on trays made of gauze, wicker, or slats of wood, and kept on the rack over the range for a few days to complete ripening; this is in any case a good plan, as it tends to procure a full flavour. Three or four heatings in a cool oven will be needed. It is important that for the earlier heating the temperature should not be above 115° to 120° F. For the second or third not above 150° F., and for the final not above 160° F. Too high a temperature leads to rupture of the skin, escape of syrupy juice, and a general mess. In practice the oven may be allowed to cool off a little at the end of the day, and the trays left in overnight. Next morning they should be taken out and allowed to cool. During this it is well to turn the fruit; in the evening it should be put into the oven for another night. It is safer to leave the oven door ajar, and this should certainly be done during the daytime when the fire is on. To ascertain the temperature a pan of water may be put into the oven and if the hand cannot be held in it for a full minute the temperature will be 140° F. or more. It is inadvisable to put in fresh fruit with partly dried fruit. Too high a temperature leads to agglutination of the contents of the fruit through destruction of pectins, if not to rupture through swelling.

With the hot cupboard of a hot-water service there is little or no risk of overheating; treatment for a week every day or every few days, with daily withdrawal to cool, is needed to get the complete desiccation I prefer. If the operator stops when the dryness of the ordinary prune has been attained, he must remember that there will be liability to mouldiness if the prunes are stored while still moist in jars or bottles without resort to a final high temperature. With complete desiccation, followed by storage in a dry place, perfect conservation is obtained. If hot sun is available the trays may advantageously be put out; moulds will not grow at body temperature.

As to vegetables, potatoes dry very rapidly in slices, about a quarter of an inch thick; young broad beans and green beans also dry readily, and give a good product; we did not find that preliminary scalding in boiling water for five seconds, as recommended, is an advantage.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Wounded.

Surgeon Probationer H. G. FitzMaurice, R.N.V.R.

ARMY.

Died of Wounds.

LIEUT.-COLONEL H. MOORE, R.A.M.C.

Lieut.-Colonel Henry Moore, R.A.M.C., who was returned on June 5th as wounded, was reported to have died of wounds, in the casualty list published on June 14th. He was educated in the medical school of the Royal College of Surgeons in Ireland, and took the diplomas of L.R.C.P. and S.Irel. in 1892. After serving as medical officer in Basutoland, and as a civil surgeon in the South African Field Force in 1900-1902, he went into practice in Dublin, where he was demonstrator of anatomy to the Royal College of Surgeons in Ireland, surgeon to the Royal City of Dublin Hospital, and surgeon to the Westmorland Lock Hospital. He had also been surgeon to Mercer's Hospital, Dublin. He took a temporary commission as

* In the Lot, the centre of the French dried fruit industry, fruit is dried on wicker hurdles in the sun. The "Imperial" plums in glass jars are finally put through an autoclave.

lieutenant in the R.A.M.C. on August 11th, 1914, was promoted to captain on completion of a year's service, and recently to temporary lieutenant-colonel. He received the Military Cross on June 3rd, 1917.

CAPTAIN K. ATKIN, R.A.M.C.

Captain Keyser Atkin, R.A.M.C., died of wounds at a dressing station on June 6th, aged 25. He was the only son of Mr. P. W. Atkin, stipendiary magistrate of Salford, and was educated at Cambridge, where he gained his rowing blue in 1913 and graduated B.A., and at Manchester University. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1916, and after acting as house-surgeon at the Manchester Royal Infirmary, and as house-physician at St. Mary's Hospital for Women and Children, Manchester, took a temporary commission as lieutenant in the R.A.M.C. He was promoted to captain after a year's service, and was taken prisoner last year, but exchanged a few months ago.

CAPTAIN W. F. McISAAC, C.A.M.C.

Captain W. F. McIsaac, Canadian Army Medical Corps, was reported as having died of wounds, in the casualty list published on June 13th. He was previously returned on June 3rd as wounded in the attack on the Canadian hospitals at Etaples towards the end of May.

LIEUTENANT J. W. SENTER, R.A.M.C.

Lieutenant John Watt Senter, R.A.M.C., died of wounds on June 9th. He first qualified as a chemist, and while carrying on that business went through the medical course at Edinburgh University, where he graduated M.B. and Ch.B. in 1910, and B.Sc. in Public Health in 1912. After acting as house-surgeon in the eye department, and in the ear, nose, and throat department, at Edinburgh Royal Infirmary, he went into practice in Mayfield Road, Edinburgh. He took a temporary commission in the R.A.M.C. in June, 1917. He had previously served in the South African war.

Wounded.

Lieut.-Colonel G. J. Ormsby, D.S.O., R.A.M.C.
Major F. L. Bignell, Australian A.M.C.
Major G. S. Mothersill, D.S.O., Canadian A.M.C.
Captain J. N. L. Blamey, R.A.M.C. (temporary).
Captain D. A. Davis, Australian A.M.C.
Captain W. B. Gordon, R.A.M.C. (temporary).
Captain F. Hall, R.A.M.C. (temporary).
Captain S. A. Henry, R.A.M.C. (temporary).
Captain T. H. Houston, R.A.M.C. (temporary).
Captain A. H. Huycke, R.A.M.C. (temporary).
Captain J. E. W. Macfall, R.A.M.C. (T.F.).
Captain L. L. Sawow, M.C., R.A.M.C. (temporary).
Captain W. N. Soden, M.C., R.A.M.C. (temporary).
Captain H. M. Stephenson, M.C., R.A.M.C. (temporary).
Captain H. P. Thompson, R.A.M.C. (temporary).
Captain T. R. Trounce, R.A.M.C. (temporary).
Captain W. Wilson, R.A.M.C.
Lieutenant F. Coates, R.A.M.C. (temporary).
Lieutenant and Quartermaster L. E. Hine, R.A.M.C.

Missing.

Lieut.-Colonel W. B. Kelly, D.S.O., R.A.M.C.
Major F. G. Lescher, M.C., R.A.M.C. (S.R.).
Captain T. Blackwood, R.A.M.C. (temporary).
Captain R. M. Coalbank, R.A.M.C. (temporary).
Captain C. R. Crowther, R.A.M.C. (T.F.).
Captain W. F. Dunlop, R.A.M.C. (temporary).
Captain M. S. Esler, R.A.M.C. (temporary).
Captain D. Gillespie, R.A.M.C. (temporary).
Captain W. G. Harnett, R.A.M.C. (temporary).
Captain G. F. F. Heathcote, M.C., R.A.M.C. (temporary).
Captain N. A. A. Hughes, R.A.M.C. (temporary).
Captain C. C. Jones, R.A.M.C.
Captain H. F. McCoughy, R.A.M.C. (temporary).
Captain W. T. P. Meade-King, R.A.M.C. (T.F.).
Captain H. S. Moore, R.A.M.C. (temporary).
Captain R. W. Pearson, M.C., R.A.M.C. (temporary).
Captain A. B. Simpson, R.A.M.C. (temporary).
Captain D. M. Smith, R.A.M.C. (temporary).
Captain C. Wits, R.A.M.C. (temporary).
Lieutenant A. Boyle, R.A.M.C. (temporary).
Lieutenant A. S. Findlay, R.A.M.C. (temporary).
Lieutenant J. Findlay, R.A.M.C. (temporary).
Lieutenant J. W. Jones, R.A.M.C. (temporary).
Lieutenant F. W. M. Lamb, R.A.M.C. (temporary).

Lieutenant A. M. McCormick, R.A.M.C. (temporary).
Lieutenant F. B. O'Dowd, R.A.M.C. (temporary).

Prisoners of War.

Major J. S. McConnachie, R.A.M.C. (T.F.).
Captain M. T. Ascough, R.A.M.C. (T.F.).
Captain W. M. Christie, R.A.M.C. (temporary).
Captain S. S. Meighan, R.A.M.C. (T.F.).

DEATHS OF SONS OF MEDICAL MEN.

Beresford, Spencer Charles, Second Lieutenant 1st Royal Berkshire Regiment, eldest son of Dr. C. W. Beresford of Markyate House, Narborough, near Leicester, killed in action in France, June 5th, 1918.

Thomas, Francis Gerald, Captain in the merchant service, fifth son of William Thomas, M.B.Lond., F.R.C.S., of Birmingham, torpedoed at sea, June 8th, 1918.

Thomas, Geoffrey Lynn, M.C., Captain R.F.A., elder son of Dr. Iwan Thomas of Maesffrw, Hirwain, killed recently, aged 24. He got his first commission on November 16th, 1914.

Thorne, T. Bezley Houghton, Lieut.-Colonel North Staffordshire Regiment, son of the late Dr. Bezley Thorne, killed March 21st. He served through the South African war, was mentioned in dispatches, and received both King's and Queen's medals, with five clasps. He became lieutenant in the Reserve of Officers on March 29th, 1901. On October 14th, 1914, he was appointed major in a service battalion of the Duke of Cambridge's Own Middlesex Regiment, and went to France in that capacity early in 1915, and in 1916 was appointed to command a battalion of the North Staffords.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

MENTIONED IN DISPATCHES.

The following are among the names mentioned by General Sir E. H. H. Allenby, Commander-in-Chief, Egyptian Expeditionary Force, in a dispatch dated April 3rd, as deserving of special mention for distinguished and gallant services and devotion to duty:

Royal Navy.

Temporary Surgeon A. H. Richardson.

Staff.

Colonel G. T. K. Maurice, C.M.G., A.M.S.
Brevet Colonel W. W. White, I.M.S.
Lieut.-Colonel (temporary Colonel) E. P. Sewell, D.S.O., R.A.M.O.
Lieut.-Colonel A. L. Dawson, A.A.M.C.
Major C. E. Hercus, N.Z.M.C.
Captain F. W. C. Brown, R.A.M.C.

Army Medical Service and Royal Army Medical Corps.

Colonel D. O'Sullivan.
Lieut.-Colonel W. P. Gwynn.
Temporary Lieut.-Colonel J. W. Barrett, C.B., C.M.G.
Major (acting Lieut.-Colonel) W. F. Ellis.
Captains (acting Lieut.-Colonels): H. W. Carson, G. F. Rudkio, D.S.O.
Captain (acting Major) W. W. Treves.
Captain W. H. Sheffield.
Temporary Captain (acting Lieut.-Colonel) A. T. Mulhall.
Temporary Captains: L. Leslie, the Hon. L. H. Liodley, T. F. Lumb, P. W. Moore, E. B. Smith, J. G. Willmore.
Lieutenant (temporary Captain) E. Catford.
Temporary Lieutenant H. G. Sparrow.
Quartermaster and honorary Captain T. E. Coggon.

Indian Medical Service.

Lieut.-Colonel R. W. Knox, D.S.O.
Majors S. W. Jones, M. F. White.

Royal Army Medical Corps (T.F.).

Lieut.-Colonels: T. H. Forrest, D.S.O., A. G. Hamilton, H. W. Thomson.
Major (acting Lieut.-Colonel) J. W. Leitch.
Captain (temporary Lieut.-Colonel) J. Young.
Captains (temporary Majors): T. G. Buchanan, H. J. Dunbar.
Captain (acting Lieut.-Colonel) T. B. Layton.
Captains: C. H. Allen, C. S. P. Black, M.C., C. H. Budd, M.C., W. K. Churchouse, H. N. McCoombs, M.C., W. F. Corfield, A. D. Downes, W. T. Henderson, E. A. Mackenzie, G. R. Rickett, A. B. P. Smith, J. B. Stanley, O. Teichmann, M.C., F. Ward, G. H. H. Waylen, G. A. Williamson, K. B. Williamson.
Temporary Captain C. W. Jenner.

Australian Army Medical Corps.

Lieut.-Colonel R. Fowler.
Major (temporary Lieut.-Colonel) G. E. M. Stuart.
Major C. V. Single.
Captain E. T. Pascoe.
Honorary Lieutenant G. G. Grant.

Italian Medical Corps.

Capitano V. Bianchi.

The list also contains a number of names of warrant officers, N.C.O.'s, and privates of the R.A.M.C., R.A.M.C. (T.F.), A.A.M.C., N.Z.M.C., and of the I.S.M.D., as well as some members of the British Red Cross and Voluntary Aid Detachment.

ORDER OF THE BRITISH EMPIRE.

The names of Colonel Francis John Walker, V.D., County Director, Auxiliary Hospitals and V.A.D.'s, North Lincolnshire, and Major Robert Henry Hogg, officer in charge of New Zealand Officers' Hospital, Brockenhurst, should have been included in the list of those appointed as Officers of the Order of the British Empire published last week, p. 680.

Correspondence.

AGGLUTINATION IN THE DIAGNOSIS OF DYSENTERY.

SIR,—In the interesting and important article which appeared under the above title in your number of June 8th Lieut.-Colonel C. J. Martin and his fellow-workers make the following reference to Dreyer's system of standardization of agglutinable cultures:

The results are expressed in terms of Dreyer's standard agglutinin units by taking into account the factor on the bottle representing the relative agglutinability of the particular sample according to its behaviour with some arbitrarily selected serum. (My italics.)

It is to be feared that this statement will give the reader an erroneous idea of Professor Dreyer's system, for it is not the behaviour of the culture with any sample of serum that determines its numerical factor of agglutinability, but its behaviour (using any serum) as compared with an arbitrarily selected formalized broth culture, which is taken as a standard, or with another culture that has been standardized against the original one. This fact is of prime importance because formalized cultures possess a very much higher degree of stability than any serum, and it is just this that makes it possible to use them as standards.

To quote the "Directions for the Preparation and Standardization of Agglutinable Cultures," issued to all who use these materials:

The process of standardization (of a culture) consists . . . in measuring its agglutinability as compared with the standard agglutinable culture by the use of the standard serum. (My italics.)

I have thought it all the more necessary to draw attention to this misunderstanding because of the large audience which Colonel Martin's article is sure to have and because of the authoritative value attached to any statement made under his name.—I am, etc.,

A. D. GARDNER, M.D., F.R.C.S.,
Bacteriologist in Charge of the Standards
Laboratory.

University of Oxford,
June 18th.

THE NERVOUS TEMPERAMENT IN WAR.

SIR,—Your editorial under the above heading on June 8th (p. 649) is at the present time of great practical interest.

It would appear that Professor Dupré claims to describe a definite clinical entity under the term "*constitution emotive*," and that I do not dispute, but I fail to see that he describes any new condition not already familiar to some of us long before the war, and so thoroughly described by several British writers under the names "*neurasthenia minor*," "*neurasthenoid*," "*pre-neurasthenic*," etc. Personally, I think that the term "*congenital neurasthenia*" is preferable, because of the strong hereditary element in the production of this lifelong condition, which is allied to true neurasthenia and into which it may easily develop, by any strong emotional shock, or after the age of about 40, when the fading activities of the kidneys, etc., leads to auto-intoxications.

Although, as pointed out, an exaggerated response to stimuli is normal in infancy and perhaps childhood, yet in the neurasthenoid child or congenital neurasthenic the sensitiveness is still further exaggerated.

The signs and symptoms whereby Dupré characterizes his "*constitution emotive*" are largely covered by those of neurasthenia minor, the manifestations of which, both on the physical and mental side, are too numerous to refer to here, but are so admirably described by such writers as Clive Riviere and Campbell Smith, etc.

The point of practical interest at the present day about the congenital neurasthenic is that his or her outlook on life is markedly different from that of normal sane people. Just as there is a lack of inhibition on the physical side, so there is on the mental side, as exhibited by impulsiveness, low psychopathic point, exaggerated ideas, and a host of other psychasthenic conditions. Their phobias, which take many different forms, may make life a terror for them.

The war no doubt has brought these individuals into prominence, but, like the poor, they are always with us, though somewhat sparsely scattered. During a period of

examining recruits at the early part of the war I came across a few of these cases, one of whom I specially remember nearly collapsed from fright; he had been made to offer to enrol by his employer. If one judges recruits simply by their physical make-up these cases may easily be overlooked, and that would be a gross blunder, as this condition quite unfits them for soldiers. The tell-tale rapid heart should, however, always put us on the *qui vive* for other symptoms which point more conclusively to this condition of congenital neurasthenia. Mentally, morally, and physically, these cases do not make good soldiers, and instead of being subsequently discharged after costing the nation say £100, they should be rejected at the beginning. They are, I suspect, the material out of which are made some, if not most, of our conscientious objectors, to say nothing of certain anticonscriptionists and bomb dodgers, so that their loss to the army would be practically nil.—I am, etc.,

June 10th.

LATE CIVIL SURGEON.

A COMMON RESPIRATORY DISABILITY.

SIR,—What is to be done to lessen the future incidence of the very common sufferer from the effects of nasal obstruction?

During these very trying times there are referred to the tuberculosis officer large numbers of men called up for military service or discharged, who, while able to do hard work, are quite unfit for training. Retraction and emphysema, with resulting enlarged right heart, do not prevent such a man working as a blacksmith or even as a coal-miner, but a short spell of service makes them problems for the Local Pensions Committee.

The patient usually says that asthma is in the family, and it is certain that heredity is the chief factor in producing the disability.—I am, etc.,

Newport (Mon) June 2nd.

J. LEWIS THOMAS.

PAY OF TERRITORIAL OFFICERS.

SIR,—Notice that, in answer to Commander Bellairs, Mr. Forster stated in the House of Commons that Territorial officers of the R.A.M.C. got the same emoluments as regular officers. This is incorrect. A regular captain R.A.M.C. receives 15s. 6d. a day on promotion, after seven years' service 17s., and after ten years 21s. A Territorial officer of the same service still receives the minimum rate of 15s. 6d. This, of course, is due to the refusal of the War Office to recognize pre-war service as qualifying for the extra pay. As is well known, scores of Territorial medical officers had on mobilization to relinquish good practices and comfortable incomes, and who at the present time are, after several years of pre-war service, receiving the minimum pay of a captain R.A.M.C.—I am, etc.,

June 11th.

MAJOR R.A.M.C.(T.F.).

Obituary.

LOUIS ALBERT DUNN, M.S.LOND., F.R.C.S.,
Senior Surgeon to Guy's Hospital.

MR. L. A. DUNN died in the private ward of Guy's Hospital in the early morning of June 8th, after a long and trying illness. He was the youngest son of the late J. Roberts Dunn, J.P., D.L., of Stone House, Warbleton, Sussex, and was born in 1858. At Guy's Hospital he gained the Ormerod Scholarship, and obtained the diplomas M.R.C.S. and L.S.A. in 1882. In the following year he graduated M.B. and B.S.Lond. with honours; in 1884 he became F.R.C.S., and in 1888 took the M.S. degree, winning the gold medal. Mr. Dunn's whole career was bound up with Guy's Hospital and its medical school, in which he held successively the posts of demonstrator of anatomy, surgical registrar, warden of the College, assistant surgeon, joint lecturer on surgery, and surgeon. He was also consulting surgeon to the East London Hospital for Children, and to St. Mary's Children's Hospital, Plaistow. He served for ten years as a member of the Court of Examiners of the Royal College of Surgeons, and was elected to the Council in 1913.

We are indebted to Mr. F. J. STEWARD for the following appreciation:

The news of the death of L. A. Dunn will bring a sense of real personal loss to a very large number of Guy's men.

For "John" Dunn, as he was always called at Guy's, was, from the day he became demonstrator of anatomy until his last illness, above all the students' friend, and many are those who realize that but for his kindly and persevering teaching they would in all probability never have qualified. After a brilliant student career John Dunn became demonstrator of anatomy in 1885, and held this post until he was appointed assistant surgeon in 1894. In the dissecting room he acquired a quite extraordinary influence over the boys, as he called them, for, besides being an unusually clear and helpful teacher, he had a great charm of manner, and took a real personal interest in each of his pupils, thus gaining the friendship and getting the best out of each one. At the same time he was a strict disciplinarian, for, kindly and familiar as he was, he had complete control, and never permitted laziness or slackness in attendance. And so again in the wards and out-patient department his clear, patient, and helpful clinical teaching was an immense boon to generations of students, each of whom he knew and understood and remembered in a quite remarkable degree. In fact, it seemed to those who knew him best that his greatest interest in life was his teaching and his personal relationship with the students. That all he did for them was properly appreciated by the men is not in doubt, for it would be hard to imagine a teacher more popular and universally more loved and esteemed. He was a very accurate clinical observer and was also possessed of a great clinical memory; often has he thrown some fresh light on a difficult case seen with the writer or others of his colleagues. As an operator, whilst he would not be described as either brilliant or showy, his work was always neat, decided, and accurate. Charming and friendly to all with whom he came in contact, he was also retiring and self-contained almost to exasperation, so that even his oldest and best friends saw really but little of him.

SAMUEL POZZI,

Professor of Clinical Gynaecology, Paris.

PROFESSOR POZZI, whose name is well known wherever surgery is practised, was murdered in his consulting room on June 13th. His murderer, who immediately afterwards committed suicide, was a man upon whom Professor Pozzi had operated about two years ago, and his grievance was that his surgeon would not operate upon him again. Professor Pozzi was wounded in the abdomen by four revolver shots. On his own instructions he was removed to the Astoria Hospital, where laparotomy was performed, twelve perforations of the intestine and a wound in the kidney being found. He survived only a few hours.

Samuel Pozzi was born at Bergerac (Dordogne) on October 3rd, 1846. He had a brilliant career as a student, becoming interne of the Paris hospitals in 1868 and winning the gold medal of the faculty in 1872. In 1873 he graduated with a thesis on fistulae of the upper pelvic space, for which he was awarded a bronze medal, and in 1875 he became *agrégé* with a thesis on the value of hysterotomy in the treatment of uterine fibroma. He was already well known by his work in comparative anatomy when he was elected surgeon to the hospitals in 1877. In 1878 he was appointed surgeon to the public lunatic asylums of the Seine Department, and in 1885 he was attached to the Lourcine hospital. From that time he gave his attention mainly to diseases of women, and was one of the pioneers of operative gynaecology in France. He was the author of a treatise on clinical and operative gynaecology which has gone through several editions. For this work, which has been translated into English, German, Italian, and Spanish, he was awarded a prize by the Institute of France. Among his many contributions to medical literature are an important article in the *Dictionnaire Encyclopédique des sciences médicales* and a translation, made in conjunction with Dr. Benoit, of Charles Darwin's book on the expression of emotions in men and animals. Pozzi was one of the founders of the French Congress of Surgery, of which he was general secretary till 1885. He was brilliant as a teacher not only in gynaecology but in anatomy and operative surgery. He was a favourite pupil of Broca, and in 1888 held the office of president of the Society of Anthropology. At the time of his death Professor Pozzi was professor of clinical gynaecology and surgeon to the

Broca Hospital, and director of the surgical division of the military hospital at the Panthéon. He was a member of the Académie de Médecine, was elected vice-president this year, and would have been president next year. He was senator for his native department for nine years.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

C. R. A. THACKER, M.B., B.C., has been elected to a Fellowship at Sidney Sussex College. The following medical degrees have been conferred:

M.D.: W. A. Stokes, W. J. Fison. M.O.: H. J. Gauvain. M.B.: K. B. Alkman.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on June 13th, when Sir George Makins, G.C.M.G., President, was in the chair.

The late Mr. L. A. Dunn.—A vote of condolence was passed on the recent death of Mr. Dunn, a member of the Council and past member of the Court of Examiners. The vacancy in the Council occasioned by the death of Mr. Dunn will be filled up at the annual meeting of Fellows in July, 1919.

Grant of Diplomas.—Diplomas of Fellowship were issued to two candidates (Messrs. Ernest F. Murray and David P. D. Wilkie) found qualified at the recent examination. A third candidate (Mr. Arthur Morford) was found qualified, but being under the age of 25, the grant of the diploma was deferred. The Licence in Dental Surgery was granted to eleven candidates found qualified at the recent examination.

Donations.—The thanks of the Council were given to Mr. I. Foster Palmer, M.R.C.S., for a donation of books and engravings.

The Primary Examination for the Fellowship.—A Committee was appointed to consider the desirability of altering or amending the subjects and character of the primary examination for the Fellowship.

Military Orthopaedics.—A letter was read from a provincial hospital calling attention to the manner in which the hospitals and medical schools are being affected by the steps taken by the Ministry of Pensions, in conjunction with the War Office, to eliminate cases of military injuries on a very wide definition of "orthopaedics" from treatment in certain civil hospitals. The matter was referred to a committee.

Proposed Formation of a Ministry of Health.—A committee was appointed to consider the steps which are being taken to form a Ministry of Health, the committee to co-operate with a similar committee appointed by the Royal College of Physicians.

Medical News.

IT is announced from Amsterdam (June 16th) that an epidemic presenting symptoms similar to that which prevailed recently in Spain, and believed to be influenza, has broken out in Berlin.

PROFESSOR DENTI of Milan has taken the initiative in collecting funds for the establishment of a workshop for men blinded in the war. The subscriptions already amount to £14,360.

WE are informed that the Scottish Women's Hospital evacuated, as mentioned last week, was the advanced hospital at Villers Cotterets. The work of the main hospital at Royanmont, near Chantilly, described by Miss Ivens in our columns on August 18th, 1917, has not been interrupted.

DR. VERNON DAVIES, M.B.E., has been appointed a Knight of Grace of the Order of St. John of Jerusalem in England.

ON the occasion of the twenty-first anniversary of St. Paul's Hospital for Skin and Genito-Urinary Diseases, Dr. Felix Vinrace and Dr. Alfred Allport were entertained to dinner at the Holborn Restaurant on June 14th.

THE proceedings of the Conference on the administration of the Mental Deficiency Act, held in London last February, have been printed in a pamphlet, copies of which can be obtained from the honorary secretary of the Central Association for the Care of the Mentally Defective, Queen Anne's Chambers, Tothill Street, Westminster, S.W.1.

CIVILIAN practitioners desiring to attend the course of instruction on war neuroses and shell shock at the Maudsley Neurological Clearing Hospital (Denmark Hill, S.E.5), for which no fees are charged, are, by desire of the Director-General, A.M.S., requested to bring a letter of introduction from a hospital physician or surgeon. The course begins on Tuesday next at 3 p.m., and will be continued on Tuesdays and Fridays for six weeks.

JUST as the Director-General of the British Army Medical Service has no seat on the Army Council, so the Surgeon-General of the United States Army is not a member of the American General Staff. We learn from the *Journal of the American Medical Association* that a bill has recently been introduced into the House of Representatives proposing that hereafter the Surgeon-General shall be a member of the General Staff Corps.

THE British Thomson-Houston Co., Ltd. (77, Upper Thames Street, London, E.C.4) has completed a scheme for repairing Coolidge x-ray tubes which have been damaged or broken.

THE Swiney prize, founded to encourage work on jurisprudence, by Dr. Swiney, who died in 1844, is awarded alternately by the Royal Society of Arts and the Royal College of Physicians for medical and for general jurisprudence. On the last occasion (1914) the prize, which consists of a cup value £100 and money to the same amount, was given for a work on general jurisprudence. The next award, which will be made in January, 1919, will be for a work on medical jurisprudence.

THE annual general meeting of the Asylum Workers' Association, founded in 1895 to promote the betterment of the condition of all classes of persons engaged in the care of those afflicted in mind, was held at the Mansion House, under the presidency of the Lord Mayor, on May 29th. The adoption of the report, which showed an increase of membership and of funds during 1917, was moved by Sir John Jardine, Bt., M.P., President of the Association, who referred to the desirability of further legislation to secure for asylum workers the full benefits which the Asylums Officers' Superannuation Act, obtained by the efforts of the association in 1909, in part conceded to them. The Dean of Windsor, who seconded, laid stress on the need of ample recreation for those engaged in nursing the sick, whether in body or mind, in order to maintain the freshness of spirit so essential in their dealings with patients. Dr. Mercier drew from his reminiscences, some of which were of a very piquant character, to emphasize the call on the long suffering, good nature, self-sacrifice, and devotion to duty of those engaged in nursing mad folk, and to show how much they merited the sympathy of the community at large, especially at this time, when war exigencies had depleted the personnel of asylums. It was, he said, much to the credit of these workers that in a period of such stress the Board of Control had been able to report an unprecedentedly low number of suicides occurring amongst asylum patients. Amongst other speakers were Sir Frederick Needham, Sir George H. Savage, Lieut.-Colonel D. Thomson, Captain Kirkland Whittaker, R.A.M.C., and Major the Rev. S. Lipson, S.C.F.

others. Reference should be made to Nettleship's paper (*Trans. Ophthalmological Society, U.K.*, vol. xxvii, p. 269), wherein will be found the pedigree of a French family affected with hereditary night blindness in which the defect is known to have occurred in ten generations living through a period of three hundred years; also reference may be made to Nettleship's Bowman Lecture (in the same *Transactions*, vol. xxix, pp. cii and ciii), in which will be found reference to cases of hereditary retinitis pigmentosa and lamellar cataract.

LETTERS, NOTES, ETC.

WAS DR. FARQUHARSON ENTITLED TO THE EAGLE'S FEATHER?

DR. CLIPPINGDALE (London, W.) writes: Many Scottish readers of the *BRITISH MEDICAL JOURNAL* will remember that the head of the clan Farquharson is entitled to wear upon his bonnet an eagle's feather. The Farquharsons of Finzean, of which Dr. Robert Farquharson was the head, contested the chieftainship of the clan with the Farquharsons of Invercauld, of which Mr. James Ross Farquharson is the head. Both septes are descended from Mor Farquharson, bearer of the royal standard at the battle of Pinkie in 1547, and both bear the Scottish standard as part of their armorial ensigns. The Farquharsons of Invercauld are, or were, descended from an elder son of Mor Farquharson, the Farquharsons of Finzean from a younger son. In 1806, however, the Farquharsons of Invercauld came to an end by the death of James Farquharson, who left no son, but a daughter who married Captain James Ross, R.N., who assumed the name and arms of Farquharson. It is to be presumed that the chieftainship of this ancient clan fell upon the late Dr. Farquharson, and with it whatever glory attached to the wearing of the eagle's feather. Those who had the pleasure of attending the ball given in Mareschal College during the meeting of the Association in 1914, will remember the striking impression created by the late Dr. Farquharson, who came with kilt, dirk, sporran, and all the other accoutrements of a Highland chief.

TUBERCULIN TREATMENT OF PULMONARY TUBERCULOSIS.

DR. MARJORIE HARCOURT (London) writes: For many years, in Australia and America, I used the "tuberculinum purum" of Russian manufacture with all the success from its use that I could have desired. The cases were chiefly of the afebrile type, and in the early stages of the disease those of the febrile type being less amenable to this form of treatment. In every case, without exception, the old method of forced feeding was also adopted, together with any general systemic treatment which was indicated. The tuberculin was used in graduated doses, very slowly increased week by week, and occasionally a week or more was allowed to elapse after the next injection was due. In no case was a patient allowed out of bed for the first twenty-four hours after every injection, often for forty-eight hours or more—until, indeed, there was not any indication of the slightest rise in temperature, and twenty-four hours thereafter. This treatment did not hinder the patients taking graduated exercises as soon as they were out of bed each week, such exercises consisting chiefly in gardening, wood-chopping, house repairing, etc.—anything suitable in individual cases which was also useful. Some of my poorer patients were treated along these lines in their own homes, they or their relations reporting once or twice a week after the first day after injection every week, with such happy results that I can ask for nothing better than to have as many tuberculous cases as I can manage myself personally. No disease has been so amenable to treatment in my hands as pulmonary tuberculosis in the manner I evolved for myself from the teachings of Sir Robert Philip of Edinburgh, whose pupil I was a dozen years ago.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

AN OLD MEMBER writes: I should like to support the protest of "Dissatisfied" as to the sudden stoppage of the bonus to those going out of benefit. Old members like myself have for years put up with the loss of the quinquennial bonus, looking for the proffered bonus at the end of our time. We feel we are hardly treated by this sudden change from what we were led to expect. I agree with the proposal that a special meeting should be held.

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Letters, Notes, and Answers.

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1. EDITOR of the *BRITISH MEDICAL JOURNAL*, *Ailology*, Westrand, London; telephone, 2631, Gerrard.

2. FINANCIAL SECRETARY and BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

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QUERIES AND ANSWERS.

RETINITIS PIGMENTOSA.

ENQUIRER.—The primary cause of retinitis pigmentosa is not known. To judge by the similarity of effects in other conditions it would appear that the primary defect lies in the blood supply to the retina. Experience shows that there is a progressive diminution of the field of vision, and ultimately of the visual acuity, in all these cases; but the rate of progress of the disease varies widely—very many retain good vision until late in life. Two or more cases may occur in the same family, and are frequently associated with other defects of the body, and particularly of hearing, but not all are hereditary or even familial. Cases which may be considered to be of a congenital and developmental type, in which the condition is atypical (in the common absence of observable retinal changes, or of changes of any extent) and remains stationary, have been minutely described and recorded by Nettleship and

GUNSHOT WOUNDS OF THE KNEE-JOINT:

THE CONSERVATIVE OPERATION AT THE CASUALTY CLEARING STATION.

BY

MAJOR RICHARD CHARLES, R.A.M.C.(T.C.).

WHEN Colonel Gray published his first article on the conservative treatment of gunshot wounds of the knee-joint as carried out by him at the base,¹ it was decided to adapt his principles to treatment at the casualty clearing station. It soon became apparent that this procedure was justified, and as time went on and technique improved conservatism became more and more the routine practice. It is now matter for regret that any case requiring operative treatment is ever transferred to the base before operation; results are so much better when operation can be performed within twenty-four hours of the patient being wounded.

It is not proposed to repeat in this article what has already been written on the classification of cases according to the respective indications for amputation, resection of the knee-joint, conservative operation, or expectant treatment, but to confine it to a description of the technique of the conservative operations.

X RAYS.

Operations should never be attempted without the evidence of radiography when this is available. Accurate knowledge of the position of the foreign body and the extent of bone injury is invaluable in determining the procedure to be adopted in any case. The most useful examination is one yielding a stereoscopic radiograph combined with the cutaneous marking of the position and depth of any foreign body present. Such an examination can usually be carried out with the patient in the dorsal decubitus throughout.

OPERATION.

1. Bloodless Field.

Our primary object is the scrupulous excision of infected material from the joint and its surroundings without spreading sepsis in so doing. To obtain this object I consider it absolutely necessary to secure a bloodless field throughout the operation. The first step, therefore, is to apply an Esmarch's bandage from the foot upwards to a point above the knee-joint where the tourniquet is fixed.

2. Sterilization of Skin.

The skin all round the knee is thoroughly washed, shaved, cleansed with spirit, and painted with a solution of picric acid (5 per cent.) in spirit. The wound or wounds must then be gently packed with gauze to prevent leakage of infected fluid on to the skin.

3. Excision of the Track and Wound.

The whole success of the case depends upon attention to every detail which can contribute to the removal of soiled tissue without carrying infection into fresh tissue. In nearly all cases it is possible to remove the entire track of the missile intact down to the joint cavity without permitting the knife or other instrument to touch the track or the infected surface of the wound. Should such an accident occur, the soiled instrument or glove is immediately discarded. As the field of operation is bloodless every cut of the knife can be followed by the eye, and one is not hampered by the presence of artery forceps or swabs, which, moreover, so often contribute to the spreading of infection. The incision employed for excising the wound varies according to the size and position of the wound, and should always be made with a view to extending it so as to give free access to the joint. Having isolated the wound by an elliptical skin incision, the skin surrounding the ellipse is freely undermined all round; its edges are then protected by oiled silk and retracted. In excising the track the deep tissues are not usually removed

to an extent corresponding to the area of the skin incision. The next step, therefore, is to undermine this elliptical area of skin and get close up to the track. So far as the outer portion is concerned the track and wound are now ready for excision, but it is first necessary to carry the incision on one side down through all layers into the joint cavity to permit a view of the deep end of the track. With these landmarks established the tissues enclosing the whole length of the track are excised in one piece. This stage calls for a most patient dissection under severely aseptic conditions, and, being carried out with both ends of the track in view, it entails a minimum loss of valuable fibrous structure.

4. Investigation of Joint.

All used instruments and gloves are exchanged for clean ones. The original opening is then enlarged and the state of the joint investigated. Most of the conditions encountered are dealt with below.

5. Removal of Foreign Body and other Infective Matter.

The missile may be found loose in the joint cavity. In this case it is removed, and, if no injury is present within the joint, the cavity is

thoroughly irrigated, and the joint closed in layers with a view to healing by first intention.

If the missile is found impacted in the bone, and access can be got to it by enlarging the incision, this is done even if it entails division of the tendo patellae. Free access to the joint is essential, and I frequently sever the tendon for this purpose. The site of the foreign body is then isolated from the rest of the joint by gauze wrung out of saline, and the foreign body, together with the portion of bone surrounding it, is cut clean out in one piece. A sharp osteotome and hammer are used for this purpose, and it is important to go deep enough to ensure that no surface of bone is left that has been in contact with the foreign body. The joint is then irrigated and closed.

When the missile is situated on the side opposite to the wound, and if there is no injury to the intervening tissues, the original opening is closed and a fresh incision made directly over the missile.

Injuries to the Bone.—Grooved injuries are always treated as foreign bodies and excised *en masse*. Small comminuted fractures and chipping of the bone are dealt with in the same careful and thorough manner, the fractured surface being chiselled away along with the adherent fragments.

With regard to the excision of bone, as above described, though applicable to the greater part of the joint surface, there are cases in which it is difficult to apply it to the neighbourhood of the mid-line of either bone in the centre of the joint. Severe lesions in this region often penetrate further into the bone than examination reveals or the surgeon can excise, and in these cases one may feel compelled to resect the joint. However, even in such cases, by reflecting the patella and employing Carrel-Dakin treatment from the start, one can often save the joint. When the bone lesion is small and the conditions

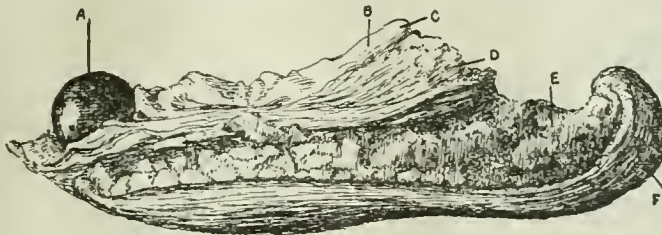


FIG. 1.—Specimen of excised wound *en masse*, operation on third day. A, Shrapnel bullet buried in synovial membrane. B, Point at which the ball entered through synovial membrane. C, Capsule. D, Subcutaneous tissue. E, Synovial membrane. F, Skin.



FIG. 2.—Specimen of large foreign body with surrounding bone cut out *en masse* (Case XII). A, Cartilage found lying loose in joint. B, Tip of foreign body. C, External condyle. D, The foreign body in cancellous tissue.

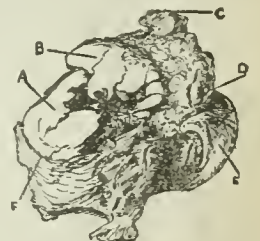


FIG. 3.—Specimen of comminuted patella, with wound and track excised *en masse* (Case IV). A, Lower portion of patella. B, Upper portion of patella. C, Quadriceps tendon. D, Fat and subcutaneous tissue. E, Skin. F, Patella end.

otherwise favourable, the infected area may be everted and the joint closed after thorough irrigation. Another type of wound presenting difficulty and necessitating a departure from the principles above detailed is comminution, or chipping of the head of the tibia on either side, associated with a wound of entrance through the joint. Excision must then be practised in stages. It is necessary to excise first the skin wound and track in the soft tissues, then reflect the patella and excise the infected ligamentous tissue—usually the meniscus; and, finally, by a vertical incision down the lateral aspect of the head of the tibia, fully expose and chisel away the damaged portion of bone. This done the wound is completely closed in favourable cases, otherwise the bone cavity is dressed with bipp and packed with gauze, the end of the gauze being brought out and the rest of the wound closed in layers (see Case xx).

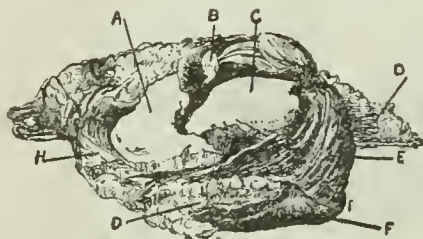


FIG. 4.—Comminuted patella, with wound and track excised *en masse* (Case vi). A, Lower portion of patella. B, Fragment of patella. C, Upper portion of patella, completely detached. D, Fat. E, Capsule. F, Skin, including wound. H, Patellar tendon.

When the patella is fractured the comminution is often so extensive as to call for complete removal along with the neighbouring infected tissue. The transverse incision employed for this operation should be made to include the external wound or wounds, so that such may be included in the excised mass. Obviously precaution must be taken to avoid cutting away any serous membrane or ligament beyond the margin of necessity; and even after exercising great care it is often found necessary to lengthen the quadriceps tendon when bringing the parts together again.

In minor fractures of the patella involving the articular surface, such as gutter wounds, or chipping or comminution limited to one side or end of the bone, the portion involved is excised *en masse* by means of a metacarpal saw. Occasionally a transverse fracture is met with and is treated in the same way, both fractured surfaces being sawn away. The fresh ends are then approximated by a purse-string suture of chromic gut round the circumference (see Case vi).

6. Irrigation of the Joint.

I invariably use normal saline, and prolong the process for several minutes so as to ensure a thorough mechanical cleansing of the joint.

7. Transplantation of Fat.

It has been proved that adipose tissue, when transplanted on to any raw surface, has the property of becoming adherent to it, with little reaction or alteration in its original size.² I have applied this practice to the knee-joint in the cleaner cases for filling up a hole in the articular surface. The infrapatellar pad of fat with the attached portion of synovial membrane is usually convenient, and I have found that such a pad inserted into the bony cavity acts also as a plug in arresting the oozing of blood.

8. Synovial Membrane.

It is now a recognized fact that when the knee-joint is given a fair chance it can deal with a mild infection, but not so the surrounding soft tissues; therefore it is important to close the joint completely and without tension. In order to do this, the lateral reflection of the synovial membrane has often to be loosened. Frequently, in dealing with a punched-out hole in the condyle, and particularly in case of doubtful asepsis, I have resorted to the following simple expedient for converting it into an extra-articular lesion: Beginning at the edge of the wound, the redundant synovial membrane is undermined from its attachments to the soft tissues and to the condyle all round the hole; it is then closed by suture, so as to exclude the bone lesion from the joint cavity. This is also done with wounds in the suprapatellar region.

Again, in rare cases, where the patella has been removed and the severely lacerated condition of the adjoining soft parts renders it absolutely necessary to close the true joint cavity, the whole of the synovial membrane from the suprapatellar pouch may be brought down and sutured to the synovialis below. A further lateral incision may be required to give access for this dissection.

9. Closure of Wound.

The wound is sutured in layers—the synovial membrane by a continuous suture of fine catgut, the capsule brought together by interrupted sutures, and the rest of the wound closed without drainage. In any case in which there is doubt as to complete absence of infected tissue, one or two Carrel's tubes are placed under the skin, in the hope of preventing sepsis. This, however, is seldom necessary.

The dressing is applied with a firm bandage and the tourniquet is then released. Finally the leg is put up in a Thomas splint.

ILLUSTRATIVE CASES.

The following series of twenty consecutive operations has been chosen because, thanks to the courtesy of medical officers at the base, I am able to give some account of the subsequent progress of all of them. In looking over the records of 50 consecutive cases (including this series of 20), I find that there were three deaths. Case xi was one of these; a second was due to septicaemia on the third day, and the third resulted from general sepsis due to multiple wounds. In only one case to my knowledge was a subsequent amputation necessary.

Many of these cases were operated on during periods of high pressure in the casualty clearing station and were transferred to the base within twenty-four hours with apparently no harmful results.

CASE I.

Pte. W., Canadian Infantry; rifle bullet wound, January 2nd, 1917, 11 p.m.

On admission there was a gutter wound across the middle of the patella with fracture; no effusion into the joint. I decided that it was a case to leave alone; the wound was cleansed and dressed, and the leg placed on a back splint.

Operation.

On January 3rd the wound was very septic, and the joint painful and tender. At 10 p.m. the patella was removed *en masse*; the joint, which contained semi-purulent fluid, was washed out with saline; the suprapatellar pouch was undermined, brought down and sutured to the synovialis below, thereby closing the true joint cavity; the quadriceps tendon was brought down and sutured, and the operation completed by closure of the capsule, and the wound without drainage. On the following day the area of the skin incision was red and inflamed; the stitches were removed and the parts treated by the Carrel-Dakin method. On January 8th there was slight superficial sepsis only, and on January 25th he was transferred to the base, the wound looking clean and healthy.

Base Report (a General Hospital).

Temperature normal since admission; wound healing rapidly; no joint infection. Transferred to England February 5th, 1917.

CASE II.

Cpl. B., Highlanders; wounded by shell fragment on January 6th, 1917, at 12.30 p.m.

On admission there was a small wound of entrance on the antero-internal aspect of the knee, with a large effusion into the joint. X rays showed two foreign bodies impacted in the inner head of the tibia. Multiple wounds of the leg were also present.

Operation.

The wound was excised and enlarged, the joint laid freely open, and the patellar tendon divided; both foreign bodies were removed, and the joint washed out with saline and completely closed without drainage. The wounds of the calf were laid open, infected and destroyed tissue was removed, and the post-tibial artery ligated; Carrel-Dakin treatment. He was transferred to the base on January 21st.

Base Report (a Canadian General Hospital).

Knee-joint looks well. Operation wound over front and internal part of knee-joint healed. Leg, large granulating wound, perfectly healthy. Transferred to England February 26th, 1917.

CASE III.

Pte. H., Cyclists Corps; wounded by shell fragment on January 8th, 1917, 9 p.m.

On admission it was seen that the missile had entered over the external condyle and traversed the suprapatellar pouch; X rays showed it lodged in the vastus internus muscle. There was a severe compound fracture of the middle third of the tibia of the same leg.

Operation.

At 10 p.m. the wound of entrance was excised and enlarged in the direction of the missile obliquely across the suprapatellar pouch and the joint laid widely open. No bony injury was found; the position of the wound of exit from the joint was noted to be at the top of the pouch; the skin incision was continued in this direction, and the wound in the synovialis along with the adjoining track and missile in the vastus internus excised *en masse*. The joint was washed out with saline, and the wound closed without drainage. The compound fracture of the tibia was treated by the Carrel-Dakin method.

On January 18th the knee-joint wound had healed by first intention; the stitches were removed, and he was transferred to the base.

Report from Base (a General Hospital).

Knee wound healed by first intention; no fluid in joint; result perfect. Leg wounds healing rapidly; a shell fragment found in subcutaneous pus pocket. Marked for England, February 5th, 1917.

CASE IV.

Pte. B.; wounded by shell fragment on February 5th, 1917.

On admission next day, through-and-through wounds on each side of the patella were found; both were dirty; x rays showed comminuted fracture of the patella.

Operation.

On February 6th a transverse elliptical incision was made and the patella removed completely, including the wounds of

from the suprapatellar pouch. The wound healed by first intention, and the stitches were removed on February 25th. When he was evacuated there was no joint infection.

No report was received from the base, but I heard from the patient that the wound was doing well.

CASE VI.

Lieut.-Col. M., Canadian Infantry; wounded February 22nd at 7 p.m. by a bomb.

On admission he presented multiple wounds of the knee-joint, and there was considerable loss of skin, with a large exposure of the antero-external surface of the joint. X rays showed a piece of metal impacted in a complete transverse fracture of the patella, also local injury to the external condyle and metal fragment higher up in the thigh.

Operation.

At 11.30 p.m. an oval incision including both wounds was made; infected tissue was excised with considerable difficulty in avoiding reinfection of the wound. The fractured patella was exposed, and by means of a metacarpal saw the upper and lower fractured surfaces were resected, leaving both ends with an even surface; the two portions were approximated by a purse-string suture. The injury to the condyle was next investigated, and a punched-out hole found communicating with the joint by a fissure through the articular surface; this injury had been produced by the foreign body seen by the x rays higher up in the thigh; the hole in the bone was



FIG. 5.—Case VI, before operation. A foreign body is impacted in the lower half of the fractured patella. The missile higher up produced a punched-out hole in the external condyle with a fissured fracture into the joint.

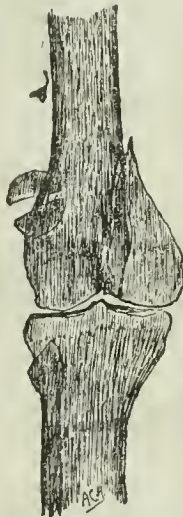


FIG. 6.—Case VI, after operation; shows also the fracture of internal condyle. This photograph, taken on the twelfth day, shows some separation of the patellar fragments.



FIG. 7.—Case VII: comminution of upper third of patella. Damaged bone excised, sawing from within outwards and well below infected tissue.



FIG. 8.—Case VIII: radiograph showing foreign body in internal condyle.

entrance and exit, *en masse*. Pieces of clothing were removed from the joint, and it was washed out with saline; the synovial membrane of the pouch was undermined, brought down, and sutured to the synovialis below; a flap of quadriceps tendon and vastus internus muscle was reflected downwards to close the gap completely, and finally the skin sutured without drainage.

On February 11th there was slight superficial skin sepsis; a few stitches were removed, and Carrel tubes placed underneath the skin. When transferred to the base on February 25th there was no joint infection.

Base Report (a Canadian General Hospital).

March 5th, 1917. Some pus from the wound in front of the joint. Carrel's tubes placed *in situ*. March 9th, 1917. Lateral incision inner side of joint; large cavity communicating with the wound in front; salt-packed. April 5th, 1917. Joint looks well, no pain, wound nearly healed. Transferred to England.

This pus pocket was apparently deep to the quadriceps, and was no doubt due to infection during the primary operation.

CASE V.

Pte. G., Canadian Infantry; wounded by shell fragment on February 13th, 1917, at 9.30 a.m.

On admission there was a wound of entrance only, on the top of the patella; the joint was very distended. X rays showed a foreign body in the joint, with fractured patella.

Operation.

At 4.30 p.m. on the same day a transverse incision was made, and the patella and wound removed *en masse*; the foreign body was lying loose in the joint; the quadriceps tendon and the capsule sutured. The wound was closed without drainage. In this instance the synovial membrane was not brought down

chiselled out, the joint washed out with saline, the synovialis was reflected laterally, loosened, and sutured, leaving the resulting cavity in the condyle extra-articular; finally, a plastic operation on the skin was done to effect closure of the wound.

On March 12th, when he was transferred to the base, the wound was healed by primary union; no joint infection.

Report from Base (a Canadian General Hospital).

Wound healed and looking clean; patient in good condition. Transferred to England March 26th, 1917.

CASE VII.

Pte. P., Canadian Infantry; wounded on March 1st, 1917, at 4.30 a.m., by a bomb.

On admission there was a through-and-through wound, the entrance over the external condyle, the exit above the patella. X rays showed the upper portion of the patella comminuted.

Operation.

At 2 p.m. an oval incision was made, including both wounds, which were excised in one piece with a portion of the quadriceps tendon; the upper third of the patella was resected, the joint washed out with saline, and the wound closed in layers.

He was transferred to the base on March 12th, the wound being healed by first intention.

Base Report (a Canadian General Hospital).

Treatment: Dry dressing; stitches removed. March 29th. Transferred to England in good condition, "for special orthopaedic treatment."

CASE VIII.

Pte. E., Fusiliers; wounded on March 8th, 1917, by shell fragment. Both knee-joints were penetrated; on the right there

was a through-and-through wound across the anterior surface of the knee; track running deep to the patellar tendon; the joint was very distended. On the left there was a wound of entrance only; x rays showed a large piece of metal impacted in the external condyle.

Operation.

On the same day both wounds on the right were excised, including a portion of the patellar tendon, in one mass; no bone injury was noted; the joint was washed out with saline, and completely closed. In the left knee the wound was excised and enlarged; the missile was located in the cancellous tissue, and cut clean out with a portion of the surrounding bone; the cavity was smeared with bipp, filled with a fat graft, and the joint completely closed.

Both wounds healed by first intention, and he was transferred to the base on March 18th.

Base Report.

Heard from the patient that he was doing well some weeks later.

CASE IX.

Pte. M., Field Coy. R.E.; wounded March 10th, 1917, by a rifle bullet.

On admission it was found that the bullet had entered the back of the calf, passing up through the head of the tibia; it could be felt underneath the skin just above and external to the patella; joint very distended.

Operation.

Arthrotomy was performed and the bullet removed; a fissured fracture of the head of the tibia was noted; the joint was washed out with saline and closed without drainage.

Base Report (Red Cross Hospital, Perth).

March 24th, 1917. Stitches removed. Wound healed and patient up on crutches. Transferred to Canadian General Hospital, London, April 26th, 1917.

CASE X.

Pte. A., Highlanders; wounded April 2nd, 1917, by bomb.

He presented on admission a through-and-through wound, passing under the patella. Synovial fluid was escaping from the wound.

Operation.

A crescent-shaped incision, convexity downwards, including the wound of exit and entrance in either horn, was made, the patella reflected upwards, and a transverse gutter fracture just above the articular surface of the femur excised; the synovial membrane was sutured over it, the joint irrigated with saline and closed. He was transferred to the base on April 3rd.

Base Report (a Canadian General Hospital).

A slight skin infection at one end of the wound, which cleared up in a few days. Sent to England.

CASE XI.

Pte. R., Highlanders, wounded on March 13th, 1917, by shell fragment, presented on admission a severe compound fracture of the right femur, and a large flesh wound over the antero-internal aspect of the left knee-joint; extensive destruction of skin and deep tissues exposed widely the surface of the joint; both wounds were very dirty.

Operation.

On March 14th the infected and damaged tissue of the knee-joint was freely excised. Bone was not injured; the joint was irrigated with saline bipp was smeared into the joint, and rubbed into the surrounding tissue; the synovial membrane alone was sutured. The fracture of the femur was treated by the Carrel-Dakin method. He was transferred to the base on March 16th.

Base Report (a General Hospital).

March 31st, 1917. Amputation of left leg. Sequestromy of femur.

April 6th, 1917. Died from sepsis. Post-mortem examination: fatty degeneration of kidney and liver.

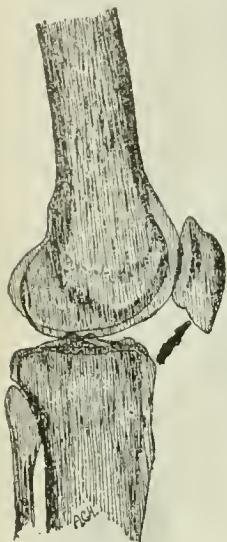


FIG. 9.—Case xv.

CASE XII.

Pte. F. D., R.F.A.; wounded on April 2nd, 1917, by shell fragment.

There was a large wound of entrance only, situated over the external condyle; the joint cavity was freely exposed. X rays showed a large piece of metal impacted in the articular surface of the external condyle of the femur.

Operation.

The wound was excised and enlarged, the patella and tendon divided; the metal, with a portion of the surrounding bone, was cut clean out *en masse*; the joint was irrigated with saline and the cavity packed with gauze soaked in bipp; the end of the gauze was brought out and the rest of the wound closed in layers. He was transferred to the base on April 3rd.

Base Report (a Canadian General Hospital).

Gauze left in knee-joint for nine days before removing it. He had an infection localized to the track where the gauze was, but no general infection of the joint. His condition is good and the result should be a useful knee-joint.

CASE XIII.

Lieutenant M., Canadian Infantry; wounded on April 20th, 1917, by a shell fragment. The wound of entrance was on the top of the patella; there was no exit wound; there was a large effusion of blood into the joint. X rays showed a foreign body lying between the fragments of the patella, which was severely comminuted.

Operation.

On April 21st a transverse incision was made, the patella removed, and the joint irrigated with saline; the quadriceps tendon was lengthened and sutured, and the capsule and wound closed; a Carrel tube was placed underneath the skin; Dakin's solution was used every two hours. He was transferred to the base on April 23rd.

Base Report (a Red Cross Hospital).

This patient has done most awfully well; Carrel tube removed. Has never had any rise in temperature. Wound healed. Transferred to England.

CASE XIV.

Cpl. F.; wounded May 6th, 1917, by a bomb.

There was a wound of entrance only, internal to the patellar tendon. X rays showed a metal fragment in the joint cavity. There were multiple wounds also of legs, arms, and face.

Operation.

A crescent-shaped incision including the wound of entrance was made, and the patellar tendon partially divided. A foreign body lying loose in the joint was removed, and a gutter fracture of the inner border of the patella resected. The joint was washed out with saline, and the wound closed in layers. He was transferred to the base on May 7th, 1917.

Base Report (a Canadian General Hospital).

Treatment to knee nil. Patient sent to England, May 30th; no sign of joint infection.

CASE XV.

Pte. S., wounded by a bomb on May 9th, 1917.

presented on admission a wound of entrance only through the patellar tendon. X rays showed a large piece of metal in the joint; there was no effusion.

Operation.

A crescent-shaped skin incision was made and the wound and track excised, including a portion of the patellar tendon; the metal, which was lodged in the infrapatellar pad of fat, was removed and the site smeared with bipp. The tendon was sutured, and the capsule and wound closed. He was transferred to the base on June 10th.

Base Report (a Canadian General Hospital).

Progressing satisfactorily.



FIG. 10.—Case xviii. Radiograph taken after operation. Shows bipp in hole in external condyle, also size of cavity.

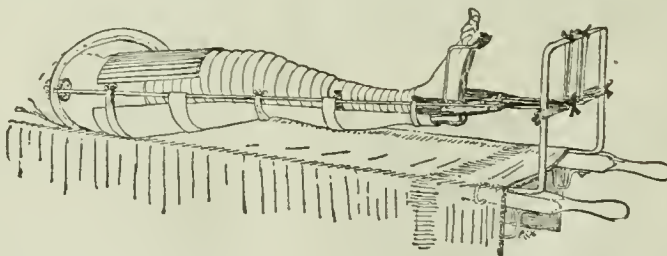


FIG. 11.—Thomas splint outfit for transport, with outer bandage removed to show method of application. Support is afforded to the limb by a ham splint, firmly padded under the popliteal space, and slung by a bandage at three points with two additional slings of adhesive plaster to prevent it shifting. Rotation of the leg is prevented by two lateral extension strips of gauze applied with glue solution and bound by a roller bandage. Only slight traction is necessary. Foot-drop is avoided by a third adhesive gauze applied from behind the heel, up the sole of the foot, and hitched to the crossbar of the foot-piece. General fixation of the limb is completed by a figure of eight bandage around the foot, which is continued upwards over all, including the anterior thigh splint.

CASE XVI.

Pte. S.; wounded by a bomb on May 13th, 1917. There was a wound of entrance on a level with the lower margin of the patella and internal to the tendon. X rays showed metal impacted in the inner head of the tibia.

Operation.

The wound and track were excised in a crescent-shaped skin incision; the patella was reflected upwards, and the comminuted lower tip resected; the foreign body was removed with a portion of the surrounding bone; the joint was irrigated with saline and completely closed. He was transferred to the base on May 16th, 1917.

Report from Base (a Red Cross Hospital).

Wound healed by primary union; most successful knee-joint operation. Evacuated May 30th.

CASE XVII.

Pte. C.; wounded on May 21st, 1917, by a bomb. On admission there was a large flesh wound involving the antero-internal aspect of the knee, with considerable loss of skin and deep tissue, exposing the joint cavity from the top of the suprapatellar pouch to the head of the tibia. X rays showed that a portion of the inner head of the tibia and internal condyle had been chipped off.

Operation.

The wound and infected tissue were excised, the internal meniscus removed, the cavity in the condyle and in the inner head of the tibia was cut clean out with a portion of the surrounding bone, and the joint irrigated with saline; the lateral attachment of the synovial membrane was loosened, rendering it possible to close the joint more or less; the hole in the tibia was dressed with bipp. The operation was completed by making a skin flap from the popliteal space and suturing it in position. He was transferred to the base on May 22nd, 1917.

Base Report (St. John Ambulance Brigade Hospital).

Wound healed by first intention. Raw surface at back has closed to such an extent as to render grafting needless; excellent result so far. To England June 28th.

CASE XVIII.

Second Lieut. H., Fusiliers, wounded June 6th, 1917, by shell fragment, was admitted with a large wound of entry over the external condyle. X rays showed a large piece of metal impacted in the condyle close to the anterior border.

Operation.

On June 7th the wound was excised and further enlarged; the foreign body, found impacted at a depth of half an inch in the condyle, was removed in the usual way; the joint was irrigated, the bone cavity smeared with bipp and filled with fat graft, and the wound closed in layers. He was transferred to base on the same day.

Base Reports.

From a General Hospital: Wound healed by first intention. Transferred to England June 14th. From 2nd Southern General Hospital, Bristol:—June 27th, 1917: Stitches removed; wound healed. Without a splint and doing well. (From the patient.)

CASE XIX.

Cpl. W. B.; wounded September 7th, 1917, by a bomb. There was a large through-and-through wound on the antero-external aspect of the knee-joint. Synovial fluid was escaping from the wound.

Operation.

The wounds of entrance and exit were excised in one piece; no injury to bone; the joint was washed out with saline and closed. He was transferred to the base on September 17th.

Base Report (a General Hospital).

October 6th. Wound healed by first intention. Transferred to England.

CASE XX.

Pte. J. T. A.; wounded October 5th, 1917, by shell fragment. The entrance was to the inner side of the patellar tendon and there was a large exit wound over the outer side of the head of the tibia; the wounds were very dirty. X rays showed severe comminution of the head of the tibia on its outer side.

Operation.

On June 6th the wound of entrance and the track in the soft tissues were excised by a crescent shaped skin incision, the patella was reflected, the external semilunar cartilage and infrapatellar pad of fat removed, and the head of the tibia then exposed by prolonging the excised exit wound vertically downwards; the damaged bone was removed *en masse*; the bone cavity was packed with bipp gauze, the joint washed out with saline, and the wound closed. He was transferred to the base on October 12th.

Report from Base (a Stationary Hospital).

October 18th, 1917. Knee-joint distended; purulent fluid withdrawn by needle; joint opened and Carrel tubes inserted.

Bipp plug to tibia. October 31st. Has cleared up, and there is now no discharge from the joint, though there is still a good deal from the hole in the tibia. Transferred to England.

[I desire to thank Colonel H. Gray, C.B., for much valuable advice on this subject. My thanks are also due to Lieut.-Colonel W. D. C. Kelly, D.S.O., for permission to publish these cases, and to Captain A. Campbell Haddon, R.A.M.C.(T.F.), for the drawings illustrating this article.]

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¹ BRITISH MEDICAL JOURNAL, 1915, vol. ii, p. 41. ² *Surgery, Gynaecology, and Obstetrics*, February, 1917.

THE KNEE-JOINT CAPSULE:

A RADIOGRAPHIC STUDY.

BY

F. RUPERT SNELL, M.B., B.S.,

CAPTAIN R.A.M.C.(T.C.).

It is not the purpose of this paper to refer to any of the points raised in recent articles by Colonel Sir A. W. Mayo-Robson and Major Keith Monsarrat on knee-joint injuries, but rather to show at a glance the salient and more obvious features of an injected normal knee-joint capsule, representing as it does an acutely inflamed, distended, synovial membrane which from a surgical point of view requires immediate interference. The minute anatomical detail has already been thoroughly dealt with by Colonel Andrew Fullerton, C.M.G.¹ Knowing, however, the difficulty of reproducing shadow contrasts in many x-ray photographs, it is hoped that these simple graphic drawings, made for me from the original skiagrams by Mr. Noel Leaver, A.R.C.A.Lond., will facilitate the grasping of the points at issue in discussions relating to the surgical treatment of knee-joint affections.

A direct antero-posterior view is shown in Fig. 1. In the first place there is to be noted the marked tendency to displacement well over to the outer side of the femur, and not to the inner, where it barely reaches the border of the bone; it shows also the distance it extends above the joint line, nearly five inches, and three inches above the patella; almost the entire outer condyle is covered by the overlapping capsule in front, whereas the inner condyle is very nearly free. The patella is seen in its normal position, much more over the outer than the inner condyle.

In Fig. 2 is shown a direct lateral view with the leg straight and lying on its outer side, thus bringing the inner side uppermost and nearest the plate. Here again it is manifest that the inner condyle is comparatively free from covering; the upward extension of the capsule three inches above the patella is shown, and also that it is slightly off the actual surface of the bone. The square-like upper border of the capsule is very marked, though this, of course, changes its shape on flexion.

The pouch underneath the patella averages about one fingerbreadth in thickness from the surface of the femur; but the most marked feature of this view is the extent to which the capsule is seen overlapping the inner surface of the shaft to nearly half the thickness of the bone. It is seen that in the popliteal space little more than the deepest part of the intercondylar notch is filled, and this only to the level of the upper intercondylar line; along the

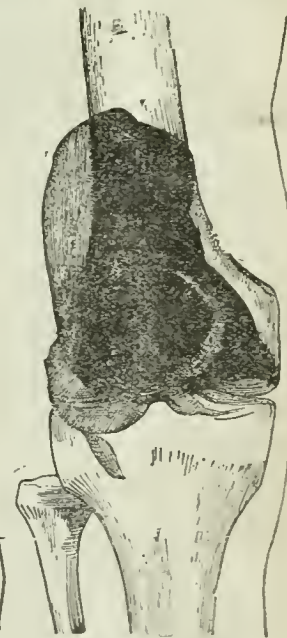


Fig. 1.

head of the tibia the horizontally shaded portion represents the extent to which the upper and posterior portion of the head of the tibia is covered. The dotted line running from the top of the capsule from before backwards (through the vertically shaded portion) shows the extent to which the outer side of the shaft is overlapped.

Fig. 3 is from a skiagram taken with the knee in semi-flexion, but otherwise in the same position as in Fig. 2. This brings out the covering over the head of the tibia more forcibly in relation to the inner and posterior portion;

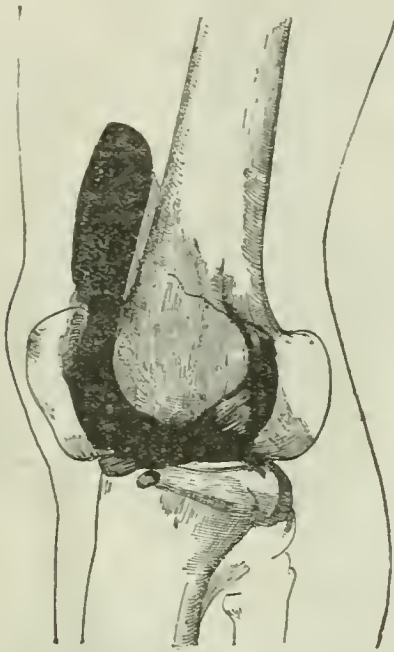


FIG. 2.

it shows also the little tongue of projection under the ligamentum patellae just where this overrides the head of the tibia; the most outstanding feature, however, is the marked extension of the capsule posteriorly, forming a large cushion-like pad more than filling the intercondylar notch, and even bulging out so far behind as to leave the posterior border of the outer condyle of the femur well in the background. This pad, however, is in relation with the inner aspect and not the outer.

The skiagrams were obtained by injection of the right knee-joint immediately after death, through the interosseous

space to the outer side of and about 1 inch above the insertion of the ligamentum patellae. No difficulty was experienced in introducing the emulsion with a 1 oz. glass serum syringe. The pressure required was no more than that to emit such an emission from the nozzle of the syringe, and as soon as the capsule was just tense no attempt was made to risk distortion by overdilatation; none of the emulsion escaped.

A dilute bismuth emulsion was used of the consistency of ordinary cream. It was carefully prepared by rubbing



FIG. 3.

up in a mortar, the following proportions being employed: Bismuth carbonate 5 iv. aq. dest. (slowly added) to 5 vi, compound tragacanth powder gr. xx. Great care was taken to ensure that the central ray was in the middle of the field in each case.

I am indebted to Captain Claude Horton, R.A.M.C., surgical specialist, for kindly carrying out the injection, also to Lieutenant P. W. Hampden, R.A.M.C., surgical specialist, for his collaboration in this report.

REFERENCE.

¹ *British Journal of Surgery*, vol. iv (1916-1917), and *BRITISH MEDICAL JOURNAL*, 1916, vol. ii, p. 709.

THE ABUSE OF DRAINAGE TUBES.

BY

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SINCE I returned from France I have often been asked, even by intelligent members of our own profession, "What use is your experience of war surgery going to be in civil surgery?" These short notes are the answer, and are the experience of six months' civil surgery since my return from France.

War surgery, as is well known, is a very different thing now from what it was at the beginning of the war.

Now wounds of the head, chest, abdomen (even with faecal contamination), and knee and other joints are sewn up with impunity after early and complete operation, and the results are excellent.

These results are largely due to Colonel H. M. W. Gray, Consulting Surgeon, — Army, and to his devoted band of young and brilliant surgeons. One day the surgical world will realize what an enormous debt of gratitude it owes to Colonel Gray, and he will get the reward he deserves. It was he who first opened my eyes to the "abuse of drainage tubes," and it is his teaching I have applied to civil surgery.

He tells the story of a wounded man arriving at the base with over thirty separate wounds, into each of which a

drainage tube had been placed. What a waste of labour—to say nothing of rubber! The first and most important result of the war in the surgical world will be the abandonment once and for all of the drainage tube. Its day is past, and soon it will only be seen, where it should be, in a museum. When one seriously sits down to think, it is incredible that we have for years deliberately placed into the soft and pliable tissues of the human body a more or less rigid drainage tube with an open passage for secondary infection to creep down. They are well termed, for they are an open "drain in" for infection from outside, and an open "drain out" for the strongly antimicrobial fluids poured out around any infection.

Sir George Lenthal Cheatle grasped this fundamental fact when he introduced his solid drainage tube with flanges; but he still kept to the rigid design. For years it has always been taught that if there is the least infection in any part of the body "put in a drainage tube." This is a mistake.

If surgeons will take their courage in both hands and will not be frightened by a little infection, leaving it to be dealt with by the natural resistance of the tissues to infection, and will give up the use of drainage tubes, they will not only find their results very much better, but they will find their outlook on surgery totally changed. I have proved this for myself, and a complete revolution has taken place in my surgical work.

The first question is, "What is to replace a drainage

tube?" All that is necessary is to put something into the tissues which will keep a "passage" open but which does not leave an open "drain." If a passage is required to be kept open I put in a piece of soft folded rubber—for instance, in an appendix abscess. This allows pus to come away, but will not leave an open "drain" by which secondary infection of staphylococci, from the skin, or other organisms can gain entrance.

It will be noticed, when using a soft rubber "passage tube," that the exuding fluid completely fills the spaces left, leaving no open "drain." I find that, unless it is absolutely necessary, it is advisable to use even a "passage tube" as little as possible, but, whenever it is possible, to completely sew up the infected wound. The results are excellent. War surgery has therefore taught us what should be the two main principles of civil surgery:

1. Early and complete operation.
2. That secondary or mixed infection is worse than primary infection.

While the tissues of the body can, if given a fair chance, deal with one infection only, if that infection becomes a mixed one by entrance of organisms from outside, then the last state is worse than the first.

After all, it is only the application of our old methods of dealing with tuberculous infections to all other infections, and treating them on exactly similar lines—namely, free incision, evacuation of contents, cleansing by mechanical means, or by the use of an antiseptic, and primary suture.

It breaks my heart to see surgeons using fomentations and weak antiseptic baths in the treatment of wounds, for they simply encourage the staphylococci to come out of the pores of the skin and secondarily infect the wound.

It is interesting to note the steps by which I gave up the use of "drainage tubes" once for all. I came back from France with a dislike to them, and have only used them since on three occasions, once for a general peritonitis following appendix abscess and twice for empyemata. Always in other cases I have used "passage tubes" of folded rubber. Now I use the latter as seldom as I can, and completely close cases of empyema.

Applying my experience of modern war surgery I started sewing up ordinary staphylococcal abscesses of the subcutaneous tissues, after incision and wiping out with bipp, and found they healed by first intention. I next went a step further. I saw a case of perforated gastric ulcer two hours after perforation, and operated within four hours. I sewed up the perforation, and, as it was near the pylorus and tended to close it, did a gastro-enterostomy. I mechanically cleansed the peritoneum of food, washed out with flavine, and completely sutured. The result was healing by first intention and an uninterrupted recovery, better than I have experienced with the use of a drainage tube.

In these cases and others of perforated hollow organs, stomach or bowel, it is difficult to say which is the most important, mechanical or antiseptic cleansing. Personally I think mechanical, because the rubbing of the peritoneum with gauze produces a beneficial hyperaemia and transudation of lymph.

Then I had to treat a bad compound fracture of tibia and fibula with a large external and contused wound, in a boy who had been run over by a motor lorry. I excised well clear of all damaged tissues—wiped out with bipp, and so mechanically cleansed and closed the whole wound by primary suture. The result was healing by first intention without a trace of suppuration.

The next step forward was in a case of gonococcal peritonitis. I found the peritoneum infected and containing a turbid fluid; I removed one Fallopian tube full of thick gonococcal pus, cleansed the peritoneum mechanically, washed out with flavine, and closed without drainage. The result was uninterrupted recovery and healing by first intention.

As to this case, I realize that it is the practice of many surgeons not to drain in gonococcal peritonitis, and that the fluid passed out by the peritoneum is frequently sterile, but I quote it because I myself, before my experience of modern war surgery, would have drained it for fear of infection, and I am sure other surgeons are "putting in a drainage tube to be on the safe side."

Why should we drain an empyema, where, by the putting in of a drainage tube, we not only run the risk of secondary infection but of collapse of the lung with its sequelae?

A case of empyema following a very severe attack of pneumonia occurred in a man very debilitated and ill, so that it was hardly thought he would live. I excised a piece of rib under a local anaesthetic and made a small incision into the pleura. At once he coughed out a large amount of thick fibrinous exudate. When he emptied his pleura I washed out with flavine and injected about a pint of a suspension of iodoform in paraffin, and sewed up from the pleura and then the skin. His general condition at once improved, the pulse and temperature gradually dropped, and I am quite certain he has made a better recovery than with an open "drainage tube."

The only drawback I found, and that was a small one, was that occasionally a small amount of pneumococcal pus and iodoform paraffin collected between the pleura and skin in the dead space left by the removal of a rib, and required evacuation. Only once did his temperature rise to 100°, but the pulse came steadily down from 120 to 74. He is now very well, and my friend Dr. Elgood, the physician who pulled him through his pneumonia, and I are very pleased with him. Four weeks after the operation the lung had expanded well.

By this method of treating empyema the risks of massive collapse of the lung and of secondary infection are both avoided and the convalescence is shortened.

I must confess to one failure, if it can be called so:

A child was sent into hospital with a diagnosis of appendicitis. I found general peritonitis with much thickened lymph covering the intestine. The appendix was normal, and no other cause was found. A swab taken was found to be sterile, but no doubt it was a case of pneumococcal peritonitis. I found too much exudate and flaky lymph to attempt mechanically to cleanse the whole of the intestines, which were covered in fibrinous deposit. I washed out with flavine and completely closed the abdomen. The child did very well, the abdomen was quite soft, the bowels acted well, and there was no vomiting. Suddenly on the fifth day the child became worse, and Dr. Elgood, who was in the hospital at the time and saw her, diagnosed pneumonia, and she died before I could be found. Unfortunately no *post-mortem* examination was allowed, but I have no doubt that the child died from a lung complication, and not from the abdominal condition.

A method of treatment in bone surgery which I was beginning to employ in France was founded on the idea of eradicating the "dead space" in a bone following the loss of substance by a gunshot wound or by an operation for infection. My idea was that where a dead space or open cavity was left in a bone by destruction it should be filled, not by blood clots, allowing a nidus for primary or secondary infection, but by an antiseptic wax which could be poured in hot, and would gradually cool and fill up any cavity. I did this on three occasions with excellent results, using a compound of thymol, vaseline, and candle-wax, which I found would become semi-solid at normal body temperature.

The first case was a wound of the upper arm with much destruction of the upper end of the humerus. By early and complete operation I removed many fragments and found a large cavity in the bone. This I filled with thymol wax and carried out primary suture. The compound fracture of the humerus healed by first intention and the result was very good, although a certain amount of thymol wax was exuded for a time through the stitches. I also carried out this treatment for a through-and-through gunshot wound of the ankle where the head of the astragalus was completely gone. The wound healed by first intention without, in this case, any exudation of wax.

I used this treatment as a secondary measure in a compound fracture of tibia with a big hole in the bone. As the wound was clean I poured in thymol wax and filled the cavity and performed a secondary suture; the wound at once healed. I have had no opportunity of applying the method in civil surgery, but in osteomyelitis of the tibia, for example, I should completely lay the medullary cavity open, thoroughly scrape away the infected medulla, fill up the "dead space" with thymol wax, and carry out primary suture. I feel sure the result would be better than by laying the bone open and allowing the wound to heal by granulation.

Conclusion.

In order to avoid mixed infections surgeons must practise primary suture far more than in the past, and completely give up the use of rigid open drainage tubes.

Instead of draining where there is infection I advise going to the opposite extreme, and not to leave a "passage" open unless it is absolutely necessary.

If a secondary abscess or leakage from bowel should occur it will be dealt with by the inherent resistance of the body to infection, or should an abscess form it can be treated by a second operation, after adhesions have formed.

A new epoch in surgery will dawn when surgeons realize, as I have done, that they can leave quite a large amount of infection to be dealt with by the inherent resistance of the body to infection.

These notes are written with the sole object of stimulating my seniors and contemporaries who have more material to carry out the lines I have suggested, and to more and more practise primary suture in their cases, and above all to give up once and for all the use of open rigid drainage tubes.

Sr Bertrand Dawson, G.C.V.O., has kindly added the following note on the treatment of streptococcal empyemata:

With regard to empyemata, my experience is that the pneumococcal ones do well with immediate closure after evacuation, but not the streptococcal. These latter need to be drained for two or three days, with or without Carrel tubes, and then they can be sewn up.

I agree that streptococcal infections must be dealt with on different lines from staphylococcal, pneumococcal, and other infections, but in civil practice it is very rare to meet with streptococcal empyema.

ANOMALOUS MUSCULAR ACTION IN NERVE INJURIES.

By D. M. HUGHES, M.B., F.R.C.S., MAJOR R.A.M.C.,
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THE precise action of an individual muscle is not always easy to determine in the uninjured limb, since a particular movement is in most cases brought about by the resultant action of many muscles and not by one alone. When a nerve trunk is severed and the muscles supplied by it are put out of action, the muscles supplied by the uninjured nerves of the same region sometimes give rise to surprising movements. It is probable, in fact, that the movement resulting in these cases is such as never occurs in a limb with properly balanced muscles. While this movement is in many cases of mere academic interest, it occasionally happens that it may flatter the surgeon who has performed a nerve suture, giving him the impression that muscular recovery has begun, whereas an attentive examination of the muscles causing the movement may show that his conclusion is premature.

One of the most striking instances of this that have come under my notice is that when the median and ulnar nerves are divided in the upper arm, active flexion of the wrist is often still present, being brought about by the extensor ossis metacarpi pollicis. Another anomaly is seen in posterior interosseous paralysis, namely, the first dorsal interosseous muscle can cause a lifting of the thumb easily confused with commencing recovery of extension of that digit. These two anomalous movements clearly depend upon the difference of the plane in which the metacarpal bone of the thumb lies relatively to the plane of the four remaining metacarpals.

Other unexpected actions are that the terminal phalanx of the thumb can be actively extended in cases of posterior interosseous paralysis, the extension of course being brought about by the insertion of the abductor pollicis into the dorsal expansion of the extensor tendon; and that in ulnar paralysis the index finger can be slightly abducted by the obliquity of the extensor tendons passing to that digit. In persistent paralysis these movements, aided by use, massage, and electrical stimulation, may acquire some importance.

Some of these unsuspected muscle actions, it is true, may indicate merely that one's memory for anatomical detail requires furnishing, and anatomists could doubtless furnish many more instances. There is no doubt, however, that a partially paralysed limb offers a rich field for the investigation of the essential action of individual muscles.

Another anomaly which may often be observed is due to the general preponderance of the flexor muscles. This is seen in its most marked form in lesions of the upper motor neuron—for example, in a case of hemiplegia. If the wrist of such a patient is passively extended, the fingers curl into the palm and exercise a quite perceptible grip. In a lower motor neuron paralysis—for example, in complete lesion of the median and ulnar nerves in the upper arm—this action is also observable, though it is not so evident, and may give rise to a false notion that

recovery of active flexion of the fingers is in progress. In some cases it certainly indicates that the elasticity, and therefore the nutrition, of the finger-flexors is being maintained, but in others it points to essential fibrosis and shortening of those muscles, and is consequently of grave significance. In the latter case it usually betrays neglect of treatment. If the fingers can be straightened only while the wrist is flexed this condition of fibrosis is present in the flexors of the fingers. In a most helpful paper Professor Langley¹ has shown that the danger of stretching a paralysed muscle has been somewhat overstated. It is questionable, at any rate, whether it is preferable to risk stretching the muscles or to encounter a case of musculo-spiral paralysis so assiduously treated on a "cock-up" splint that the wrist, by reason of fibrosis of the extensors, could be brought neither up nor down.

It is surprising, again, to find what little muscular disability may result from complete division of the median nerve at the wrist. In a case recently operated upon there was, except for most intractable trophic ulcers over the median distribution in the hand, which was completely anaesthetic, practically no disability, and the lesion might easily have been overlooked. The abductor pollicis was completely paralysed and its situation represented by a fossa on the radial side of the metacarpal bone, but the loss of this muscle seemed not to affect the utility of the thumb. As for the movement of opposition, this was quite efficiently carried out by the adductores pollicis in combination with the long and short flexors, both heads of the latter appearing to be active in spite of the complete division of the nerve an inch above the wrist. It is interesting to note that within a month the trophic ulcers healed for the first time, but there was still complete trophic loss. This may only indicate, however, that the hand had received better protection after the operation than it had previously obtained.

Cases such as this are of interest from the ease with which nerve lesions may be overlooked, as pointed out by Mr. T. E. Hammond² in the case of the internal popliteal. They also illustrate the point that if a nerve is sutured without a previous careful examination of both muscular and sensory loss, the operator may claim results to which he is not entitled. This may account for some cases of atypically early recovery after nerve suture.

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EARLY CARDIAC BREATHLESSNESS AND "BUFFER-SALT" DEFICIENCY IN THE BLOOD.

By BENJAMIN MOORE, D.Sc., F.R.S.,

DEPARTMENT OF APPLIED PHYSIOLOGY, MEDICAL RESEARCH COMMITTEE.

THE review in the *JOURNAL* of June 22nd (pp. 702-4) of the report of Dr. Lewis dealing with the causation of breathlessness on exertion in early cardiac cases is most interesting, but may I be allowed to point out that the expression "buffer salts," first coined in Germany for an effect described and measured originally in Britain, conveys an erroneous impression, because the protective action against variations in acidity or alkalinity is due not to the inorganic salts, carbonates, or phosphates, of the plasma, but almost in its entirety to the amphoteric proteins?

This protective action was fully described, and a quantitative method supplied for its estimation, by the writer and his colleagues Roaf, Wilson, and Whitley at the biochemical laboratory of the University of Liverpool over a decade ago, the results being published in the *Proceedings of the Royal Society* and the *Bio-chemical Journal*.¹

The action was described under the title of the "reactivity of the serum," as distinct from the "reaction of the serum" at any given moment, and by estimating the amount of decinormal alkali and acid necessary to titrate from one definite value of hydrogen ion concentration to another, marked by the mid-point or neutral point to two coloured indicators, namely, phenolphthalein and methyl orange, there was assigned a quantitative value to the "reactivity" or protective power of the blood and tissue

fluids. This had to pass to the Continent and be re-dubbed the "buffer-salt effect" before receiving attention, and even now these earlier papers seem to be unknown to British workers on the subject, although their results would well repay a little consideration.

For example, the expression "buffer-salt" is quite misleading; the effect is not due to salts, for the very sufficient reason that there does not exist a sufficient quantity of sodium carbonates and phosphates in the plasma *in toto* to account for one-tenth of the protective influence, or to carry one-quarter of the carbon dioxide found in arterial blood. Salts cannot protect which are not there, and at least 90 per cent. of the protective action is due to the plasma proteins.

A most important point brought out by this earlier work which appears to have been quite forgotten is that all the inorganic salts of the plasma, including even the sodium chloride, are held in union by the proteins. It is this union which regulates the amount of salt in the blood with such a delicate precision. The excretory cells allow no excess of free salt in the circulating plasma, and it is this combining power of the proteins for salts which determines the value of physiologically "normal saline."

If the molecular concentration of mammalian serum be determined from the depression of its freezing point it will be found to be approximately equivalent to that of a one-sixth molecular solution of sodium chloride. If, now, the same serum be titrated with standard acid till neutral to an indicator such as methyl orange, and then with standard alkali till neutral to phenolphthalein, the range will again be found equivalent to a one-sixth molecular solution. Outside these two marginal limits very small additions of acid or alkali swing up or down the hydrogen ion concentration with enormous speed; within the limits large additions of acid or alkali produce only moderate effects.

Within these viable limits, marked out by the titratable value of the proteins, variations by accumulation of organic acids and alkali and carbon dioxide occur in varying conditions of health and disease, and the neuro-muscular and cardiac system may be chronically fatigued by such products. The soldiers investigated by Dr. Lewis may owe their condition to the strain of neuro-muscular fatigue induced by a physical training for which they are unfitted by nature. Apart from military training, the prolonged strain of war conditions is producing such an action on many people in civil life. Breathlessness, accompanied by disordered heart rhythm, is a prominent symptom, especially after any prolonged neuro-muscular exertion, in many persons bordering upon neurasthenia at the present time.

A variation in the balance of "reactivity" of the blood may also be present in the different forms of "shock." It has been shown by Roaf and Adamson that the serum proteins completely lose their osmotic pressure when acid is added to the serum till the equi-potential point or point of physico-chemical neutrality is reached. Bayliss has recently shown that colloids such as gum acacia or gelatine, which were demonstrated by the earlier work of Moore and Roaf to have a high osmotic pressure, possess the property of maintaining for much longer periods than purely saline solutions a higher blood pressure under shock conditions.

These and kindred problems are intimately connected with that protective mechanism in the blood plasma first described and measured in Britain under the term of "reactivity of the serum," and later reintroduced from Germany under the name of "Puffer-salzen" or "buffer effect."

REFERENCE.

¹ Moore, Roaf, and Whitley *Proc. Roy. Soc., B*, vol. 77, p. 102 (1905); and Moore and Wilson, *Biochem. Journ.*, vol. 1, p. 297 (1906).

CARDIOPTOSIS.

BY

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I AM not sure whether the term "cardiopsis" has yet found its way into cardiology. I do not remember coming across it, and it is not in any of my textbooks. Yet I am sure the term would serve a useful purpose in focussing attention on a condition not unlikely (as in one instance here related) to be misinterpreted. The condition, of

which I can only speak from the clinical standpoint and from my limited experience, would appear to be one of undue laxity of the cardiac supports, such that, whilst the apex beat in recumbency is found about the normal position, in the fifth space, in the erect position it is located just below this, in the sixth space, without any evidence of other causes to account for the displacement.

In the first of the two following cases there was no sign of enlargement of the heart, although "enlarged heart" had been diagnosed, partly from the position of the apex beat in the sixth space; and in this case the dropped heart was associated with an obviously dropped kidney and a probably dropped stomach. In the second case there was moderate cardiac enlargement, although not so great as to seem to account for such a displacement of the apex beat in the erect position; a palpable spleen with normal temperature and no obvious blood changes in a fresh film, suggested in this second case a dropped spleen, but this could not be certainly diagnosed in the limited time at my disposal.

CASE I.

M. E., aged 21, suffered from attacks of "faintness," not, however, going to complete unconsciousness. He had had diphtheria badly at 1½ years old, followed by "paralysis of hands and feet," and could not walk till 3. He had had double pneumonia at 11 and a bad fall at 17; he had also been physically overworked, I think.

The chest was slightly deformed, the third and fourth rib cartilages on both sides being unduly prominent at their sternal junctions. Urine, lungs, and reflexes were normal. There was marked nephroptosis on the right side, and the lower border of the stomach (which seemed, however, to be somewhat dilated) was close to the umbilicus. He was supposed to have "enlarged heart," but my examination gave the following results: In the erect position the cardiac dullness reached from the mid-sternal line only ½ in. rightwards and 3½ in. leftwards. The apex beat was quite obviously in the sixth left space, 3½ in. from the mid-line of the sternum. In the recumbent position the right margin of dullness was at the mid-sternum and reached leftwards 3 in. The apex beat in recumbency was obviously in the fifth space at about the edge of the dullness. There was no murmur in the recumbent position, but in the erect position a very local short systolic murmur was heard 1 in. outside the apex beat during inspiration only, being completely lost during sustained expiration.

CASE II.

J. S., 48, complained of weakness and occasional shortness of breath, had considerable rheumatoid arthritis, and was more or less a chronic invalid.

In the erect position the cardiac dullness reached rightwards to mid-sternum and leftwards to the left mammary line, 4 in. from mid-sternum; upwards to the fourth rib. The apex beat was unmistakably in the sixth space. In the recumbent position the dullness was, as usual, narrower, but reached as high as the third rib. The apex beat was definitely in the fifth space inside the left mammary line.

There was a systolic murmur, heard in both positions, louder after exertion and unaffected by respiration, where the fifth rib cartilage joined the sternum. Urine, lungs, and reflexes were normal. In the abdomen the splenic edge descended on inspiration about a fingerbreadth below the left ribs. The blood in fresh film seemed normal and the temperature was normal.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THRESHOLD TESTS.

MUCH is to be learnt by investigating the thresholds for light and colour. Finding by routine examination that a normal standard, quite as uniform as that for visual acuity, exists, I have recently attempted to standardize a series of test objects which can be universally used for determining how near to, or how far from, the normal standard each individual eye is. In diseases of the retina, the choroid, and the optic nerve, very remarkable variations from the normal are found. But I have reason to believe that abnormal thresholds are not limited to diseases of the eye; marked changes in the thresholds are certainly to be found where the ocular implication is secondary. Thus, working with my test, my colleague, Dr. Walter Sinclair of Ipswich, pointed out that in several of his cases of retinitis of pregnancy the threshold for yellow was the only one attacked, but that very considerably. I found the same in the only case I have seen since. The threshold for yellow was reduced to recognition of the dilution 1 in ½, instead of the normal 1 in 32.

Though this can be no more than a hypothesis, I suggest that those who are not limited, like myself, to ophthalmic

practice should search all cases for a while with the view of ascertaining whether there be any cases in which reduction of the threshold proves to be the only ocular symptom.

An account of the test and of some of the work done so far on this subject will appear shortly in the *British Journal of Ophthalmology*.*

I give here a brief explanation of what is meant by the thresholds.

The Threshold for Light.

If in a railway train we pass through a long tunnel and there is complete darkness, even after adaptation, we notice on approaching the exit a moment when the first glimmer of light is perceived. This is the threshold for light. A patient whose light sense was reduced would not perceive light till some time after we did.

The Threshold for Light Differences.

The stars are always in the sky, but we only see them after sunset, because though there is a difference in light intensity between them and the sky, even in daylight, there is not sufficient difference for the human eye to distinguish them. The threshold for differences of light intensity is reached the moment the evening star becomes visible, or the instant the morning star fades out of sight. We would distinguish the evening star sooner than our friend in the train, and would still see the morning star after it had vanished for him. I find that when the threshold for light is reduced, that for light differences is equally so. A test of the latter is incomparably more simple, and for all practical purposes sufficient. It becomes practically a measure of the light sense.

The Threshold for Colours.

These thresholds are quite distinct from both the previous ones. They are indicated by the very first tints perceivable in the clouds when we watch the horizon at dawn, and the very last trace of colour in the sunset clouds before all is grey.

That the periphery of the retina is more sensitive to these thresholds is easily observed by watching the Pleiades. If a point more or less remote from this group be fixed on the sky, a far greater number of its stars evoke our light sense than if the group itself be fixed.

The point to decide is, whether these thresholds have any clinical value for diagnosis, differential diagnosis, or prognosis.

Colchester.

GEORGE YOUNG, M.D.

A CASE OF TETANUS NEONATORUM.

TETANUS NEONATORUM is so rare in this country that the notes of the following case, the only one I have met with, may prove to be of interest.

On April 1st, 1918, I was called to see a male child, nine days old, who was said to have been crying all day, and had not taken the breast. The mother, a young primipara, had been attended by a certified midwife, who reported that labour was normal in every way. The mother had made a good recovery. I found the baby on the nurse's knee, crying loudly. Instead of opening its mouth fully, however, there was scarcely half an inch of separation between the jaws. An attempt to increase the opening with the finger failed, and it was only after force strong enough to bend a spoon had been employed that the attempt was abandoned.

The jaw was indeed locked. The mouth and throat, so far as could be determined, were healthy. The umbilical scar was sloughing and from it exuded a moderate amount of thick pus. Around the umbilicus there was a band of inflammation about an inch in breadth, dusky red in colour. A diagnosis of tetanus was made and a bad prognosis given.

On April 2nd the child presented all the classical signs

of tetanus. The jaw was fixed and the angles of the mouth drawn upwards. The arms were flexed at the elbows and rigid, and the hands clenched. The legs were fully extended and rigid. The head was firmly retracted to a moderate extent and the body was in a position of opisthotonos. Tetanic convulsions were frequent and were excited by shaking the child and by other stimulation. There was no muscular retraction between the spasms. The child died the next day.

A swab was taken from the pus which exuded from the umbilical scar and microscopic slides were prepared. The pathologist (Dr. Burnet) reported that the slides contained numerous cocci, diplococci, and diphtheroid bacilli, with other bacilli, but no tetanus organisms. Culture of the swab failed to produce any tetanus organisms, but there were numerous cocci and bacilli of the *Bacillus coli* type. Although the failure to establish the presence of the tetanus organism would seem to introduce an element of doubt, yet the symptoms were so typical as to preclude an error of diagnosis.

During a moderately long experience of midwifery in general practice I have been much impressed by the rough and ready methods employed during the act of separation of the child. It is quite usual for the midwife to ligature the cord with strong cotton which has not been sterilized. The scissors, moreover, are rarely boiled; in fact, no attempt whatever is made to prevent sepsis. With this fact in view it seems strange that one does not meet with more cases of a similar nature to that reported. The cases of umbilical hernia, so common in the young child, may be due to sepsis with consequent stretching of the scar, the result of bad treatment of the cord at birth. Prolonged jaundice occurring in the first days of infant life is due, I believe, in a large number of cases to a similar cause. It should be the bounden duty of those who teach the fundamental principles of obstetrics to nurses and midwives to instruct them that although the umbilical cord becomes separated by a process of gangrene, it nevertheless requires as much cleanliness and care in its treatment as though one were dealing with a healthy tissue.

Doncaster.

HAROLD F. RENTON, M.D., B.S.Lond.

ECTOPIC GESTATION: A CASE OF TWINS IN ONE GESTATION SAC OF TUBAL ORIGIN.

A MARRIED Frenchwoman of some twenty-two years was admitted into Founder Ward, Middlesex Hospital, in the summer of 1913, suffering from an acute abdominal condition, and in the absence of my senior colleague, Sir John Bland-Sutton, I was asked to operate. Her condition and the history were such as to suggest a severe abdominal haemorrhage, probably of pelvic origin. She had been married two or three years, had no children, and there was a history of a missed "period," followed by an acute attack of pain some days before admission, and then the violent catastrophe which brought her for immediate relief to the hospital in a desperate condition.

A median subumbilical incision revealed the presence of about four or five pints of blood in the peritoneal cavity, and an investigation of the source of the haemorrhage revealed a large mass of clot projecting from the posterior surface of the right broad ligament. The right tube was swollen, and had been the site of the primary gestation sac, which had undergone an intraligamentous rupture; the secondary sac had formed in the right broad ligament, and this had in turn given way. The attack of pain ten days before admission doubtless corresponded to the rupture of the primary gestation sac, and it was the rupture of the secondary sac which produced the alarming symptoms from which the woman was now suffering. In the blood clot between the layers of the right broad ligament, and extruding from the rent, were found a complete embryo in good condition, and the head and shoulders of a second one. They were handed over to the anatomical department, and Dr. R. J. Gladstone kindly informs me that the intact embryo had a length of 32 mm. There was no flaw upon the complete fetus to suggest that the second head and shoulders were a part of some monstrous form, and the portion of the second embryo present was perfect in so far as it existed. Search of the blood clot failed to discover the remainder of the twin. Considerable difficulty

* A very handy test, in album form, is obtainable from Messrs. John Weiss and Son, 237, Oxford Street, by means of which each eye separately is tested in a minute. On the patient's part it requires no understanding and very little intelligence. The album contains series of graduated spots of grey and four colours. The palest grey recognized gives a measure of the light threshold; the palest colour spot in each series which evokes a true sensation of colour, irrespective of the name given to it, gives a measure of the colour thresholds. Both are approximate, but suffice.

was experienced in controlling the hæmorrhage from the placental site on the lateral border of the uterus, and a series of mattress sutures was required to secure this.

The sequel was tragic, since a fortnight later the patient suddenly developed acute intestinal obstruction, which on operation was found to be due to a coil of small intestine that had become adherent to the bottom of the pelvis in the region of the former placental attachment to the side of the womb. The coil was released, and it was hoped that the condition would be thereby relieved, but the bowel failed to empty itself, and a jejunostomy was performed. This vent relieved the urgent symptoms, but all later efforts to close the opening failed and the patient rapidly lost strength and finally died of inanition.

The case has several features of interest. First, the condition of twins in a single gestation sac must be exceedingly rare; although I have no present access to any literature, I am aware that the condition is not unique. Secondly, it is probable that the performance of hysterectomy for the bleeding from the side of the uterus instead of the laborious insertion of mattress suture after mattress suture would have obviated the acute obstruction from which the patient died, but the condition of the patient at the time of the original operation must be borne in mind. Thirdly, the vivid manner in which this little Frenchwoman's death still remains indelibly fixed in my mind is a criterion of the almost uniformly certain aid that surgery can bring to luckless sufferers from an ectopic pregnancy.

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Rebuelus.

THE ROTUNDA HOSPITAL.

THE history of the famous lying-in hospital of Dublin has been written by Dr. KIRKPATRICK, the historian of the medical school in Trinity College, and the book has been edited by Dr. HENRY JELLETT, the late distinguished Master.¹ The collaboration of these two physicians represents a union of historical research with first-hand knowledge which gives special value to their work. A long article was ready for the press when the war broke out and at once reduced the space available for historical matter to vanishing quantity. The curtailed form in which the review now appears is not due to any lack of appreciation of the importance of the work but to conditions of publication over which we have no control.

When Bartholomew Mosse, the founder of the Rotunda, began to practise in Dublin there was no lying-in hospital in Ireland or Great Britain. It was a bold undertaking for a man of barely 33 and with no practical experience of hospital management to embark on such an enterprise. None of his professional brethren came forward to help, and some actively opposed him. Mosse, nothing daunted, formed a "union of a number of persons of different occupations, most of whom subscribed four shillings and fourpence yearly to be paid quarterly for the support of the intended hospital." With this small promise and what money he could spare from his own slender means he took a house which had been a theatre, and it was opened as a hospital in March, 1745; before November 1st, 1747, 509 women had been delivered in it of 522 children. In the endeavour to provide money for his foundation, Mosse had become deeply involved in financial speculations, and was at least once arrested for debt. Nevertheless, in 1748, he bought a site of more than four acres in what was then a suburb. On part of this space he proposed to build a hospital with accommodation for at least 150 patients; the rest was to be laid out as public gardens to be used for entertainments, the profits of which were to go towards the maintenance of the hospital. On July 9th, 1751, the foundation stone of the new building was laid by the Lord Mayor of Dublin. Mosse was anxious that the new

hospital should be a national institution, and in 1752 the required authority was obtained for incorporating the "governors and guardians of the hospital for the relief of poor lying-in women in Dublin." Among the first governors were the Lord Lieutenant, the Archbishop of Armagh, the Lord Chancellor, the Speaker of the House of Commons, the Lord Mayor of Dublin, and a number of other persons of high social standing. Mosse, who was the first Master, applied in 1755 to the Irish Parliament for financial aid, grounding his petition on the work done in the old hospital, where, from the date of its opening to September 30th, 1755, 3,674 women had been delivered of 3,746 children. It was urged that, in addition to the help given to poor women, the hospital had made it unnecessary for medical students to go to France or other foreign parts for instruction and experience in obstetrics, and that midwives also were taught. In 1755 a charter was granted by George II, and the hospital was opened by the Lord Mayor. On February 16th, 1759, Mosse died in the 47th year of his age, having carried his scheme to fulfilment in the face of many difficulties.

The subsequent history of the Rotunda is one of progress chequered by financial and other difficulties. Mosse was succeeded in the Mastership by Sir Fielding Ould, who is said to have officiated at the birth of the Duke of Wellington. In 1764 it was decided that a sum of £3,000 granted by Parliament should be laid out in building a large room in the waste ground of the hospital gardens. This room, from its shape, was called the Rotunda, and from this the hospital got the name by which it is universally known. It was let for oratories, receptions, and similar purposes. In 1770 it was decided that systematic instruction in midwifery should be given at the hospital, and Mosse's creation grew into a Mecca of midwifery to which students flocked from the ends of the earth.

We wish we could follow Dr. Kirkpatrick in his fascinating narrative of the vicissitudes of the Rotunda; the story is full of human as well as scientific interest. In 1835 a gynaecological department was established. In 1838 Every Kennedy, then Master, formed an association among his students to which he gave the name of the Dublin Obstetrical Society. This was soon joined by a large number of practitioners, and it continued in active life till 1882, when it was merged with the other Dublin societies into the Academy of Medicine.

More than once the existence of the hospital was threatened. Recurrent outbreaks of puerperal fever exposed it to severe criticism, and in 1867 Every Kennedy informed the Governors that it had ceased to fulfil its purpose, owing, he argued, to the fact that the congregation of a number of lying-in women under one roof engendered and spread among them "a disease *sui generis* and of the most fatal character." His view was not accepted, but he returned to the charge in a paper read before the Dublin Obstetrical Society in 1869. This was followed by a debate which revealed the fact that of the seventeen speakers who took part in it not one had grasped the importance of the work done by Semmelweis. But Lister was about to bring in a new era. Louisa Atthill, who became Master in 1875, made an attempt to apply the principle of antisepsis. This was done in a more thoroughgoing manner by his successor, Arthur Vernon Macan. It would be difficult, says Dr. Kirkpatrick, to say too much in praise of Macan for the work he did while he was Master. If Mosse built the hospital, Macan saved it from extinction.

Under Sir William Smyly, Dr. Purefoy, and Dr. Jellet, the hospital not only maintained its position, but gained an even wider reputation than it had before. The part each of them played is left by Dr. Kirkpatrick to some future historian to record. Special mention should, however, be made of the successful efforts of Dr. Jellet to save the Rotunda from the doom with which its school of midwifery was threatened by the Insurance Act.

A word must be said of the fine illustrations with which the book is abundantly supplied. They show the growth of the Rotunda from the now dilapidated house in which it began its work to the stately edifice in which its beneficial activity is continued. Both the author and the editor of this handsome work may be congratulated on having raised a monument worthy of the famous institution whose origin and development are traced in an eminently readable style.

¹ *The Book of the Rotunda Hospital.* An illustrated history of the Dublin Lying-in Hospital from its foundation in 1745 to the present time. By T. Percy C. Kirkpatrick, M.D., M.R.I.A., Fellow and Registrar of the Royal College of Physicians of Ireland. Edited by Henry Jellet, M.D., F.R.C.P.I., Master of the Hospital. London: Adlard and Son, Bartholomew Press, Bartholomew Close, E.C. 1913.

THYROID AND THYMUS.

As an example of the bookmaker's handiwork this sumptuous volume, *Thyroid and Thymus*,² merits high praise—paper, type, binding, and illustrations are of the first order. The regret is great when a rich setting is employed to show off a stone badly cut, and not of the highest quality; it becomes greater when it is recognized that with reasonable care the grave defects could have been remedied.

As first assistant to Professor Stilling, in the Pathological Institute at Lausanne, and later under Professor Kocher at Berne, Dr. CROTTI has had opportunities of familiarizing himself thoroughly with the pathology and surgery of the thyroid. Every chapter shows an intimate knowledge of his subject, more particularly, as is natural, of the observations and views of Swiss workers. These are very fully stated—sometimes too fully, as, for example, the discarded hydrotelluric and plutonic theories, of Bircher and Repin respectively, upon endemic goitre. An interesting account is given of the well-known controversy between Reverdin and Kocher regarding priority in recognition of the state of cachexia strumipriva.

But the author's arrangement of his matter is painfully confused. The first chapter, on the anatomy, histology, and embryology of the thyroid, branches off into a classification of thyroid tumours; after pointing out that these are to be divided into the two great classes—those of branchial and those of mesobranchial origin—the author promptly proceeds to tabulate all forms as of branchial origin. A chapter upon clinical symptoms and diagnosis is followed by one on intrathoracic goitre, and this by a chapter on goitre death; then follow in succession chapters upon circular goitre, congenital goitre, simple goitre and pregnancy, the clinical aspect of malignant goitres (so headed but mainly devoted to myxoedema), the pathology of thyroid insufficiency, congenital athyroidism, and "small thyroid insufficiency"; then comes a long chapter of some 55 pages harking back to the etiology of endemic goitre and cretinism. The disorder of this first half of the book is inexcusable.

The author has gathered all that he "considered of value from the enormous amount of French, Italian, German and English literature on the subject"; but though he mentions names freely he does not give references nor supply a bibliography. It is thus impossible to verify his statements. And to add to the reader's irritation he writes not English, but a jargon in which German and French medical terms are given an English dress, according to his personal choice. There is scarce a page upon which one or more atrocities are not to be found, such as "neoformed vesicles," "parastruma" (for "parathyroid goitre"), "alveoli formations," "anoxhemy," "pavimentous epithelium," "motory" (for "motor"), "medullar" (for "medullary"), "bactericide" (for "bactericidal"), "goiterous." In his preface he thanks J. Philip Schneider, Ph.D., Professor of English, Wittenberg College, Springfield, Ohio, for help in proof reading and seeing the work through the press. We do not expect a Professor of English to be familiar with medical and zoological terms; cannot for instance, hold him responsible for speaking of tunicates as "tuniciers," or teleosts as "temeostiver"; but he might have been expected to see that nouns were not used as adjectives, and not to have passed such expressions as "the liver's epithelium," "unique" (where "single" is meant), "lateral sides of the pharynx" "paroxystic" ("paroxysmal"), "colloid nodules may be singles or multiples," "I operated a malignant adenoma," or "a fibrous cord, called by His the *thyroglossus tractus*, and which extends from the foramen cecum," etc.; "and which" repeatedly offends. We are inclined to suspect that the Professor of English in Wittenberg College must have learnt his English in Germany. What surprises us is that an old and distinguished firm, known for generations for the excellence of its medical publications, should have permitted these errors to pass their proof readers. We can only conclude that in the States, as here, the war has called away invaluable members of the staff and wrought disorganization. The beauty of the illustrations and excellent format of the volume do not atone.

² *Thyroid and Thymus*. By André Crotti, M.D., F.A.C.S., LL.D., formerly Professor of Clinic I Surgery and Associate Professor of Anatomy at Ohio State University College of Medicine, etc. Philadelphia and New York: Lea and Febiger, 1918. (Imp. 8vo, pp. 567; 96 figures, 33 plates in colour, 10 dols. net.)

FRACTURES AND DISLOCATIONS.

The influence of war surgery is not greatly apparent in the eighth edition of Professor LEWIS STIMSON'S *Treatise on Fractures and Dislocations*.³ In an authoritative work of this size, in which 482 pages are devoted to the consideration of fractures, it might have been expected that more space would have been given to this important department of military orthopaedics. Professor Stimson writes about gas gangrene in gunshot fractures, but does not refer to tetanus as a complication. Several illustrations taken from Flint, showing the suspension and extension method of treatment, are reproduced, but we think that more might have been said of the excellent work accomplished by the Harvard unit in France, and by the military orthopaedic hospitals in Great Britain. In France and in this country splints devised on the principles of H. O. Thomas's knee splint, with proximal ring, are now being used by the thousand and giving good results, but we have not succeeded in finding mention of them in this book. Nor does the work on fractures of Hey Groves find notice here.

If Professor Stimson's advice as to the treatment of fractures seems to our mind to err on the side of caution and conservatism, yet it is backed by great experience and sound common sense. He is not enthusiastic in praise of open operation, although he recognizes the value of Lane's and Albee's procedures in certain cases.

His prognosis of the functional results after fracture of the long bones appears unduly optimistic when compared with Dent's records of the Metropolitan Police Force and other British statistics; but those published by the American Surgical Association seem to show that the non-operative treatment is generally more successfully carried out in the United States than in England. This may well be the case, for in our medical schools the attractions of brilliant abdominal surgery eclipse those of the humdrum treatment of fractures to such an extent that in at least one of the general hospitals of London fractures are not admitted to the wards. The consequences of this exclusion must be lamentable, for the student at such a school obtains his licence to practise without having any experience in the treatment of fractures of the lower extremity, although he may be well up in the technique of gastro-jejunostomy and other operations of abdominal surgery. The bad average results of treatment by conservative methods have no doubt had great influence with those surgeons who advocate recourse to plating and similar procedures as a routine method. Their advocacy has, we hope, had the effect of calling attention to defects and stimulating those who differ from them to strive after better results by less heroic methods. In considering and comparing results the author wisely says, "The judicious criterion is often to be found in the ultimate function rather than in form."

In cases of fractures in old persons, such as those of the neck of the femur, Professor Stimson thinks that the risk of pneumonia is exaggerated, and that when it occurs it is not due to recumbency, but that it is "a relatively unimportant incident in a general failing of the strength." Some British surgeons, acting on the same opinion, have had good results, while denying the necessity of getting old persons out of bed before the fracture is consolidated.

It is a good many years now since Sir William Macewen demonstrated by careful experiments and clinical experience that the periosteum does not produce bone. We have not yet encountered any record of experiments which confirm his conclusions. Yet we still find in surgical literature references to the bone-producing functions of this structure. Professor Stimson speaks of it as "a tissue whose activity in the production of bone is marked," and other references to it show that he is uninfluenced by Macewen's work.

The latter half of this book is devoted to the subject of dislocations and presents a full and adequate account of it. There are separate indexes to fractures and to dislocations, and both of them would be more useful if they were much fuller. The illustrations are many and good. There are, of course, printer's errors, and we hope that in subsequent editions Dr. Albee's name will no more be printed "Atlee."

³ *A Practical Treatise on Fractures and Dislocations*, By Lewis A. Stimson, B.A., M.D., LL.D. (Yale), Professor of Surgery in Cornell University Medical College, New York, etc. Eighth edition, revised and enlarged. New York and Philadelphia: Lea and Febiger, 1917. (Roy. 8vo, pp. 946; 475 figures, 39 plates, 6.00 dols.)

ORGANIC COMPOUNDS OF ARSENIC.

DR. GILBERT T. MORGAN, Professor of Applied Chemistry in the City and Guilds Technical College, Finsbury, has written a book on the *Organic Compounds of Arsenic and Antimony*,⁴ which will, perhaps, appeal to a limited public but will be of great interest to students of the history of chemistry and to those medical men who care to make themselves acquainted with the constitution and mode of preparation of drugs now commonly in use. As Professor Morgan shows, organic derivatives of arsenic have been under investigation since the earliest times of modern chemistry, and their examination has played an important part in the establishment of current theories of the molecular constitution of matter. It is, however, the therapeutic uses of organic arsenicals which have provoked the more recent activities in the synthesis of these compounds. The fact that corresponding derivatives of antimony have also attracted attention for the same reason has led to their inclusion in this volume.

It was in 1760 that Cadet de Gassicourt stumbled over the threshold of the subject in the course of an attempt to manufacture a sympathetic ink, but it was Bunsen who, in 1837-43, laid the foundations of the knowledge of organic compound containing arsenic. Since then an enormous amount of work has been done, to which Professor Morgan gives references in a chronological bibliography. He takes his reader by gradual stages through the aromatic arsenicals to atoxyl, and then to salvarsan and neo-salvarsan, to the aromatic primary arsines, and to luargol, the salvarsan co-ordination compound with silver bromide and antimony oxide introduced by Danysz. There is a short section on aromatic arsenicals, and the final chapter deals with miscellaneous organic derivatives of arsenic and antimony. The book is completed by an appendix on the estimation of arsenic in organic compounds.

A MEDICAL DICTIONARY FOR LAYMEN.

It is not an easy thing to write a medical book of reference for the ordinary layman, but it is very important that such books should be written and revised from time to time, for a great deal of suffering and many mistakes might be prevented, and much of the prejudice against the medical profession obviated, if general opinion were better informed as to the nature of the problems with which medicine has to deal. In his *Medical Dictionary*⁵ Dr. W. B. DRUMMOND, medical superintendent of the Baldovan Institution, Dundee, has written in the right way. Although it would be easy to criticize the balance of some of the parts—as, for instance, the space given to a somewhat inadequate list of health resorts—we prefer to dwell upon the merits of the book, which are conspicuous. The author has done well to deal with such general subjects as immunity, vaccines, bacteriology, antiseptics, and disinfection, comprehension of which underlies an understanding of so much of modern medicine. Often it is owing to a want of a general knowledge of these subjects that the doctor and the anxious friends of his patient get at cross purposes. To these articles might have been added a fuller account of hormones, the short space devoted to the subject being quite inadequate to afford any intelligible notion to the uninformed reader. A great deal is said about exercises, and this subject, as well as the article on consumption, is copiously illustrated; the illustrations are, in fact, rather a prominent part of the book, and the author has been well advised to reproduce from Saunders's *Hand Atlas of Diseases of Children* very good coloured plates of varicella, rubella, measles, and scarlet fever. The book is one which can be recommended for the purpose with which it has been written—namely, the information of the layman and woman.

NOTES ON BOOKS.

PROFESSOR GLEY is so well known in connexion with the subject that it is most appropriate that his compact and philosophic work on *The Internal Secretions*⁶ should be

⁴ *Organic Compounds of Arsenic and Antimony*. By Gilbert T. Morgan, D.Sc., F.R.S. 1918. London: Longmans, Green and Co. (Demy 8vo, pp. xx + 376. 16s. net.)

⁵ *A Medical Dictionary*. By W. B. Drummond, M.B., C.M., F.R.C.P.E. London and Toronto: J. M. Dent. (Demy 8vo, pp. ix + 625; illustrated.)

⁶ *The Internal Secretions: Their Physiology and Application to Pathology*. By E. Gley, Professor of Physiology in the College of France. Translated and edited by Maurice Fishberg, M.D. London: William Heinemann (Medical Books) Limited. 1918. (Cr. 8vo, pp. 241. 10s. net.)

translated into English. This has been successfully carried out by Professor Maurice Fishberg, of New York, who has incorporated several additions specially written for this edition by the author. The work is divided into three chapters, of which the first deals with the general scope and history of our knowledge of the internal secretions; the second, with the distinctive characteristics of the endocrine glands and the principal products of their activities; and the third, with the functions of the glands of internal secretion, first in normal and then in pathological conditions. The reciprocal relations between the various glands are described in clear language, and later the diseases of the ductless glands are divided into two large categories, those of over-activity and those with lessened activity. This book is written by a physiologist, and therefore naturally appeals more to physiologists than to practising physicians.

A PAMPHLET by Viscount Grey of Fallodon on *The League of Nations* has been published by the Oxford University Press (price 3d. net). The main contention of the essay is that it does not follow that a league of nations to secure the peace of the world will remain impossible because it has not been possible hitherto, and the author proceeds to lay down certain conditions which must be fulfilled. The first is that the idea must be adopted with earnestness and conviction by the executive heads of state, and the second, that the governments and peoples of the states willing to found it must understand clearly that it will impose some limitation upon the national action of each, and may entail some inconvenient obligation. He recognizes that the pressure of the league must be more than economic, and that those states that have power must be ready to use the force—economic, military, or naval—that they possess. Some previous attempts in the direction have failed because it was not clearly understood and accepted that violation of the agreement by one or more states did not absolve all or any of the others from the obligation to enforce the agreement.

Dr. REGINALD COCK has published a second edition of his pamphlet, *Counsel of European Nations*.⁷ His thesis is that the only proper basis for international relations rests on the recognition of true principles of Christianity. He prints a translation of the Pope's note of August, 1917.

The introduction to Mr. PAUL NASH's number (III) of *British Artists at the Front*⁸ contains a most unhappy simile. Mr. Salis says that Mr. Nash's "comprehension of nature is a thing as born in him as his skeleton." But we can agree that the artist has grasped and depicted what Nature has suffered, and by his landscapes of ruined woods and fields suggests the like devastation that has swept over man. The drawings are powerful and true, if grim; but they deal with grim subjects, and the artist knows for he has served among the ruins. The new number (II) of *Admirals of the British Navy*⁹ begins with Admiral Beatty and ends with Vice-Admiral Keyes, who organized the raids on Zeebrugge and Ostend.

⁷ London: Elliot Stock. (1s. net.)

⁸ London: Country Life, Ltd. (5s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

Kerocain.

KEROCAIN is the proprietary name adopted by Messrs. Thomas Kerfoot and Co. (317, Upper Street, Islington) for the British-made novocain now being manufactured by them under licence from the Board of Trade. Messrs. Kerfoot have supplied us with samples for examination, and we find that kerocain is pure para-amino-benzoyl-diethyl-amino-ethanol hydrochloride, identical in chemical composition with the German-made article, and therefore perfectly suitable for replacing it as a local anaesthetic. Kerocain is supplied in powder, solution, and tablet form, the tablets being of various convenient weights, and containing kerocain either alone or in combination with adrenalin.

Dormigene.

DORMIGENE, which is monobrom-isovaleryl-urea, and is therefore identical in chemical composition with bromural, is now being manufactured under special Government licence by Messrs. Allen and Hanburys, Ltd., and this firm has recently supplied us with samples of dormigene tablets (5 grain) and dormigene powder. Examination of the samples shows dormigene to be pure monobrom-isovaleryl-urea possessing all the chemical and physical

characters of the German article bromural. The therapeutic action of dormigene is therefore doubtless also identical with that of bromural, which has considerable reputation as a sedative and hypnotic.

THE SCOTTISH HIGHLANDS AND ISLANDS MEDICAL SERVICE BOARD.

THE fourth report, for 1917, of the Highlands and Islands Medical Service Board¹ states that before the war there was difficulty in securing adequate medical and nursing services for the Highlands and Islands of Scotland. In very few districts had there been anything more than the bare minimum of medical men necessary for the work under normal conditions, and in some areas the medical service had been, for geographical and other reasons, admittedly inadequate; in many districts also the need for skilled nursing was pressing. The medical and nursing services have both been gravely affected by the war. In most instances medical men on active service have been able, with the assistance of the Scottish Medical Service Emergency Committee and the Board, to arrange with colleagues for their work, but the men doing double duty have found the task heavy, and in some instances considerations of health have compelled them to give up the attempt to overtake the additional work. The Board and the Emergency Committee have endeavoured to make temporary arrangements with medical men ineligible for or discharged from military service, with older men who have given up general practice, or with natives of British dependencies who have recently qualified at Scottish universities, but it is now almost impossible to find suitable men for temporary appointments. If a supply of trained nurses were available for the assistance of practitioners at present overworked, the situation would be relieved, but the call for nurses for war work has been not less insistent than for medical men, so that there is now almost as much difficulty in securing the services of qualified nurses as in finding medical men.

The Medical Service.

In 1917, as in 1916, the Board has found it impossible to proceed with the organization of all the branches of work covered by its schemes, but the introduction of a medical service at modified fees to persons of limited means, irrespective of their distance from a doctor, was one as to which steps could at once be taken, and such service was established as soon as the scheme was approved by the Secretary for Scotland. The scheme provides for medical attendance at fees which must not exceed 5s. for the first visit, and 2s. 6d. for each subsequent visit in the same illness, on the families and dependants of insured persons, on uninsured persons of the crofter and cottar classes and their families and dependants, and on others in like circumstances to whom the payment of the practitioner's ordinary fee for attendance would be an undue burden; the maximum fees in midwifery cases to be paid by persons of these classes, including fees for any subsequent visits, was fixed at £1. The essential part of the Board's scheme was that the fees should be the same, whatever the distance of the patient from the doctor's residence, the difference being made up by the Board out of its Treasury grant.

At the start of the scheme, as the Board had no data on which to base a method of remuneration, it arranged as a provisional measure to pay in most cases subsidies representing approximately sums equivalent to the loss that would be incurred by practitioners in working the scheme, and this method may still be employed in suitable cases, but the Board does not consider that in the varying conditions of medical practice it is entirely satisfactory as a permanent means of equitably administering the fund for medical service. As the subsidies now payable to practitioners are, in effect, travelling grants to enable them to attend distant patients at a low uniform rate, the Board considers that a more satisfactory method of payment for the majority of the practices in the Highlands and Islands would be to fix the grant in relation to the actual travelling in work done for the Board. It is recognized that the advance in the cost of travelling has imposed a severe

strain upon practitioners in the Highlands and Islands and many representations have been received from all parts of the Board's areas in regard to the inadequacy of the grants, and of the inability of the medical men to carry on under present conditions. The Board admits that these representations deserve very serious consideration in view not only of the increased cost of travelling, but also of the great difficulty in securing suitable men for service in the Highlands, and the heavy responsibilities resting on the men who are doing the work. The Board, in drawing up a special scheme, seems to have been moved partly by a sense of justice, and partly by necessity. The scheme, which has been approved by the Secretary for Scotland, makes provision for the assessment of subsidies on a normal pre-war rate per mile of travelling involved in attending boards and insured persons and for payment of temporary supplementary grants based upon the difference between the normal rate and an increased rate regarded as equitable in present circumstances. The specified rates are payable on miles travelled from the doctor's door, both outward and homeward journeys being reckoned. The grants are to be based under the agreement with practitioners on a normal rate of 6d. a mile, and supplementary grants are to be made for the past year. These will be made (1) up to an amount representing a rate of 9d. a mile on travelling by motor car, motor cycle, horse and trap and boat, and 7d. a mile on travelling by train, ordinary cycle, and on foot. No payment will be made to any practitioner whose grant under his agreement represents higher rates than those specified, except in certain cases—namely (2), in consideration of special circumstances affecting particular practices, and (3) in consideration of the inadequacy of the total remuneration derived from a practice the grant may be supplemented. The scheme for a medical service of modified fees has been in operation in all save a few parishes since the beginning of 1916. The Board has arrangements in force in 141 practices. The estimate of the cost of the scheme for 1917 was £22,000, and the actual expenditure was £21,300. It is estimated that for the special and temporary grants a further expenditure to the extent of approximately £5,000 will have to be met for 1917.

The Nursing Service.

Though the difficulty of securing the services of trained nurses grew during 1917, and no development of the services contemplated can be looked for in existing conditions, no association in the Highlands and Islands in receipt of a grant from the Board was obliged to suspend its activities entirely in 1917, but when a nurse has resigned the associations have as a rule been forced to make temporary arrangements with nurses who have not undergone so long and varied a training as their predecessors. It was recognized in 1916 that there was urgent need for unification of the nursing service if overlapping was to be avoided and economy in administration secured, but so far no progress has been made with the formation of associations on a county or district basis except in the district of Lewis, where some twelve nurses previously in the employment of as many separate local associations are now under the management of the district committee, which acts as the central nursing authority for the island. The district committees, public health authorities, parish councils, and school boards all contribute to the maintenance of the nurses, whose services are available for the treatment of patients for whom these authorities are responsible. Substantial assistance has been received from the Ladies' Highlands Association, the Duchess of Montrose's Scottish Nursing Trust, and the West Coast Mission; residents in the various districts have also made voluntary subscriptions.

AT the recent congress of the Women's Co-operative Guild at Birmingham a resolution was adopted urging the establishment, under the control of the public health authorities, of a national service of midwives free to all and financed by a 75 per cent. Exchequer grant.

BILLS have been introduced into the New York State Legislature providing for the expenditure of £500,000 to be applied to the construction of buildings to accommodate the insane and feeble-minded. Bills have also been introduced providing for the enlargement of state institutions for lunatics, and the establishment of a psychopathic hospital in New York City.

¹Edinburgh: His Majesty's Stationery Office. To be obtained through any bookseller. Price 2d. (Cd. 9060.)

British Medical Journal.

SATURDAY, JUNE 29TH, 1918.

THE BURDEN OF COSTLY REMEDIES.

WE have received a copy of the decision in an appeal to the English Insurance Commissioners by Dr. F. C. Fisher against the refusal of the Hertfordshire Insurance Committee to repay him the sum of £4 odd, which he had expended in the purchase of tetanus antitoxin for the treatment of an insured patient. The facts of the case were not in dispute. Dr. Fisher found the patient to be suffering from tetanus, and considered it necessary for his proper treatment to administer antitoxin, a supply of which he obtained at once from a firm of wholesale chemists. He had entered into a contract with the Insurance Committee to supply drugs required for those of his insured patients who lived more than a mile from a chemist, the payment being upon a capitation basis; the patient in question was one of such insured persons.

The question at issue was whether the antitoxin administered in this case fell within the category of the drugs and medicines which Dr. Fisher was under obligation by his agreement to provide in consideration of the capitation payment, and therefore without any further payment. The London and Counties Medical Protection Society contended on behalf of Dr. Fisher that the antitoxin was not a drug or medicine within the meaning of the medical benefit regulations, and of his agreement with the Insurance Committee. On this issue the Commissioners offered to give a decision without a hearing, but the solicitors for the appellant urged that opportunity should be given for the case to be argued at a hearing, on account of the importance to insurance practitioners of the issue involved, and the case was accordingly heard.

The Commissioners' decision and the arguments upon which it rests cover nearly ten typewritten foolscap pages. The relevant provisions of the Act and Regulations are recited and compared in order to dispose of the contentions put forward on behalf of Dr. Fisher. Medical benefit is defined in the statute to include the provision of proper and sufficient medicine and such medical and surgical appliances as may be prescribed by the regulations, and it is the duty of Insurance Committees to make provision for the supply of drugs, medicines, and appliances to insured persons in accordance with the regulations. The regulations lay down the circumstances in which arrangements for the supply of drugs (including medicines) may be made with medical practitioners instead of with chemists. Practitioners may be paid for drugs supplied by them for their patients in one of two ways: they may be paid in respect of drugs actually supplied, or, in exceptional cases, in rural areas they may be paid by capitation fees without reference to the nature or cost of the drugs actually supplied. The net effect of the various provisions taken together is held to be that insured persons are entitled, as part of their medical benefit, to a supply of all drugs requisite to their treatment under the Act. Whether a doctor supplying all drugs shall be paid on

the one basis or the other is a matter of agreement between him and the Committee.

On behalf of Dr. Fisher it was argued that, while he had agreed with the Committee on a capitation basis for the supply of drugs to the insured persons on his list, yet the antitoxin which was necessary for this particular case was outside the scope of the agreement, either (1) because it was not a drug or medicine, or (2) because, while it might be the duty of the Insurance Committee to arrange for its supply, the agreement between Dr. Fisher and the Committee did not impose a corresponding obligation upon him. The contention that serums and vaccines are not properly included among drugs and medicines is dismissed as contrary both to the intention of the Act and to the opinion of the medical profession generally. The second contention, that Dr. Fisher's agreement did not cover the obligation to provide this substance in consideration of his capitation fees, is likewise dismissed pontifically, as based on a misreading of the regulations. It is ruled that a contract of the kind entered into by Dr. Fisher covers the provision of all kinds of drugs and medicines to which an insured person is entitled as part of his medical benefit, including those which would otherwise than in a rural area be supplied by a chemist. In short, having contracted to be paid on a capitation basis and not for drugs supplied, Dr. Fisher was not entitled to recover the £4 spent by him on antitoxin. The full text of the concluding paragraphs of the decision is as follows:

On the case as a whole, therefore, I find: (1) That anti-tetanus antitoxin is a drug or medicine to the supply of which the insured person concerned in the present case was entitled in the circumstances of the case, as part of his medical benefit; (2) that if it had not been such a drug or medicine the present appeal must fail, because in those circumstances the Insurance Committee would be under no liability to provide it, and the doctor would have no claim upon them for repayment, and the provision of the substance then would have been entirely outside the scope of the Act; (3) that Dr. Fisher had entered into a contract under which it was his duty to supply to his insured patients all drugs and medicines required as part of their medical benefit; (4) that under the particular agreement into which Dr. Fisher had entered he contracted to be paid for all drugs and medicines supplied to his insured patients by an inclusive capitation payment, and was not entitled, therefore, to be paid separately in respect of the medicines supplied in the present case.

I therefore dismiss the appeal. In doing so I am compelled to comment upon the waste of the time, energy, and money of all concerned, especially the Insurance Committee, that has been occasioned by the insistence upon a hearing in a claim for recovery of money under an agreement, where the facts were not in dispute, and the arguments put forward in support of the claim showed so little attention to the provisions of the agreement as was evinced in the present case.

Dated this seventh day of June, 1918.

J. SMITH WHITAKER.

From the technical point of view this decision may be correct. But since it is partly based on the alleged general opinion of the medical profession we would point out that the Insurance Acts Committee of the British Medical Association, on January 13th, 1916, recorded its opinion that the provision of proper and sufficient medicines as contemplated by the Insurance Act does not include the supply of salvarsan, vaccines, serums, etc. It was further resolved on the same day that, with a view to the proper treatment of insured persons suffering from diphtheria, public health authorities should be urged to use the powers

which they possess, and which most of them utilize, to supply antidiphtherial serum gratuitously.

Since these resolutions were adopted, over two years ago, the State has recognized the principle that certain special remedies which are costly and difficult to procure are not to be reckoned among the ordinary drugs which chemists, and those doctors who supply medicines directly to their patients, should be expected to provide in the ordinary course. A case in point is salvarsan and its congeners. Last year the Council of the British Medical Association, in defining the policy which should be adopted by the Association in the matter of the diagnosis and treatment of venereal diseases, declared that salvarsan and other expensive drugs should be supplied free of cost to all medical practitioners for the treatment of their patients, and this principle was approved by the Annual Representative Meeting.

In order that all persons should be placed in a position to receive what is believed to be the most effectual treatment, the State has, in fact, decided that the special remedies for venereal disease shall be supplied by local authorities, and has undertaken to reimburse them for the greater part of the cost. Again, local authorities—at any rate, all the more enlightened of them—supply not only antidiphtherial serum, but also serums for the prevention and treatment of typhoid fever. We have no doubt that this principle will and ought to be extended, and we have equally no doubt that, though tetanus may not be reckoned as an infectious disease in the ordinary sense in which that term is employed, public authorities ought also to undertake the supply of antitetanic serum. Last year the Lister Institute of Preventive Medicine produced at its laboratories at Elstree 86,647 doses of tetanus antitoxin for the army, the navy, and the overseas forces. The value of antitoxin in the treatment of tetanus was insisted upon by the War Office Committee on Tetanus in 1916, and it expressed its opinion still more emphatically last year, when it said that “in acute general tetanus the best method of treatment lies in the earliest possible administration of large doses of antitoxic serum by the intrathecal route, repeated on two, three, or four days in succession, and combined, if thought desirable, with intramuscular injections.” The diversion of the energies of the Lister Institute to the production of tetanus antitoxin for the military forces may well have made it difficult to procure it in the market, and may therefore justify the price stated to have been charged by the wholesale chemists in this case; in view of the strong expression of opinion by the War Office Committee we should have imagined that the Insurance Commissioners, and especially a medical commissioner, would have recognized the obligation to put this means of treatment at the disposal of insured persons. The decision we have quoted seeks to place upon the insurance doctor the obligation to supply this costly remedy under a contract which undoubtedly never contemplated any such large expenditure upon a single item of treatment. It is on this ground that we look upon the decision as inequitable—and not only inequitable, but impolitic, and contrary to the public interest.

Furthermore, we in our turn are “compelled to comment” upon the general tone of this document, and in particular that of its last paragraph. For some time past we have observed with regret a tendency on the part of the Insurance Commissioners, in virtue of certain quasi-judicial functions with which the law has endowed them, to play the schoolmaster to the medical profession. In this instance a responsible professional body raised on behalf of its

member a point upon which no definite ruling had hitherto been given. It is one of the specific duties of the Commissioners to hear such appeals, and a magisterial air of reproof was out of place.

INDUSTRIAL HEALTH AND EFFICIENCY.

THE Health of Munition Workers Committee has issued its final report.¹ We make the announcement with some regret, for the Committee, since it was appointed in September, 1915, has done a great amount of extremely valuable work. The problems which it had to investigate were not indeed new, for they have been studied more or less by all industrial nations. In this country during the last twenty years great progress has been made under the Factory Department of the Home Office in many of the essentials of health in the workshop, and for several years before the war employers were showing that they had begun to recognize the importance of humanizing the life of the industrial worker and providing better conditions. But the Committee not only rendered existing information available in the long series of its reports, but instituted investigations which have yielded most important results. In spite of all that had been done in the critical examination of certain dangerous trades much remained to be learnt as to the effects of occupation on the rates of sickness and mortality, even in males, while as to women and young persons reliable data were almost wholly lacking. So also was information as to the relation of fatigue to disease, and as to the proper length and distribution of hours of labour, and the relation of these data to output. We have from time to time, as the various memorandums were published, endeavoured to indicate what the Committee had accomplished, but, considerable as has been its achievement, much remains to be done. In this final report the opinion is expressed that it is necessary to make arrangements without delay for a national scheme of industrial medical research and to accord full recognition to the importance of industrial hygiene.

The work of the Committee has been concerned with an emergency, but the munition worker is a type of all workers, and as we have frequently endeavoured to show, the principles at which the Committee has arrived concern, in fact, all forms of industrial labour. Such problems cannot be solved by medical investigation alone, for they are intimately related to larger social and industrial problems, but they cannot even be accurately stated without it. The question of shorter hours of labour is regarded as lying near the root of the whole labour problem; further, the conditions of women's labour raise social and economic issues of vital importance to the future of the race. Again, the solidarity of industrial society—the interdependence of employers and workers—is closely related to the whole issue of the status, health, and physical equipment of the worker. Finally, there is the title of the worker to an effective voice in determining the conditions under which he works. “If industry,” the report says, “be indeed a national service, the object of those engaged in it is the good of the community as a whole, and the worker should have a fair and legitimate share in the responsibility of the transaction.”

If we regret the disappearance of the Health of

¹ *Industrial Health and Efficiency*. Final report of the Health of Munition Workers Committee. Ministry of Munitions. His Majesty's Stationery Office. (Cd. 9365.) To be obtained through any bookseller. Price 2s. net.

Munition Workers Committee, it is largely because it has shown itself possessed of the influence and force to get the necessary inquiries carried out and has displayed fine scientific judgement in the choice of subjects for inquiry and the selection of investigators. The work needs to be continued, and we can only hope that the Advisory Committee recently appointed by the Minister of Munitions may be able to convince the Ministry that without further investigation the advice it will be able to tender will be of diminished value. It is true that one result of the work of the late committee was the establishment in January, 1916, of a welfare section of the Ministry of Munitions, which early last year was reorganized under the direction of Dr. E. L. Collis, a medical inspector of factories, and a member of the Health of Munition Workers Committee. The new department is responsible for all matters concerned with the health and welfare of munition workers in national as well as in controlled factories, including the medical problems involved in the prevention of T.N.T. poisoning, and the maintenance of the health of those employed in the manufacture of lethal gasses. Its sphere also covers the conditions of life of munition workers outside the factory, and the inspection of the large number of temporary hostels. Recently it has been taking steps to deal with the various maternity problems which arise in munition areas. Provision has also been made to enable the section to undertake research, and the collection of the accurate knowledge on which administrative action should be based. Another step of importance was taken when, under a recent Act, the Home Office was empowered to make orders requiring special provision to be made at a factory or workshop for securing the welfare of workers, including such matters as the preparation and taking of meals, the supply of drinking water, protective clothing, ambulance and first aid arrangements, and the supervision of workers.

The report now issued by the Health of Munition Workers Committee is comprehensive, and its perusal will on all the main heads supply inquirers with the information contained in the various memorandums issued from time to time, and in the report on industrial efficiency and fatigue published in February, 1917. The Committee recognizes that during the industrial revolution which came about in England during the nineteenth century there was a tendency for the fantastic conception of Samuel Butler, the author of "Erewhon," to be realized, and for the man to be made subservient to the machine. The Committee is convinced that to secure harmony and smooth working, efficiency, and maximum output, the machine must be made subservient to the man, for it is his life, mental development, and moral well-being which guarantee effective labour. Physical health is the basis, and its physiological justification must be a correct understanding of the part played by nutrition, by rest, by fatigue, and by general conditions affecting health, if waste is to be avoided and maximum energy attained. This is true, because physical health is necessary to mental well-being, and is at the basis of social and moral development. The matters dealt with in the report concern the future as well as the present, and are among the root problems for latter-day preventive medicine, which has as its object the removal of the occasion of disease and physical inefficiency, combined with the husbanding of the physical resources of the worker in such a way and to such a degree that he can exert his full powers unhampered, with benefit to himself and his countrymen.

OUR THREE THOUSANDTH NUMBER.

THE present issue, which completes the first volume for the year, is the 3,000th number of the *BRITISH MEDICAL JOURNAL*. This numbering does not include the issues of our forerunner, the *Provincial Medical and Surgical Journal*, which was taken over by the Association at an early date in its history. The *Provincial Medical and Surgical Association* was founded on July 18th, 1832, by Sir Charles Hastings, at a meeting of fifty medical men in the board room of Worcester Infirmary, and for some years afterwards a volume of *Transactions* was issued annually. The first number of the *Provincial Medical and Surgical Journal* appeared on October 3rd, 1840. Though privately edited, it was circulated weekly among the members, and in 1844 it was taken over by the Association, and became its official organ. Eight years later, at the annual meeting in Oxford, it was decided that the *JOURNAL*, which was then being published fortnightly at Worcester, should again be issued weekly, and should be edited and published in London; the first number under the new arrangement appeared with the title of the *Association Medical Journal*, at the beginning of January, 1853. In 1856 it was unanimously resolved that the name of the Association should be changed to the British Medical Association, and in conformity with this decision the first issue for 1857 bore the title *BRITISH MEDICAL JOURNAL*, No. 1. In July, 1867, the *JOURNAL* was enlarged, and during the next half-century its scope was greatly widened and the number of pages in each weekly issue increased to meet the growing needs of the Association, the steady increase in its membership and influence, and the progress of medical science. Thus the *JOURNAL* took its place among the foremost medical periodicals of the world. The *Epitome of Current Literature* was added in 1892, and in 1903 the publication of the Supplement was begun. In January, 1906, the size of our page was increased and its shape changed to that with which members are now familiar. Since the beginning of the war the number of pages has steadily diminished through the operation of causes over which the Association has no control, and the tinted cover introduced in 1906 has this year been dropped for the same reason. The war has seriously affected the production of the *JOURNAL* owing to the untoward economic and commercial conditions it has brought about. In particular, the regulations and orders of the Paper Controller, made under the Defence of the Realm Act, have steadily curtailed the amount of paper available, so that there has been no alternative but to make a corresponding reduction in the number of pages in the weekly issues of the *JOURNAL* and Supplement. The new order of the Paper Controller, which came into force on March 1st, was of a most drastic kind. It reduced the amount of paper and paper-making materials which might be imported to half the tonnage imported in the previous year. This reduction took effect on a supply already reduced by one-third; consequently the Council was compelled to reduce still further the number of pages in the weekly issues of the *JOURNAL*. At the present time the total number available for text, Supplement, and advertisements is only 64, whereas the number of pages available before the war for the text, *Epitome*, and Supplement alone ranged from 80 to over 100, while the number of advertisement pages equalled or exceeded those figures. Only those who are actually engaged in the work can be expected fully to realize the difficulties that have to be faced nowadays week after week by the editorial and business staffs. Without undue self-praise we may fairly claim that, within the limits imposed by war restrictions, the *JOURNAL* of to-day continues to represent British scientific medicine as it should be represented, whilst helping to fulfil the primary duty of the great organization of which it is the mouthpiece—namely, the maintenance of the honour and interests of the medical profession.

THE EDUCATION OF BLINDED SOLDIERS.

We have received a copy of the third annual report of St. Dunstan's Hostel for Blinded Soldiers and Sailors, and are indebted to Sir Arthur Pearson for some observations elicited by a paragraph published in our columns of May 4th, p. 513, giving an account of what was being done in Germany for the same class of men. The fact that the report before us is the third, and is for the year ending March 31st, 1918, is sufficient to show that the work was taken in hand in this country early, and what has been accomplished proves that it was organized on the right lines. To Sir Arthur Pearson belongs the credit not only of having started and supervised the whole organization, but also of having infused into the institution a spirit of hope and courage which cannot fail to impress, and not a little to astonish, every visitor. The governing idea is to teach the blinded man to work and, if possible, to return him to his original industry or occupation. But at the threshold an important principle has to be recognized, which is that to work under the handicap of newly inflicted blindness imposes a very much greater mental strain than those who can see would imagine. It is owing to the recognition of this principle that the working day has been made short, and the satisfactory result is that the men acquire their knowledge and learn handicrafts with remarkable speed. The hours of work are from 9.30 to 12 in the morning, and from 2.30 to 4.30 in the afternoon, with an optional extra hour in the afternoon. The men who work in the class-room in the morning are in the workshop in the afternoon, and vice versa. In the class-rooms they are first taught to read Braille, the facility with which they acquire it depending not only upon their intelligence, but also upon the sensitiveness of their touch; they also learn to write in Braille with the aid of an ingenious machine. Typewriting is also taught in the class-rooms, and it is found that almost all men can rapidly learn to turn out very accurate work. The typewriters used are Remington machines, with the addition of a Braille scale, and a special machine for men with only one hand has been built by the Remington Company after consultation with the experts of St. Dunstan's. Typewriting, however, is, as a rule, taught as a means not of occupation but of communication. When he has passed the writing test, every man is given his own typewriter, and the National Library for the Blind has made arrangements for lending for a man's life any quantity of Braille literature. Cobbling, an occupation for the blind very little practised until it was developed at St. Dunstan's, is now followed by a large number of men. A blind man in the course of six or seven months can learn to sole and heel a pair of boots as well as it can be done, and the men who have left the hostel are making good earnings. They are also taught mat-making to fill in time when cobbling is slack; it is the easiest of the occupations for the blind, and some men learn it only. Basket-making, the oldest of the staple industries for the blind, is taught also, the men being trained to make a good variety of saleable baskets. Another industry taught in the workshops is joinery, but unless a man has followed that trade before his disablement he is taught to make only easily saleable articles, such as picture frames, trays, corner cupboards and ornamental tables; these they turn out as well and quickly as can a sighted workman. Poultry farming, which seems an unlikely industry for blinded men, has proved very successful; the men can distinguish birds of different breeds almost instantaneously by touch, manage incubators and foster-mothers, prepare and truss birds for table, and generally conduct a poultry farm on commercial methods. Provision is also made for men who do not wish to follow an ordinary manual occupation, and the most surprising result is that they can become shorthand writers, using a small ingenious machine which enables Braille in its most condensed form to be taken down at a speed equal to that of the ordinary shorthand writer. The notes are written

out on the typewriter. A man with a good knowledge of Braille writing and typewriting can be trained to be a telephone operator and can obtain employment in business exchanges, where the drop-shutter system is in use. Lastly may be mentioned massage, which is very thoroughly taught, and is said to be the one occupation which a well trained blind man is able to follow not merely as well as, but even better than, a man with sight. The students are given preliminary teaching in anatomy, physiology, and pathology at St. Dunstan's, and then pass to the massage school of the National Institute for the Blind. Finally, men in the more advanced classes are allowed to massage patients in some of the leading London hospitals. The men are all required to pass the examination of the Incorporated Society of Trained Masseurs, and so far none has failed. At the last examination one of them passed second of the 320 entrants. In the paragraph to which we have referred it was stated that the blind masseur in Germany was a failure, owing, it was suggested, to the fact that the Germans distrust him. Sir Arthur Pearson expresses surprise at this statement, and adds that about forty men from St. Dunstan's are now practising massage with the highest degree of satisfaction to themselves and to the patients. He also informs us that he entirely disagrees with the principle of sending blinded soldiers to existing institutions for the blind. The plan was tried in Canada and Australia, but found unsatisfactory, and some of the men who had returned are now being sent back to St. Dunstan's. Finally we may agree with him that the German estimate of 2,000 in the spring of 1917 as the number of men coming within the definition of blindness ($V = \frac{1}{25}$) accepted by the German War Office must be an understatement. The English figure at that date was about 800 and the French 2,500. The doctrine of averages, which applies to the nature of casualties as to everything else in human life, would make it probable that the number of Germans blinded in the war must be greater than the number of French. However this may be, we may conclude this notice by expressing the opinion that the work done at St. Dunstan's Hostel is of a nature in which this country may take just pride.

THE SCIENCE OF RATIONING.

CAPTAIN M. GREENWOOD has added to his reputation as a medical statistician by the issue of three valuable papers. The first, published by the Medical Research Committee, gives the results of the investigation of the composition of dietaries with special reference to the dietaries of munition workers.¹ The second, on the efficiency of muscular work, was published in the *Proceedings* of the Royal Society. The third, an epidemiological study of the food problem, was communicated to the Royal Society of Medicine. In the first, a joint publication with Viscount Dunluce, the authors give a useful summary of modern dietetic investigations not to be found elsewhere in so concise and convenient a form. This critical summary will be of great value to those who want to know the scientific foundations of rationing and the worth of the evidence on which it is based—the work of Voit, Rubner, Atwater, and others. "When," say the authors, "the body lives on itself it is rigidly economical. So soon as its ready money (the normal reserve of carbohydrate in the liver and muscles) has been spent and the first-class securities in its bank (the body fat) have also been realized and spent, it reduces its establishment. The less vitally essential cells are allowed to fall in pieces and the ruins used to stoke the furnace, for which no fuel can be purchased. But if the body is given building material (protein), it passes directly from pessimistic economy to optimistic schemes of reconstruction. The demolished cells are rebuilt without regard to the fact that this will again increase the demands for more fuel of the body

¹ BRITISH MEDICAL JOURNAL, April 27th, 1918, p. 434.

as a whole. Hence it may happen that a supply of protein will paradoxically not satisfy but increase the cravings for food, because it will lead to the re-formation of cellular units, which will then demand supplies of energy, rather than be itself used only as fuel for the reduced establishment." Reduction of mass of living cells and a low protein diet is the way the Germans withstand their war shortage; their children, stunted by low feeding, may be expected to grow to full size when the full time comes. The authors give details of the working class dietaries in war time, and the war time dietaries of Germans. The installation of canteens and the "eat less bread" campaign together led to the eating of much more fat and protein, the more expensive constituents, by the munitioners than was customary before the war. The collected data show that 3,500 calories in food, as purchased, is the requirement of workers engaged on moderately strenuous tasks. The consumption, as far as calories are concerned, does not appear to have changed during the war. The compulsory rationing has rightly brought down the fat and meat consumption and put up that of foods rich in carbohydrate. Of the epidemiological study in which Captain Greenwood was associated with Miss Cecily Thompson we gave an account on February 23rd (p. 239) and March 16th (p. 317), and noted that the reduction of the diet in Millbank Penitentiary in 1823 led to scurvy and the death of many prisoners. In his paper on the efficiency of muscular work Captain Greenwood, after mathematical analysis of available data, concludes that "within fairly wide ranges simple formulae of linear regression describe the relations subsisting between heat production, body mass, and work performance with an accuracy sufficient for such purposes as roughly computing the energetic needs of workers doing the kind of work studied." "No law connecting heat production and work performance can be properly formulated until the range of experimental observations under uniform conditions has been carried below the starting point of existing records."

HAEMORRHAGIC SPIROCHAETAL BRONCHITIS.

VIOLLE has reported¹ that during the first three months of this year he saw in a naval hospital near Toulon thirty cases of bronchitis due to infection by a spirochaete. The disease was first observed by Castellani in Ceylon in 1906. Waters described numerous cases in India (1909), and cases have also been observed by Branch in the West Indies and by Jackson in the Philippine Islands. Castellani described it as occurring in two forms—acute and chronic; the latter was sometimes the sequel of the former, but apparently in the majority of cases the onset is insidious. He describes the expectoration in the acute cases as scanty and mucous in character, and in the chronic cases as muco-purulent, but not abundant. The most striking characteristic, however, is that frequently for several days together the expectoration contains blood intimately mixed with the muco-pus. In some cases there is genuine haemoptysis, one or two teaspoonfuls of blood, or even more, being expectorated, and hectic fever may be present. Physical examination reveals very little beyond a few dry or coarse râles. The possibility of error in diagnosis is obvious, and it is not surprising to hear that some of the cases were admitted into the naval hospital with a diagnosis of suspected tuberculosis. Violle states that in his cases the expectoration contained innumerable spirochaetes varying in form and dimensions, some long and fine, others short and thick; sometimes with well-marked close spirals, sometimes with only delicate undulations; Castellani considers it probable that several varieties of spirochaetes are concerned. Very often no other organisms were seen, although in other instances various microbes were noted. Further, Violle agrees with Castellani in stating that the bronchial affection may become complicated by pneumonia, bronchopneumonia,

or tuberculosis, the lesions produced by the spirochaete opening up the way for the more lethal bacilli. The prognosis appears to be good, but the disease may last for a long time, even years, and Violle states that relapses frequently occurred in his cases. The disease is, he believes, very contagious. He assumes that it was imported into France by Chinese or Indo-Chinese labour companies, or by troops that had been for some time in the Levant. He considers it probable that the parasite may become acclimatized in France, at any rate in the south, and notes that a quarter of his patients were French. The life cycle of the parasite is not known, but in one stage it appears to produce coccoid bodies, and Violle believes that it is by them that the contagion is disseminated.

EGYPTIAN OPHTHALMIC HOSPITALS.

THE Fifth Annual Report on the Ophthalmic Hospitals of Egypt (1917), by the Director, Mr. A. F. MacCallan, F.R.C.S., shows a steady increase in the amount of work undertaken by the ophthalmic service. The number of new patients in the year under review (1917) increased by 19 per cent. The number of out-patient attendances in the year reached 1,004,161. The number of the blind persons seen remains the most striking feature of the report. No fewer than 13,996, or 13.9 per cent. of all the patients examined, were blind in one or both eyes; 4,611 were blind in both. The report notes that in Egypt blindness in one eye is not nearly such a serious disability as in European countries. It is true that it is impossible for a person so affected to enter the Government service as a clerk with rights of pension, or to get some of the technical jobs as handicraftsman; but it is remarkable how well some men who are blind in one eye only manage to do work that requires a good judgement of distance. Blindness in both eyes entails little of the misery which it entails in European countries. In Egypt, not only are blind people well cared for by their kin, but, thanks to the sun, do not suffer from cold. Owing to the large number of blind in Egypt, it would be highly uneconomical to undertake charitable provision for them on any large scale when the prevention of blindness is so meagrely endowed. The most effective measure that can be taken for the prevention of blindness will be the provision of hospitals where early cases of acute conjunctivitis can be dealt with. The report contains further matter on the correlation of temperature and conjunctival infections, which supports the previous conclusions that the summer rise in temperature is the precursor of epidemics of severe conjunctivitis.

STATE MILK CONTROL.

THE Committee on the Production and Distribution of Milk, of which Major Waldorf Astor, M.P., is chairman, has expressed the hope that the Government will give effect to recommendations made last February, that state control of the wholesale distribution of milk should be instituted as a temporary measure. This opinion was expressed in a letter covering the report of a subcommittee, over which Mr. Wilfred Buckley presided, with reference to the control of the collection, utilization, and distribution of milk sold wholesale. The main recommendations of the subcommittee, which have been endorsed by the committee, are designed to ensure the maintenance of the milk supply, the economical handling of milk, its equitable distribution, and the full utilization of surplus supplies for manufacturing purposes. It proposes that Great Britain should be divided into suitable areas, each under a milk superintendent acting under the instructions of a central authority in London, with a separate Advisory Committee for Scotland. It is proposed that a national clearing house should be set up in London to control the wholesale trade of the country, employing persons, firms, or societies, with authorized wholesale agents as far as may be necessary. The clearing house would take over existing contracts between wholesalers and producers, but would interfere as little as

¹ *Bull. de l'Acad. de Méd.*, T. lxxix, p. 429.

possible with direct contracts between producers and retailers; such contracts should, however, be subject to the supervision and approval of the milk superintendent for the area. All churns in the possession of wholesale dealers other than retail delivery churns should be acquired by the clearing house, which would encourage producers to form co-operative associations for the purpose of improving the conditions of milk production and the manufacture of cheese. Finally it is recognized that milk should be produced and supplied under improved conditions, so that it may be cleaner and more wholesome when it reaches the consumer. The subcommittee recommended that in appointing traders to be agents of the Ministry of Food the Government should at once obtain an option to purchase the business of such traders at a fair value, since experience may ultimately show that it will be necessary for the state to become the sole wholesaler of milk, a development the subcommittee considers desirable. This last recommendation was not accepted by the full committee, which believes that before coming to any decision on the point more evidence is required both with regard to the financial terms and to the practical effects of purchasing the entire wholesale milk trade of the country. The committee, however, recognized that steps should at once be taken to determine the basis on which the interests concerned could be acquired should this be deemed advisable. The inquiry would involve the consideration of compensating the interests concerned for any damage done to them by control, without actually purchasing such interests.

THE FUTURE OF THE MEDICAL PROFESSION.

THE Cavendish Lecture of the West London Medico-Chirurgical Society, on the future of the medical profession, will be given by Major-General Sir Bertrand Dawson, G.C.V.O., C.B., M.D., on Thursday next, July 4th, at 8.15 p.m. It is, we understand, Sir Bertrand Dawson's intention to deal with the subject in a comprehensive way, since he is of opinion that the progress of knowledge and the needs of the community have combined to render the present organization of the medical profession in many respects inadequate. Preventive and curative medicine should be closely related in thought, teaching and organization, and the earlier preventive treatment of disease must come to occupy a more prominent position. The investigations which must be made to this end will call for special equipment and collective rather than individual effort. Sir Bertrand Dawson believes that an increase of special institutions is necessary, and he will consider at length the various types required. All members of the medical profession are invited to attend the lecture, which will be given at the West London Hospital, Hammersmith, and it is hoped that laymen interested in the subject will also feel disposed to be present.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.

THE Oxford Ophthalmological Congress will hold its ninth annual meeting at Oxford on Thursday, July 11th, and Friday, July 12th. As in former years members will be accommodated in Keble College, but as the number of rooms available is limited application should be early made to the Secretary. The proceedings will take place in the department of Human Anatomy in the University Museum, kindly lent for the purpose by Professor Arthur Thomson. The scientific and commercial museums will also be held in the same building, which is close to Keble College. The members will meet informally at dinner in the College at 8 p.m. on Wednesday, July 10th. On Thursday morning the Master of the Congress, Mr. Sydney Stephenson, will welcome the members at 10 o'clock and will give an address on the history of the Congress. Sir William Collins will deliver the Doyné Memorial Lecture, and will afterwards open a discussion on ophthalmology and the war, in which the following will take part: Lieut.-Colonel R. H. Elliot (London), Captain E. H. E. Stack,

Miss Marion Gilechrist (Glasgow), Dr. Charles Killick (Maidstone), Dr. T. Harrison Butler (Leamington Spa), Major G. H. Pooley, Mr. V. Cargill (London), Captain P. H. Adams, Captain Percival J. Hay, Captain Thomson Henderson, Major Cecil Clements, Mr. Bernard Cridland (Wolverhampton). On Friday, July 12th, papers will be read by Sir William Barrett, F.R.S. (London), Colonel S. Hanford McKee, C.M.G., C.A.M.C., Lieut.-Colonel R. H. Elliot, Dr. T. Harrison Butler, Captain Thomson Henderson, and Captain Percival J. Hay. In the scientific museum demonstrations of new ophthalmic apparatus will be given by Sir William Barrett and others, and there will also be on view a collection of pathological specimens, photographs, and radiograms. On the same afternoon cases will be shown at the Eye Hospital by Captain P. H. Adams and others, and a discussion will follow. Those desirous of attending the Congress are requested to communicate with the honorary secretary, Mr. Bernard Cridland, at Salisbury House, Wolverhampton.

THE usual half-yearly indexes to the JOURNAL and to the SUPPLEMENT have been prepared and will be printed. They will, however, not be issued with all copies of the JOURNAL. Any member or subscriber who desires to have one or both of the indexes can obtain a copy of what he wants, post free, by sending a post-card notifying his desire to the Acting Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C.2. Such copies will be despatched shortly after the middle of July.

WE commend to the special notice of our readers the letter on page 735, in which Sir Rickman Godlee makes a moving appeal on behalf of the Belgian doctors in Belgium.

Medical Notes in Parliament.

National Service Medical Boards.

MEDICAL boards and the National Service system of grouping were criticized in the Vote of Credit Debate in the House of Commons on June 20th.

Sir Herbert Nield, chairman of the Middlesex Appeal Tribunal, maintained that Grade I for the older men was the equivalent of Class A under the earlier system for the younger. Further, he said, there was no guarantee that once a man was in the army he might not be put to any service duty, and it was therefore the more important on that account that a man should be sure of his category upon going into the army. He regretted that the memorandum containing twenty-four specific directions that the medical board, in grading under the head of Grade III, could sub-divide so as to indicate whether a man should be put to auxiliary service or labour or sedentary occupations, was withheld from the tribunals. Within the last four weeks four hundred applications had been made in Middlesex for appeal from the medical board to the medical assessors. Since November, no fewer than 30 per cent. of such applications in Middlesex had resulted in reduced grading.

Sir Donald Maclean, replying to an observation made by Sir Auckland Geddes last week, quoted words from the circular of the Ministry of National Service, wherein it was said that "Grade I is generally equivalent to Category A, General Service, of the old classification." Such a system did not test men as to their physical fitness for the work of the army, but applied a physical test as to whether men were in Grade I of their particular range of ages. The proper test, he insisted, was the old A classification, which had worked admirably. It had worked so well that the Appeal Tribunal of which he was chairman had sent down without the slightest fear any number of cases to the ordinary medical board. Now, however, Grade I was not to be Grade I according to physical fitness but Grade I of age, and that, he held, was trifling with the House. The Grade I man, as he was at present being passed, was a Grade II man of the old and proper standard, and a Grade II man of the new standard approached nearly every time to a Grade III man of the old standard. If men were going to be put into the army on the lines of Grade I and Grade II as now set forth, all the men of the other class should be re-examined and sent into the army as well as men of 44, 46, and 48. Out of 132 applications with which the London War Pensions Committee had to deal, in no fewer than 87 the reason for discharge from the army—sickness or physical disability—was stated not to be caused by or aggravated by army service. These men had no sort of appeal to the Government for monetary assistance and no right to a pension. They ought not to have been in the army. The complaints from which

they were suffering included chronic bronchitis, deformed ankle, deformed foot, hernia, phthisis, tuberculosis, chronic suppuration.

Sir Auckland Geddes, in his reply, said that the terms Grade I, Grade II, Grade III were introduced to convey a different meaning from categories A, B, and C, and they were defined differently, but in order that during the period of transition there might be some linking up between the old system and the new, general equivalents were stated for the men of the ages then under consideration. This was last autumn. These general equivalents had no bearing, and could have no bearing, in the case of men who had never been categorized. Men who had been graded were graded in accordance with the principles laid down, and the definitions of those grades had been most carefully drawn up. The instructions giving all the conditions that should exclude and the conditions which should allow a man to be included in any grade filled twenty-eight pages. The clause had been quoted which said that men who fulfilled the conditions named for Grade I were fit for general service in the army, but there was also the instruction that the physical training of the men was to be carried out under medical supervision. The system under which the service was working had been misunderstood. Every man required two indices to place him in the proper place in the posting chart. He required his grade and then his age, and it was the combination of grade and age which settled a man's place in the square and the service he was to render. The actual posting was a matter for the War Office, but the two departments worked closely together. The only thing that medical men could do was to judge upon the physical signs whether he was reasonably fit for his age. The system was introduced last autumn, and, according to Sir Donald Maclean, had worked satisfactorily then. Therefore it did not seem to him that the system was wrong. He admitted, however, quite freely that the results of the medical boards of the last few weeks had given grave cause for anxiety. He reminded the House of the very great number of examinations being carried out. A very large number of medical men were being employed—thousands—and a quarter of an hour of medical time was allowed for every examination. It was not possible to examine every man in a quarter of an hour, nor was it necessary to examine every man for a quarter of an hour. Many cases could be dealt with in two or three minutes, because the man was either rejected or was obviously of the lowest grade which could become available for service. Men in Grade III of the new age period were not being called on, so that it was not necessary to submit them to an elaborate examination. It was about six or seven weeks since he first became alarmed as to what was happening at some of the medical boards. In the last few weeks he had visited twenty-four places in different parts of the country, and he could say that in the country as a whole the work that was being done was eminently satisfactory. Sir Auckland Geddes next referred to a letter by the Commissioner for the London region issued on May 3rd, wherein it was stated that the medical board was to be cut down to two members and the president, and that the men were to be examined by one examiner, who was to refer questions of doubt to his colleagues. This letter was a most unfortunate mistake, but a copy reached the Ministry in the ordinary routine, and the Chief Commissioner at once had it cancelled. He interviewed the Commissioner for London, who at once summoned the whole of the chairmen of the medical boards, explaining that a mistake had been made. The reason for different results by London boards was, he thought, that every one had felt the pressure of the German offensive. There had been no difference in the instructions, but it had been found necessary to slow down the London board. In conclusion, Sir Auckland complained that there had been a good deal of unfair criticism, but claimed that on the whole good work was being done.

Mr. Tennant, in a few friendly words, said he should be very sorry to add to the difficulties which Sir Auckland Geddes had to face, but he thought it was imperative that the medical boards of the National Service Ministry should choose only men who were fit for positive duties in any part of the field in France unless they were earmarked for work behind the lines, or were not allowed to go to the front at all.

It was agreed that the vote for the Ministry of National Service should be put down for June 27th, and that the discussion should then be resumed.

Maternity and Child Welfare Bill.

SECOND READING DEBATE.

The second reading of the Maternity and Child Welfare Bill was moved in the Commons on June 24th by Mr. Hayes Fisher. As already stated, it proposes to extend to England and Wales powers already enjoyed by local authorities in Scotland and Ireland, which in Scotland have proved of considerable benefit. The policy had originally been worked out by voluntary effort, but every year it had grown more popular with local authorities. In 1914-15 the expenditure by local authorities was £10,439, and by voluntary bodies £1,049. In 1917-18 the expenditure by the local authorities had jumped up to £92,985, and that of voluntary bodies to £29,331. The sum voted by the House of Commons for the present financial year was £230,000, or nearly double. The scheme of the bill was that any local authority to which the Act applied might make arrangements, subject to the approval of the Local Government Board, for attending to the health of prospective and nursing mothers and of children under 5 years not being

educated in schools provided by the Education Board. He believed that it was better to have schemes operating over large areas; but it was left to the Local Government Board to say, after consulting the county councils, whether particular powers should be exercised by a county or a district council. Each council exercising the powers was to set up a committee to which powers might be delegated, and it was recommended that something like one-third of each committee should be co-opted from persons with special knowledge of the subject. Under the bill the authorities would be able to provide crèches and day nurseries. They would also be able to establish convalescent homes for nursing mothers and children under 5 years. They would be able to establish homes and make other arrangements for attending to the health of children under 5 years old of widowed, deserted, and unmarried mothers. Another power was to provide home helps and other assistance for securing proper conditions for the confinement of necessitous mothers. Authority would also be given to provide midwives and maternity nurses for necessitous women, and for areas in need of this service. Lastly, direct authority was given to provide maternity and welfare centres. Some authorities showed timidity in exercising their powers; the bill would secure them. Mr. Fisher said he had visited a perfect maternity and welfare centre. It had a whole-time doctor, four health visitors, a dental clinic, a hospital for the more difficult cases of confinement, a centre to which pregnant women could go for advice, and a centre from which food and milk could be distributed under the certificate of the M.O.H. to women who were necessitous or who could not obtain proper food and milk for their condition. The centre also had a maternity home in which were sixteen beds. If used for a fortnight by each mother they would provide for 240 women a year. The whole expense to the borough was only a farthing rate. Referring to the opposition which came from those who thought that the passing of the bill would prejudice the introduction of a bill for a Ministry of Health, he said that the bill was not a substitute for the Ministry of Health Bill, which in its main outlines had been approved by the Government; this would be proceeded with, but adequate time must be given to it, and it could not be dealt with this session, but there might be an autumn session. He pleaded with members, while using all their efforts to get a Ministry of Health Bill passed, not to delay the passage of this little measure. The powers under it would afterwards pass to the Ministry of Health.

Major Astor moved the rejection of the bill, on the ground that it would be unsatisfactory unless accompanied by the establishment of a Ministry of Health, which, he submitted, might be set up by a three clause measure. The first clause would put under one head the Local Government Board and the Insurance Commission; the second and third would give power to transfer to it the health functions of other Government departments, and to transfer from it the non-health functions transferred to it by the first clause. The non-health functions of the Local Government Board could be transferred to the Home Office. Major Astor spoke at some length on the present separation of various health functions under different departments and of the overlapping of such work. The Minister of Reconstruction had been reported as saying some time ago that he thought he had got substantial agreement upon the Ministry of Health, and would be ready to introduce the bill. Lord Curzon, speaking recently, was understood to have said that the establishment of the Ministry of Health was being delayed by departmental jealousy. If so, was not this a case for intervention by the War Cabinet? The rejection having been seconded by Major Hill, Mr. Anderson (Labour), while agreeing that Mr. Hayes Fisher would have done better to bring forward a larger measure, thought the matter could not be allowed to wait. Sir H. Harris also felt that there was a certain value in the bill, which should not be lost. Mr. Walsh renewed the definite promise made by him on behalf of the Local Government Board that the measure would in no sense whatever be used to prevent the bringing in of a larger measure, and the second reading was given.

Veneral Disease: Regulation 40 D.—In reply to Mr. Lees Smith, on June 25th, Mr. Macpherson stated that the War Office Conference on Venereal Disease, of which he was chairman, included amongst its members the Archbishop of Canterbury, the Rev. Dr. F. B. Meyer, and Lord Sydenham, in addition to representatives of the French military authorities, the American army and navy, the Dominions, and the British navy and army. In the course of a short debate, on June 19th, Mr. Macpherson stated, in regard to Regulation 40 D, issued under the Defence of the Realm Act, that he had arranged this conference to consider what further action could be taken to prevent the spread of venereal disease amongst soldiers. Regulation 40 D constituted it an offence for a woman to communicate venereal disease to soldiers or sailors. The regulation had been made in consequence of representations by the Dominion authorities at the last Imperial Conference. He denied that under the regulation women might be taken up for solicitation. The power for arrest on such charge obtained under the existing law. The Government believed that the regulation was useful and might prove effective, and therefore he could not say it would be withdrawn. He did not allow that the disease was more prevalent amongst the military than amongst the civil population. Mr. Macpherson added, in reply to further questions on June 25th, that he thought that the Conference was thoroughly representative, and he was not disposed to add representatives of women's organizations.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Wounded.

Surgeon G. E. D. Ellis, R.N.

ARMY.

Killed in Action.

CAPTAIN P. B. SEWELL, A.A.M.C.

Captain Phil. B. Sewell, A.A.M.C., whose death in action we announced in our issue of May 25th, enlisted immediately on passing his final examination at Melbourne University in 1916. He proceeded to France in August last, and served with a field ambulance and an Australian infantry battalion. While accompanying the latter into action on the night of April 24th-25th he appears to have been hit by a machine-gun bullet. His commanding officer writes of his efficient work throughout the winter in watching over the health of the battalion; in all operations he proved himself a gallant, cheerful, and capable officer and a good comrade.

LIEUTENANT A. M. CLARE, R.A.M.C.

Lieutenant A. M. Clare, R.A.M.C. (formerly C.A.M.C.), was reported as killed in action, in the casualty list published on June 19th.

Died of Wounds.

CAPTAIN R. A. PRESTON, R.A.M.C.

Captain Richard Amys Preston, M.C., R.A.M.C., died on June 7th, of wounds received the same day, aged 27. He was the second son of the late Mr. H. E. Preston, M.I.C.E., and was educated at the London Hospital. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914, graduated M.B., B.S.Lond. in the same year, and afterwards filled the post of assistant house-surgeon of the Poplar Hospital. He joined the Special Reserve of the R.A.M.C. as lieutenant on August 6th, 1914, two days after war was declared, and was promoted to captain after a year's service. On February 5th, 1917, he took a permanent commission as lieutenant in the R.A.M.C., was promoted to captain a year later, and for some time past had been acting as a temporary lieutenant-colonel. He received the Military Cross on June 23rd, 1915.

Died on Service.

CAPTAIN D. T. O'FLYNN, R.A.M.C.

Captain Dominick Thomas O'Flynn, R.A.M.C., died of appendicitis, on service abroad, on June 16th, aged 35. He was the fifth son of the late Mr. Edward O'Flynn of Cork, was educated at Queen's College, Cork, where he was senior medical exhibitor, and took the diplomas of L.R.C.S.I. and L.R.C.P.I. in 1906. He took up the asylum service, and held the post of assistant medical officer at the Isle of Man Asylum, and at the London County asylums at Cane Hill and Hanwell, successively. He took a temporary commission as lieutenant in the R.A.M.C. towards the end of 1915, and was promoted to captain after a year's service.

The casualty list published on June 24th reports the deaths on service of Captains J. T. W. Boyd and W. F. Hale, both of the Canadian Army Medical Corps.

Wounded.

Major C. W. M. Hope, R.A.M.C. (temporary).
 Captain A. E. A. Burkhardt, R.A.M.C. (temporary).
 Captain J. M. McCloy, R.A.M.C. (temporary).
 Captain E. S. Meyers, Australian A.M.C.
 Captain F. J. Miller, Australian A.M.C.
 Captain C. G. Templeman, Australian A.M.C.
 Captain G. W. Will, R.A.M.C. (temporary).

Missing.

Captain F. C. H. Bennett, R.A.M.C. (temporary).
 Captain J. M. Mackenzie, M.C., R.A.M.C. (temporary).

Prisoner of War.

Captain A. H. Little, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Goodchild, Stewart John, Second Lieutenant R.S.L.I., reported wounded and missing on March 28th, but later reported killed in action. He was the eldest son of Dr. N. J. Goodchild of Highgate.

Johnston, Paul Hedley, Lieutenant R.F.A., only son of the late Dr. J. H. Johnston of Nottingham, died of wounds, June 11th, aged 20.

Quill, Maurice Desmond, Captain Royal Marine Artillery, elder son of Surgeon-General R. H. Quill, A.M.S.(ret.), of Cheltenham, died of fracture of the skull caused by a fall from his horse, at the Royal Naval Hospital, Haslar, on June 17th, aged 22. He got his commission in October, 1913, was mentioned in Lord French's dispatch of November 30th, 1915, and was promoted to captain in November, 1917.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

AMONG the recipients of honours for meritorious services (Supplement to the *London Gazette*, June 21st) are the following members of the medical profession:

D.S.O.

Surgeon (Acting Staff Surgeon) Edward Leicester Atkinson, R.N.

In recognition of his services as Senior Medical Officer of the R.M.A. Howitzer Brigade since May 26th, 1916. He has carried out his duties with the greatest zeal and energy, and has shown an excellent example by his fearlessness and devotion to duty. He has been twice wounded, and would have been relieved but for his strong desire to remain at his post.

Surgeon (Acting Staff Surgeon) William Bradbury, R.N.

In recognition of his services with the Royal Naval Division in Gallipoli and France. As Medical Officer of the Hawke Battalion, Royal Naval Division, in Gallipoli, he did exceptionally good work, often under the most trying circumstances.

Distinguished Service Cross.

Surgeon Henry Brice Parker, R.N.

In recognition of the exceptionally good work done by him as Medical Officer of the Nelson Battalion, Royal Naval Division, in Gallipoli.

The following awards are announced in a Supplement to the *London Gazette*, dated June 22nd, in recognition of "conspicuous gallantry and devotion to duty in the field":

D.S.O.

Captain (Acting Lieut.-Colonel) Robert Bernard Price, R.A.M.C.

Prior to the division going into action he took over the duties of Assistant Director of Medical Services at half an hour's notice. When on one occasion all casualty clearing stations in the neighbourhood of the division were withdrawn, his improvisation on the previous night of an emergency casualty clearing station further to the rear proved of such inestimable value that a large number of casualties were able to be dealt with, and all the wounded evacuated with the utmost dispatch. Owing to his resource, forethought, and exceptional powers of organization, the smooth and successful evacuation of all wounded was carried out during the period of twelve days' heavy and continuous fighting in which the division was engaged.

Bar to the Military Cross.

Captain John Henry Pearson Fraser, M.C., R.A.M.C.

During the evacuation of a town he was in charge of a train loaded with stores and equipment. While the train was standing in the station without an engine it was heavily bombed by enemy aeroplanes. With bombs falling all round he secured an engine, which had just backed into the station and coupled it to the train. He then collected a few men and cleared the permanent way of masses of debris caused by the bombs, and eventually got the train away safely under continual bombing by enemy aeroplanes. By his courage, determination, and resource in a most difficult situation he succeeded in saving the whole trainload of equipment. (M.C. gazetted February 4th, 1918.)

Temporary Captain Frederick Theophilus Hill, M.C., R.A.M.C.

Several hundred casualties of all branches of the service were passed through his unit during the day, and were evacuated promptly, thanks to his zeal, energy, and efficient organization. When the enemy were advancing his unit was the last to leave the neighbourhood, and finally withdrew, when ordered to do so, and when every case had been evacuated, to join the division. He displayed outstanding devotion to duty. (M.C. gazetted June 23rd, 1915.)

Captain (Acting Major) Herbert Stewart Milne, M.C., R.A.M.C.

When in charge of an advanced dressing station, in spite of continuous shelling, he dressed and superintended the evacuation of the wounded during three days' operations with great success. When a shell fell among a party of men, killing three and wounding fourteen of them, he succeeded in dressing the more severely wounded and in getting them all removed to a place of safety before the next burst of fire fell in the same spot. By his courage and resource he undoubtedly saved a further loss of life. (M.C. gazetted June 3rd, 1916.)

Temporary Captain Matthew Arnold Swan, M.C., R.A.M.C.

When the majority of his stretcher-bearers had become casualties and his advanced post had received two direct hits from shells he stayed at his post, dressed the wounded and supervised their evacuation. On many other occasions he has shown the greatest courage, coolness and initiative, and his conduct has at all times been exemplary. (M.C. gazetted June 3rd, 1916.)

Temporary Captain Warren Fullerton Clark, R.A.M.C.

Whilst the battery was being heavily shelled two men were badly wounded. He at once proceeded out into the open, attended to these men under the most intense shell fire, carried them into a trench, and remained with them until an ambulance arrived. He showed magnificent coolness and an utter disregard of danger.

Temporary Captain John Norman Cruikshank, R.A.M.C.

He attended to the wounded under heavy fire during an enemy attack. His skilful organization of stretcher-bearers and his coolness and determination in a most difficult situation resulted in the saving of many lives.

Temporary Captain Andrew Ferguson Horn, R.A.M.C.

He led his bearers forward to the front line during a heavy enemy attack and brought back many severely wounded men through the enemy's barrage. Throughout the operations he displayed splendid coolness and courage under heavy fire.

Captain John Francis Hill, R.A.M.C. (S.R.).

He worked through out the day under incessant shell fire, attending to the wounded during an enemy attack. Owing to his coolness and skill in a most difficult situation, many lives were saved.

Quartermaster and honorary Captain R. D. Matthews, R.A.M.C., is awarded the Military Cross for conspicuous gallantry and coolness during a hostile bombing raid.

Surgeon Andrew Harman Pearce, R.N., is among the officers mentioned in dispatches (*London Gazette*, June 21st).

Surgeon-General James L. Smith, C.B., M.V.O., R.N., has received the decoration of Officer of the Legion of Honour conferred upon him by the President of the French Republic.

The *London Gazette* of June 25th notifies that in the list of appointments to the Order of the Companions of Honour announced on June 3rd the name of Sir Frederick Treves, Bt., G.C.V.O., C.B., should be omitted at his own request.

NOTES.

AUXILIARY HOSPITALS AND THE USE OF CRUTCHES.

"M.O." writes that men sent from general to auxiliary military hospitals sometimes return from the latter in worse condition than they went, owing, as he thinks, to injudicious coddling by well-meaning ladies. Some are thus made neurasthenics. But the special point he makes is that the men may be allowed unnecessarily to use crutches until the knee becomes ankylosed in semiflexion and the foot dropped.

INVALIDING IN THE AUSTRO-HUNGARIAN ARMY.

The Austro-Hungarian Minister for War stated in December, 1917, that with every year of war the "general percentage of recoveries" had improved. In the first year it was 78 per cent., in the second year 83 per cent. In the first year 13.5 per cent. of the casualties proved fatal at the front, 2.2 per cent. at home. In the second year these figures were reduced to 7.7 per cent. and 1.7 per cent. respectively. The incidence of cholera, typhus, and typhoid fevers and dysentery was reduced by about one-half in the second year as compared with the first. Owing to the invasion of Albania, the incidence of malaria had doubled in this period, and measures had been taken to prevent the introduction of malaria to the Monarchy. The incidence of trachoma and venereal disease also showed a rise. From other statements it appears that down to December, 1917, about 200,000 Austro-Hungarian soldiers were classified as "invalids." This figure represented 20 per cent. of all cases undergoing "after-treatment" (*Nachbehandlung*). That 80 per cent. of soldiers subjected to "after-treatment" should have been sent back to the army is claimed as a success. Only a small fraction of the 200,000 invalids were totally unfit for work. Of all the wounded, about 85 per cent. returned to the colours, 10 per cent. to their former occupations, and only 5 per cent. were invalided; and of these, again, only a fraction was totally invalided.

APPARATUS FOR FRACTURES.

Before the war Miss Grace Gassette was an artist in Chicago. Very early in the struggle she joined the nursing staff of the American Hospital at Neuilly. There her capabilities as a deviser of splints and her powers of organizing a workshop were happily discovered and utilized, and she became the head of the department of dressings and apparatus. The exigencies of the war having taken away the orthopaedic mechanicians from the Paris hospitals, and the French surgeons also having become dissatisfied with the usual methods of treatment of compound fractures, nerve injuries, and the like, Dr. Paul Reynier asked Mrs. Anstui, the Vice-President of the American Committee, for help. Miss Gassette thereupon organized and took over the technical direction of the workshops of the Franco-American Corrective Surgical Appliance Committee, which has since sent out more than 10,000 apparatus for the treatment of fractures, and altogether more than 30,000 separate appliances. The principles of the suspension-extension apparatus, largely based on the work of H. O. Thomas, and the overhead bed frame used at Neuilly, are now pretty well known to orthopaedic surgeons. They are described in a communication made to the French Academy of Medicine by Dr. Paul Reynier¹ and in a pamphlet by Dr. Gaston Houzel,² published by the Franco-American Committee. The illustrations in both articles make clear the nature and use of these appliances. Dr. Reynier says that some of the apparatus are entirely of Miss Gassette's own invention; others have been so simplified and modified by her that she may fairly claim them as her own.

¹ *Bull. de l'Acad. de Méd.*, T. lxxix, No. 21.

² *Notice sur les appareils pour fractures de guerre*. 1918. Paris: Comité Franco-Américain contre les impotences fonctionnelles (7, Rue Boissonade).

Correspondence.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

SIR,—The Belgian doctors in Belgium are in great distress, and I have been asked to put their case before your readers. I know that it is not a favourable moment, because the members of the Association have been so recently canvassed for the special appeal of the Royal Medical Benevolent Fund; moreover, living is dear, and the tax-gatherer is always knocking at the door. But the matter is urgent, as they will see if they read this letter to the end.

In 1914, when the needs of the Belgian doctors and pharmacists were proclaimed by the committee of which I am the chairman, there was a noble and generous response from the doctors and pharmacists in this country and the Dominions. Nearly £20,000 was raised before the end of 1916, but now our coffers are almost empty, and, in spite of our repeated efforts, in which you, Sir, have most kindly helped us, the flow of subscriptions has almost stopped. I will explain how the money has been spent and why we are asking for more.

At first we had to assist the Belgian doctors and pharmacists who had fled to this country, but for a long time their requirements have been trivial. In 1916, at the earnest entreaty of Mr. Herbert Hoover, who at that time was the Director of the Commission for Relief in Belgium, we began to send every month £800 to a committee in Brussels called the Aide et Protection aux Médecins et Pharmaciens Sinistrés Belges. These monthly remittances were continued until January, 1918, but since then they have been reduced to £400, and if we cannot raise more funds, even these must stop after July.

Do British doctors and pharmacists really know (1) that money is urgently needed, (2) that it goes to Belgium, and not to doctors and pharmacists in this country, and (3) that it really reaches the Belgians and is not pocketed by the Germans? If they did they would surely never allow these remittances to be stopped.

In order to satisfy those who may be holding back because they have their doubts on these three points, we have obtained the most recent information from the Commission for Relief in Belgium. Writing on June 18th, Mr. Lewis Richards, the Assistant Director, says:

There has been no change in the method of sending in these subsidies, a method with which your society is already familiar. I need hardly remark that the charities thus in receipt of subsidies through our channels are most carefully administered, and there is no possibility of any leakage on the way. I would like, however, to repeat—nor can we emphasize this point too strongly—that the need of help for Belgium grows with every day and the reports which we receive from all branches of the work are nothing short of heartrending. In this connexion we think you will be interested in reading an appeal which we recently received from a commission of doctors in Belgium, asking for various medicines. You will see from this letter the difficulties against which the medical profession in all its branches have to contend.

Your fund is one which reaches a class which cannot be helped in any other way. For the most part the professional men are too proud to come to the public soup-kitchens, and after four years of terrible privation any little savings which they may have had are by now exhausted. But they will and do most gratefully receive help from your fund, and with the assistance thus given them goes a most comforting feeling that their happier colleagues overseas are not forgetting them, a feeling which brings moral support, as money brings them material comfort.

We most warmly beg you to continue your splendid support to the Belgian doctors and pharmacists, whose need is unquestionably terrible, and whose gratitude, although under present conditions it cannot be expressed directly to you, is most real and heartfelt.

The appeal which he encloses is a request "for the importation into Belgium of a certain amount of medical supplies of both vegetable and chemical origin, of which there is a total lack, and the absence of which constitutes a real danger to the public health." It is supported by a precise explanation of the manner in which the needs of the population are gauged, and of the way in which the distribution is carried out.

This document has determined our committee, though reluctantly, to approach the general public. It has been asked why the public should assist the medical more than

any other profession, but it may be answered that doctors adequately provided with drugs are essential for the maintenance of the health of the people, and the limitation of those epidemics which are common when starvation and oppression go hand in hand. May I suggest that if your readers would not only themselves give what they can spare, but would make personal appeals to their wealthy and benevolent patients and friends, the difficulties of our committee might be overcome?

We need a large sum; but it is to pay a debt owing to our hardy entreated brothers. Do we forget that they are in these straits because they are citizens of a country which, in 1914, with nothing to gain except the world's respect, and everything except their honour to lose, stopped the German rush and so saved this Empire and France and civilization from a catastrophe the magnitude of which we perhaps even now do not altogether appreciate?—I am, etc.,

RICKMAN J. GODLEE,
Chairman of the Belgian Doctors' and
Pharmacists' Relief Fund.

London, W., June 24th.

Subscriptions may be sent to the Honorary Treasurer,
Dr. H. A. Des Vœux, 14, Buckingham Gate, London, S.W.

MILK SUBSTITUTES.

SIR,—May I now clear up some difficulties in the preparation of a liquid food from oats? It is evident that when there is a shortage of cow's milk we require for many invalids, and indeed for others, a food which is at once a liquid, very easily digestible, inexpensive, very easily prepared, and without any strong flavour. It need not be a complete food, any more than cow's milk is, for it would not often be the sole food, except temporarily, as in brief febrile states.

Such a food can be most simply made from oats as follows:

Instructions.—Boil three ounces of fine oatmeal in a double saucepan for at least an hour. Then cool to 140° F., and stir in two or three teaspoonfuls of extract of malt, or of finely ground malt. The jelly-like mass will quickly change to a syrupy liquid. Let it remain for an hour at the same temperature. It is then ready for use, and should measure one pint.

This liquid oatmeal has much the same composition as cow's milk, except that there is a deficiency of fat and some little of protein. It has lost most of the oatmeal flavour. It is not so white as cow's milk, but the cost for materials is clearly little if anything over a penny a pint. F. W. Rixon, Ph.D., of the University of Bristol, gives the approximate values of a properly made specimen as:

<i>Liquid Oatmeal.</i>		<i>Average Cow's Milk.</i>	
Total solids	13.1 %	...	12.6 %
Protein	2.3 %	...	3.4 %
Fat	1.0 %	...	3.74 %
Maltose	6.7 %	Lactose	4.7 %
Sugar	3.2 %	...	...
Mineral matter	0.27 %	...	0.75 %

Slight variations, due to the kind and quality of the meal used, may occur.

The shortage of fat cannot be made up from oatmeal alone, for oats themselves do not contain the quantity required. If we wish for a good material having practically the same composition as cow's milk some other substance must be added. Dr. Rixon suggests the addition of one ounce of crushed peanuts as almost the only available source in the present war time of protein and fat. This gives a better milk, but doubles the cost, as peanuts are 1s. 4d. a lb. We can make up the deficiency of fat again by cooking with it half an ounce of cocoa fat, if the chocolate flavour is appreciated. The extra cost will be three farthings a pint, but the fat is not emulsified. Some improvement in smoothness and taste can be obtained by straining through muslin and squeezing the residue dry, especially if a fine oatmeal cannot be got. However, the process is not only tedious and apt to lead to errors, but in any case it results in a great loss of protein and mineral matter. Hence straining should be avoided and a well-ground fine oatmeal used.

The liquid may be drunk as it is, or mixed with cow's milk. For some purposes an inexpensive flavouring agent may be desired. A vanilla nut may be used several times over, or a drop of the extract, lemon rind, or bay leaves will serve the purpose. In the absence of a thermometer the temperature of 140° may be judged by noting that a finger can just be dipped in the mass without pain.

I do not suggest that liquid oatmeal has all the physiological properties of cow's milk, or that it can replace it as a food for young children or in special diseases, but it is undoubtedly a valuable food. In conclusion, I have to thank Drs. O. C. M. Davis and Rixon and other experts for most kind advice and assistance in the various trials we have made.—I am, etc.,

Clifton, Bristol, June 24th.

GEORGE PARKER.

THE RELATION BETWEEN HEAT-STROKE AND MALIGNANT MALARIA.

SIR,—Having read Captain C. E. H. Milner's interesting article (June 8th, p. 638) on the close relation between heat-stroke and malignant malaria, and seeing that he expects—and, indeed, invites—adverse criticism, I have ventured to enter the field.

I have had five years' experience of heat-stroke cases and malaria in North-West Punjab military cantonments, especially Mian Mir. It has been my opinion that heat-stroke and malignant malaria are separate and distinct diseases, though everyone knows that a case of malaria may develop heat-stroke.

Captain Milner's charts would suggest plasmodium infection rather than heat-stroke, especially Chart 2. The usual uncomplicated heat-stroke case, seen just with temperature of, say, 110°, comes down under energetic treatment to about 102° in within half an hour or so; a few hours later the case is liable to relapse again, possibly twice; and if the temperature is once more successfully reduced it usually stays down—indeed, is often subnormal—and there is not a slight temperature for a few days as seen in Captain Milner's charts.

It has been my experience that a patient with true heat-stroke practically never reports sick, usually having been in fair health to the day on which he is struck down, or at most has been feeling out of sorts, and is found later lying unconscious.

On the other hand, the patient with crescents in his blood has usually been feeling and looking ill before the attack of hyperpyrexia comes on, and generally actually reports sick at hospital before he reaches the hyperpyrexial stage.

I have seen cases such as Captain Milner describes which I have thought to be heat-strokes until I found crescents in the blood, and in several fatal cases *post-mortem* examination showed cerebral blood vessels absolutely clogged with accumulated malignant malaria parasites, visible to the naked eye as a grey débris.

On the other hand, heat-stroke cases with nothing found in their blood before death have afforded no evidence of malaria in spleen or brain *post-mortem*. The blood was examined in all cases of hyperpyrexia, and if crescents were found the case was looked upon as a possible outcome of cerebral malignant malaria, and quinine was then used vigorously. Many cases of heat-stroke were new to the station, and gave no history of malarial infection.

I would like to know how Captain Milner accounts for cases of heat-stroke in soldiers who have not even risked infection, and who have developed heat-stroke a few hours after landing in India. I believe the troop train disaster in India, in which there were many fatal cases of heat-stroke, is a case in point. I certainly have seen many patients with heat-stroke who gave clear evidence of never having had malaria, and never having been exposed to infection.—I am, etc.,

H. BEADNELL, Major R.A.M.C.

St. Anne's-on the-Sea, June 12th.

PRECAUTIONS AGAINST THE SPREAD OF MALARIA.

SIR,—The importance of Dr. Fielding-Ould's statement (p. 683) that "quinine given with a rising temperature only tends to increase headache and malaise" cannot be too much emphasized.

I have confirmed this valuable clinical fact many times, and would have liked Dr. Fielding-Ould to have been more dogmatic in his statement.

Quinine positively does harm when so given, and in some cases will even produce haemoglobinuria. In districts where blackwater fever is prevalent it is of vast importance to recognize this, both as regards treatment and prognosis.

I am of opinion that the case mortality of true blackwater fever would be found to be very much higher were this differential diagnosis made, many cases of so-called blackwater fever being simply quinine poisoning. These cases nearly always do well under treatment, hence the importance of distinguishing them from that most deadly disease.

The prevailing custom of drenching every case of pyrexia in malarious districts, or patients who have formerly lived in malarious districts, is a very bad one. Quinine is our specific for malaria, and, if given scientifically, will cure the condition; but the diagnosis of malaria, as shown by examination of the blood and the presence of the parasite, should be established before quinine is given. Diagnosis first; then treatment, and by hypodermic injection.

If this procedure is systematically carried out we would hear far less of the inefficacy of quinine. I have one case particularly in mind—that of a man who was kept in hospital for a week suffering from gonorrhoeal septicaemia; he was treated with intramuscular injections of quinine. He left hospital of his own accord and consulted me. A few days' rest in bed, with active antigonorrhoeal treatment, brought down his temperature and stopped his sweats. This occurred in Nigeria.—I am, etc.,

STANDISH J. WATSON, M.B., B.Ch.,

Late Medical Officer, N. Nigerian Chamber of Mines.
Swansea Valley, June 19th.

ADAPTATION AND DISEASE.

SIR,—Professor Adami seems unable to appreciate the difference between the views published by him in 1901 with regard to the influence of internal secretions on the germ cells and the hormone theory published by me in 1908. This inability is probably due to the fact that he has never done me the honour to read my paper, and that he is not acquainted with my other researches and publications on the question of the influence of external conditions in evolution. My theory is concerned with the origin of definite structures and morphological characters, such as the antlers of stags; Professor Adami, as in his own quotations from himself, considered only "intoxications" and constitutional states, such as the gouty diathesis.

The term hormone is not merely, as Professor Adami supposes, another name for metabolites or internal secretions, but is a name given to internal secretions which were discovered by physiologists to have the function of acting as a special chemical stimulus on other organs, either causing glands to secrete, or actually determining the development of large and important structures. Thus the development of the antlers of stags and the secretion of milk after parturition were shown to depend, not on some obscure nervous stimulus, as formerly supposed, but on a chemical stimulus due to some substance produced by the generative organs. Professor Adami makes no allusion to facts of this kind in his paper of 1901. The fact that the development of antlers depends on an internal secretion from the testes led me to formulate the theory that the antlers originally arose from the inheritance of a hypertrophy caused by the mechanical irritation of skin and periosteum due to the fighting of the stags, and that this hypertrophy involved the production of additional "metabolites" which, acting on the germ cells, in time caused the hereditary development of the same hypertrophy. To assert that my theory was the "enunciation of conclusions reached by Adami in 1901 regarding metabolites and, as we subsequently became accustomed to term them, hormones, and their influence upon the germ cells," is a gross perversion, and the attempt in this way to transfer any credit due to me for originality to himself by virtue of his 1901 paper, was what I stigmatized as audacity.

My theory of 1908 was the logical sequel of the views published by me in 1900 in my book *Sexual Dimorphism in the Animal Kingdom*. In it I discussed the evidence for the conclusion that secondary sexual characters, at any rate in most cases, were the result of external stimulations and irritations, producing hypertrophy or modifications of growth which had become hereditary, but were only actually developed in relation to the functional activity of the generative organs. Long before this I published¹ a record of experiments which proved the production of pigment on the lower sides of flat-fishes under

the influence of light, results which in my opinion afforded indirect evidence that the absence of pigment on the lower side in normal flat-fishes was due to the heredity of the effect of an external condition.—I am, etc.,

London Hospital Medical College,
June 12th.

J. T. CUNNINGHAM.

* * We have referred this letter to Professor Adami, in order that a controversy which has already occupied much space may thus be brought to an end. Professor Adami writes as follows:

SIR,—The oburgation "*Pereant qui ante nos nostra*" is natural, and one with which all can sympathize. It is, nevertheless, not for publication, and the state of mind which evokes it, while it explains, does not excuse the employment and reiteration of offensive epithets.

The dominating problem of evolution during the nineteenth century, around which there raged the keenest controversy, was that of the inheritance or non-inheritance of acquired characters. Towards the end of the century it was becoming evident to some of the more acute and independent among the zoologists and botanists that purely morphological conceptions were inadequate to afford a solution. Thus, as he points out in his letter in your issue of June 15th, my old friend and teacher, at the end of the seventies, Professor M. Hartog, had, in 1898, recorded his opinion that the mechanism of heredity must be rather chemical than particulate. Mr. Cunningham, as he points out in the letter to which this is an answer, was in 1900 evidently verging towards like views.

To the best of my knowledge I was the first to publish, with the beginning of the new century, a definite chemical theory of inheritance based upon what we know regarding the constitution of complex organic substances. Doing this, I was the first to point out that through acquired alterations in the internal secretions the germ cells could become affected in their constitution along the same lines as were the body cells, and that through this endogenous and direct method we could comprehend the mechanism at work in the observed transmission of acquired constitutional states.

If, seven years later, Mr. Cunningham invoked the same mechanism of alteration in the internal secretions and their influence upon the germ cells to explain another order of inherited requirements, the priority in demonstrating the *modus operandi* of the direct or identical inheritance of acquired bodily states still remains mine. It is no argument to urge that constitutional states are vague and unsatisfactory. They may be so to the morphologist. But then the morphologist is not the only one concerned in the study of heredity. To the student of medical science these constitutional states—the gouty diathesis, the diabetic, the neurasthenic, etc.—are not merely real but widespread and matters of daily observation. Mr. Cunningham himself admits that certain internal secretions influence the growth and relative development of particular organs; it is alterations in these same internal secretions that are the basis of these constitutional states.

Whether or no others later arrived at the same conclusions independently—and quite probably they did—I am wholly justified in claiming priority, and because of that priority in speaking of these as my conclusions. The statement is strictly correct, and I repeat it, that since 1901 my conclusions regarding metabolites and their influence upon the germ cells have been enunciated by several prominent biologists, including Mr. Cunningham, without note of my earlier contribution.—I am, etc.,

London, W., June 24th.

J. G. ADAMI.

CEREBRAL OEDEMA.

SIR,—It is surprising that a paper so important as that on the above subject by Mr. L. Bathe Rawling (*JOURNAL*, May 4th) should so far have passed without comment. Mr. Rawling is surely to be congratulated on having written an article which is valuable from giving a tangible reason for symptoms which have hitherto been attributed to that rare but frequently diagnosed condition, "cerebral congestion." It throws an added light on oft misunderstood signs, objective and subjective, which have led to the suspicion and erroneous diagnosis of cerebral tumour, abscess, and tuberculous meningitis. He should be congratulated, too, on the success of his operations, particularly

¹ *Phil. Trans. Roy. Soc.*, 1893.

in those cases with the more pronounced epileptic symptoms, a success which points to a cause of epilepsy not often suspected, and to an adequate reason for the futility of the bromide treatment in cases arising from such cause. His paper, however, is disappointing in respect of the fact that we are kept completely in the dark as to the part the kidneys may play in the causation of cerebral oedema. Mr. Rawling has been too anxious to limit or circumscribe the entire source of the trouble to the cerebral area, though he mentions the absorptive capacity of the cerebral veins as being impaired by disease as well as by injury, and points out, though somewhat reluctantly, that toxic conditions of the cerebral fluid may be responsible for convulsive attacks. The basis of reasoning underlying statements of this kind should not have overlooked a possible defective activity of the eliminative powers of the kidneys, both as to water and to toxins, and so far from the primary cause, as Mr. Rawling suggests, being "(? temporary or permanent changes in the walls of the cerebral veins)," it would have been well, except in cases of heat-stroke or sudden injury, to have looked to the kidneys as much the more likely primary cause, leading to the disordered or diseased condition of the cerebral vessels as the secondary cause, with cerebral oedema as the ultimate result. Even in heat-stroke it is of the highest probability that the differences of resistance to this malady depend upon the healthy or unhealthy condition of the kidneys.

The scientific value of his paper would, therefore, have been immeasurably enhanced had he given the result of the systematic examination of the urine as to quantity, quality, and specific gravity. To have watched a case daily which he suspected to be one of cerebral oedema and to have ordered all the available narcotics, the effect of which was merely momentary and that of the slightest, suggests the thought that it would have been worth a trial to have prescribed some one or other of the available diuretics, and the effect might have been benefit of considerable duration provided the diuretic selected had been one of those which act without raising the blood pressure. In Mr. Rawling's cases the blood pressure rose to 140 of 150 mm. Hg, "no great rise" according to Mr. Rawling, but one would think such pressure distressingly high in a hot climate where the average blood pressure must necessarily be lower than normal. Hence it may not be unscientific to suppose that injections of pilocarpin with a view to its pressure lowering and diaphoretic effects or possibly a venesection, would have made all the difference between misery and comparative comfort to those patients who dreaded and refused operation.—I am, etc.,

Liverpool, May 25th.

WILLIAM BRAMWELL.

MAJOR-GENERAL SIR W. G. MACPHERSON, A.M.S.

SIR,—In connexion with the recent changes in the Army Medical Service in France, and the mention with appreciation of the distinguished services of the late Director-General Sir Arthur Sloggett, large numbers of the medical officers out here would have been gratified if the name of Sir William Macpherson had been coupled with him.

This latter officer has been constantly in touch with medical units, more particularly in the front areas, ever since he came to France; his genius for organization and keenness to improve the professional side of the work and untiring energy in every way will be sadly missed as time goes on.

The age limit has dealt a heavy blow to the B.E.F. medical service, which is the admiration of all, and for which little short of the lion's share has fallen to the lot of Sir William Macpherson.—I am, etc.,

June 18th.

TEMPORARY.

Major-General Sir W. G. Macpherson, K.C.M.G., C.B., who accompanied Sir Arthur Sloggett to France as Deputy Director-General Medical Services in 1914, has been appointed Deputy Director of Medical Services the Southern Command. This command covers a very extensive area, including the greater part of England south of the Thames and west of Portsmouth, as well as the counties of Warwick, Worcester, Gloucester, Oxford, and Buckingham.

PROX reports that he has observed good results from the use of adrenalin in patients suffering from dyspepsia with gastric atony. Discomfort, pain, and weight after meals disappear. He gives 8 or 9 drops of 1 in 1,000 solution.

Obituary.

WE regret to record the death, on June 22nd, of Professor HENRY GEORGE PLIMMER, F.R.S., past president of the Royal Microscopical Society, pathologist to the Zoological Society, and the first holder of the recently-founded professorship of comparative pathology in the Imperial College of Science and Technology. He was born in 1857, and studied medicine at Guy's Hospital, obtaining the diploma of M.R.C.S. in 1882. After serving as prosector in anatomy at the Royal College of Surgeons, he held for some years the posts of pathologist, bacteriologist, and lecturer on pathology at St. Mary's Hospital. He was the author of many important publications in English and German on microscopical science and comparative pathology, and did valuable work on the Sleeping Sickness Committee of the Royal Society. Beyond his scientific work, Professor Plimmer was a man of many and varied accomplishments; he was well known in the musical world as a distinguished student and performer, and his personal charm and kindness of heart endeared him to a wide circle of friends.

DR. JEREMIAH READER, of Wakefield, who died on May 29th, was born in 1854, and spent his childhood and youth at Winifirth, in Dorset. He was educated at Sherborne School, and at Guy's Hospital, and qualified in 1877. During his school and hospital days he was a fine all-round athlete. At Guy's he was one of the pioneers in developing the athletic side of student life, but none of these activities in any way distracted him from the serious work of his profession. His first practice was in Marshfield, Gloucestershire, where he held the post of district medical officer for the Chipping Sodbury Union, and, with the exception of a short interval after the sale of this practice, he was a Poor Law medical officer up to the time of his death, having held the appointment in the Wakefield Union for many years. He married in 1880; his wife and three children survive him. His two sons are in the medical profession, and both volunteered for active service at the beginning of the war, receiving commissions in the R.A.M.C. early in 1915. Dr. Reader's death was due to influenza and pneumonia. He had been overworked for some years, and the war added many worries to an already arduous practice. He is greatly lamented by the poor of the city, and the workers, on whom he spent himself.

DR. MILLER SEMPLE, who died at his residence in Dennistoun, Glasgow, on June 9th, aged 55, received his medical education at the University of Glasgow, where he graduated M.B., C.M.Glasg. in 1884, and at Dublin and Vienna. He had held the offices of resident surgeon and resident physician to the Glasgow Royal Infirmary, and for a long period was surgeon to the Steel Company of Scotland at Blochairn. He took great interest in medical administrative work in Glasgow, and was a member of the Glasgow Burgh Insurance Committee as well as of the Glasgow Eastern Division of the British Medical Association. Dr. Semple leaves a widow, two sons, and a daughter.

NEWS has been received of the death, on May 19th, at Nakuru, British East Africa, of Dr. REGINALD WESTMORE SPENCE. He was the son of Ernest Spence, One Tree Corner, Guildford, Surrey, and was born in 1886. From Epsom College he went to Westminster Hospital, and obtained the diplomas of M.R.C.S. Eng. and L.R.C.P. Lond. in 1913, was appointed medical officer under the Colonial Office, and was medical officer in charge of the hospital at Nakuru.

SURGEON-MAJOR-GENERAL CHARLES HERVÉ GIRAUD, A.M.S. (retired), who died as a result of a street accident at Fulham on May 10th, was born at Sevenoaks in 1834, and received his medical education at St. George's Hospital. Qualifying M.R.C.S. Eng. in 1858, he joined the Army Medical Service, and served at first as assistant surgeon on the staff, but was soon appointed to the 31st Regiment of Foot (the Huntingdonshire Regiment), now merged into the East Surrey Regiment. He became

surgeon-major in 1873, brigade surgeon in 1887, deputy surgeon general in 1889, and surgeon-major-general in 1894, being placed on half-pay in 1896. He saw much active service, serving in the Indian Mutiny with a flying column in the North-West Provinces, 1858-59. He was present at Sissaghat, and had the medal. In 1860 he was in China with the 31st Regiment, and was present at Sihlo and Taku, for which he had the medal with clasp for the Taku forts. From 1863 to 1864 he served against the Taepings, and was present at the storming of Kahding, Najow, Tsiupoo, and Nansiang. In 1879 he served with the 2nd Brigade in the Zulu war, and subsequently was P.M.O. to Clarke's column. He had the South African 1879-1881 medal with clasp.

Universities and Colleges.

UNIVERSITY OF LEEDS.

Chair of Pathology and Bacteriology.

AT the meeting of the council on June 19th, 1918, Captain M. J. Stewart, M.B., M.R.C.P., was elected Professor of Pathology and Bacteriology. Professor Stewart graduated in honours at the University of Glasgow in 1907 and was awarded the Brunton Memorial Prize as the most distinguished graduate in medicine of the year. After holding several hospital appointments in Glasgow, he was, in 1910, appointed clinical pathologist at the Leeds General Infirmary, and, in 1912, honorary demonstrator in clinical pathology at Leeds University. He received a commission in the R.A.M.C.(T.) in May, 1915, and has served as pathologist to the East Leeds War Hospital, and in a similar capacity in France. A few months ago he was recalled to Leeds and, at the request of the University Council, undertook the acting headship of the department of pathology and bacteriology. Professor Stewart has done much original research on pathological questions, including malignant disease.

ST. ANDREWS UNIVERSITY.

THE following candidates have been approved at the examination indicated:

THIRD M.B., CH.B.—Mildred Clark, Bessie M. Davidson, Jeao H. D. Fleming, Mabel Hodgson, Frances L. Knipe, Margherita M. Lilley, Kathleen M. Lyon, J. B. Macdonald, G. J. Murray, W. G. Robertson, Amelia MacD. Thoms, Olive M. Whyte.

Medical News.

To perpetuate the memory of the late Lieut.-Colonel Henry Moore, R.A.M.C., whose death from wounds we recorded last week, it has been decided to raise a fund to endow a bed in the Royal City of Dublin Hospital, where he spent the greater part of his professional life as a student, house-surgeon, and visiting surgeon. Many subscriptions have been promised, and those willing to assist in organizing the fund are asked to communicate with Mr. G. Jameson Johnston, F.R.C.S., Royal City of Dublin Hospital, Dublin.

THE London units of the Scottish Women's Hospitals for foreign service have decided that the memorial which they are raising to commemorate the late Dr. Elsie Inglis, shall take the form of a chair of medicine to be founded at Belgrade when the university in that city is reconstituted after the war. A London memorial fund for this purpose will be inaugurated at a meeting at the Mansion House, on Friday, July 5th. Applications for tickets should be made to 66, Victoria Street, S.W.1.

DR. NORMAN MOORE, president of the Royal College of Physicians of London, has been appointed a Radcliffe trustee.

DR. T. W. N. BARLOW (M.O.H. Wallasey), Dr. H. J. Gates (M.O.H. St. Helens), and Captain Frederick George Rose, R.A.M.C.T. officer commanding sanitary sections, Bagdad, have been elected Fellows of the Royal Sanitary Institute.

DR. F. COLE MADDEN, professor of surgery, Egyptian Government Medical School, and Mr. William M. Colles, professor, School of Medicine, Cairo, have been appointed members of the Order of the Nile of the third and fourth class respectively, conferred upon them by the Sultan of Egypt in recognition of valuable services rendered.

THE museum of the Royal College of Surgeons has been enriched this month by a fine series of instruments once the property of the late Mr. Arthur Durham, surgeon to Guy's Hospital, the donor being his son, Dr. Herbert Durham of Hereford. The series includes staphylorrhaphy, trachotomy, laryngotomy, and other knives, scissors, etc., devised and used by Mr. Durham, an auto-laryngo-

scopic mirror which he received from Señor Garcia, and Aston Key's own lithotomy case with a set of the straight staffs which he made use of with such dexterity. It will be placed next to the similar case and instruments used by his illustrious uncle, Sir Astley Cooper, when he cut for stone, presented by Mr. Edward Cock in 1872.

THE Local Government Board has issued a memorandum to tribunals, directing that special consideration should be given to the cases of the officials of local authorities (including public health, asylum, and Poor Law authorities), in view of the raising of the military age and of the increasing duties of local authorities. The efficient performance of these duties is of high importance at the present time, and a sufficient experienced staff is essential. Tribunals are directed to deal with each case on its merits, bearing in mind the standards which have now to be applied. A communication on this subject will also be sent by the Minister of National Service to National Service representatives.

AT the annual Austrian Tuberculosis Day the president, Count Larisch, stated that before the war not more than 800 beds were provided for tuberculosis in Austria. By the end of December, 1917, there were nearly 5,600 beds, apart from the beds occupied by tuberculous soldiers. There were, moreover, 450 beds for the sunlight and high-altitude treatment of surgical tuberculosis, as well as a great number of beds in the special departments of public hospitals. Formerly there were only ten dispensaries; in a few months there would be 50. The State had allocated 13½ million kronen in 1917 to this work.

A SPECIAL penal cases meeting of the Central Midwives Board was held on June 19th, Sir Francis Champneys in the chair. Of the thirteen midwives cited to appear seven were struck off the roll, one was censured, and one cautioned. Most of the charges arose out of failure to advise medical aid in cases of departure from normal conditions, such as delay in expulsion of the placenta and membranes, ophthalmia, excessive haemorrhage. One was a case of insobriety, and there were the usual charges of want of cleanliness and not taking and recording the pulse and temperature. At the ordinary monthly meeting on June 20th a communication was reported from the Acting Registrar of the General Medical Council with reference to the action of a medical practitioner who had given a certificate to an uncertified woman certifying that she was "quite capable of undertaking the duties of an ordinary midwife." It was decided that the chairman be asked to communicate with the President of the General Medical Council and to express the views of the Board. Twenty-five midwives were removed from the roll on their own application. The Secretary reported on the introduction of the Midwives Bill, 1918, into the House of Lords.

OWING to the large increase in the demand of the forces for registered dentists their position has become similar to that of medical practitioners, and a special tribunal, known as the Dental Tribunal, has been appointed to deal with the best distribution of the professional services of dentists between the military and civilian requirements. The Minister of National Service has agreed that a registered dentist shall not be called up for military service except for dental work as a commissioned officer, provided that any registered dentist who is left in civilian life is engaged in dental work which, in the opinion of the dental tribunal, is of urgent national importance. The dental tribunal contains representatives of the dental profession, and includes the members of the Dental Service Committee, who have already rendered valuable service in dealing with the cases of registered dentists. From July 1st applications on whatever grounds for the grant, renewal, or review of certificates of exemption on behalf of registered dentists will be dealt with by the Dental Tribunal, whose address is 19, Hanover Square, London, W.1. The powers, functions, and procedure of the tribunal will be the same as those of an appeal tribunal. The Local Government Board has constituted the tribunal as follows: Dr. G. S. Buchanan, C.B., chairman; Dr. N. G. Bennett, Mr. H. R. F. Brooks, Mr. G. G. Campion, Dr. W. H. Dolamore, Dr. W. J. O'Donovan, Mr. N. Bishop Harman, F.R.C.S., Mr. Walter Harrison, Mr. M. F. Hopson, Mr. W. B. Paterson, F.R.C.S., Mr. E. H. Pelham, Mr. Rees Price, Dr. C. F. Rilot, and Dr. J. Smith Whitaker.

THE result of an inquiry by the Prussian Home Minister into the merits of salvarsan is said to be very favourable. Reports on over 75,000 cases treated were given, and of the fatalities more or less traceable to salvarsan, many occurred when the drug was first introduced, and its effects were not properly understood. The incidence of deafness was 0.0026 per cent., of blindness 0.0013 per cent.

At a meeting of the London Association of Medical Women on June 4th, with Lady Barrett in the chair, Dr. Mary Scharlieb, in opening a discussion on medical etiquette, said that doctors had two main duties towards their patients—to secure adequate treatment and to avoid inflicting unnecessary distress of mind or body. Speaking more especially of venereal disease, she said that since adequate treatment was lengthy, troublesome, and expensive patients were apt to break it off too soon unless the doctor cultivated their confidence, and explained the effects of insufficient treatment. In deciding whether to give a patient the straightforward diagnosis, each case should be considered on its merits, but if the patient asked a direct question, she should be given a straight clear answer. To the question, Did my husband infect me? one could honestly reply that it was impossible to say. The husband should always be seen, and when necessary advised as to obtaining treatment. Suspected carelessness or ignorance on the part of other practitioners should never be exposed to the patient. A full report should be furnished to the doctor sending a patient, but the patient's secret should not be divulged to any one else without her permission. Where there was danger of infection the patient's permission to inform her father, husband, or employer should be sought. Cases of approaching marriage offered difficulty, for the doctor was liable to prosecution for slander if he mentioned the presence of venereal disease, and for libel if he wrote about it. The Royal Commission was in favour of making this a privileged communication. Lady Barrett thought it wrong to inform a husband that his wife had venereal disease without her full knowledge and consent, and vice versa. In cases sent by midwives to antenatal clinics, the patient's permission should be sought to inform the midwife if venereal disease existed. Care was necessary in these cases to avoid liability for slander or libel. Dr. Jane Walker pointed out that the diagnosis was the patient's own affair, and no business of relations, friends, or employers who paid the fees. Dr. Eleanor Lowry, discussing the relations between hospitals, advocated the establishment of some central place at which patients could apply for treatment, and whence they could be referred to the most suitable hospital. A list of unoccupied beds at the various hospitals could be kept there to facilitate the admission of acute cases.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR OF THE BRITISH MEDICAL JOURNAL, *Aitiology*, Westrand, London; telephone, 2531, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate*, Westrand, London; telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Medisecra*, Westrand, London; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

THE acting medical officer for the county of Montgomery (Newtown, North Wales) desires to hear of a modern hospital for infectious diseases containing eighteen to twenty beds.

LETTERS, NOTES, ETC.

DIPHTHERIAL INFECTION OF WOUNDS.

DR. J. LEWIS THOMAS (Newport, Mon.) writes: The paragraph on page 676 recalls a clinical lecture by the late Mr. Lockwood of St. Bartholomew's, in which he describes an incised mammary abscess which would not heal. It was noticed that a child in a cot alongside the woman's bed had a chronic nasal catarrh, and a swab was taken and found to carry *B. diphtheriae*. Injection of antitoxin was very quickly followed by healing of the chronic wound.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

A COUNTRY MEMBER writes: In the JOURNAL of June 1st I was glad to see another letter of protest by "An Old Member" against the arbitrary action of the committee of the above society nullifying their own previous statements and promises and thereby causing, after this year, a serious monetary loss

to old members who had trusted them—as it now appears—in vain. It is to be hoped some energetic member living in or near London will give his name and address so that all who are dissatisfied may send their names and addresses and arrange for a private meeting to discuss the best method of getting this unfair resolution rescinded. A list of members is published by the society.

ONE OF THE OLDEST MEMBERS writes: As another very old member of the Medical Sickness and Accident Society, may I add my protest against the action which the society proposes to take with regard to the bonus? Let the society make any terms it likes with new members, but it is certainly, to put it mildly, a breach of faith and scarcely honest to attempt to deprive the members of many years' standing of their expected and promised bonus. For over thirty years I have done all in my power to persuade my brother practitioners to join the society, but if this unfair action is allowed to pass I shall most certainly in future do all I can to dissuade them.

THE CHIEFTAINSHIP OF THE CLAN FARQUHARSON.

A CORRESPONDENT writes: Dr. Farquharson regarded himself and was generally recognized as the chieftain of his clan. In his volume of reminiscences, *In and Out of Parliament*, he tells of a visit to Sir Henry Campbell-Bannerman at Belmont Castle in Perthshire, in December, 1897, at which a feature of the entertainment was "some vigorous reels." This was celebrated in verse by Sir Charles Cameron, M.P., who sang:

Miss Ruxton down in Italy had oever seen a kilt,
So Finzean's laird, The Farquharson, has braced himself to till't,
And he shows with sporrnan whisking and skean-dhu on knee
How a Highland Chief can foot it 'fore a jolly G.C.B.

I remember some years ago at a time of political crisis, when "retaliation" dinners were raging, being present at a dinner in aid of Epsom College. Lord Rosebery, who was in the chair, humorously referred to the difficulty in which he was placed by the presence of some prominent politicians, among whom he specially named the chieftain of the powerful clan Farquharson. Speaking of this afterwards to Dr. Farquharson, I ventured to hint that I was under the impression that his kinsman of Invercauld was the chief of the clan. With the nervous cough that so often prefaced his utterances, and every hair in his moustache bristling with defiance, the laird of Finzean replied: "Invercauld! Why he doesn't even claim it."

A FUNGUS FLY AND COCKROACH KILLER.

It has long been known, at least in Germany, where it goes by the name of "Fliegenpilz" or "Fliegenschwamm," that the fungus *Amanita muscaria* has insecticide properties, but they seem seldom to have been turned to account. Dr. E. Wildbrand, however, states that in the government of Minsk it is extensively used by the native population. Placed stalk uppermost it is baked for two or three minutes to set free the poisonous juices. The stalk is then broken off and the lamellae strewn with castor sugar, which dissolves in the juice. The bait is put out of reach of any domestic animal, and should not be left near food or kept in a room where cooking is going on. The poison, however, acts so rapidly that the dying fly does not creep far. When the juice has evaporated the sugar ceases to be poisonous, but the toxicity of the bait can be maintained for a few days by adding a little water occasionally. It is also said that if spread out on a large plate the sugary juice kills cockroaches as well as flies.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND. Subscriptions to the Second Appeal.

The following subscriptions and donations to the Fund have been received during the week ending June 22nd:

	£	s.	d.		£	s.	d.
Dr. James Craig ...	2	2	0	Mrs. de Meray* ...	0	5	0
Dr. C. C. Easterbrook ...	1	0	0	Dr. T. M. Cuthbert ...	1	1	0
Dr. Thomas Guthrie ...	2	2	0	Dr. W. A. Bond ...	2	2	0
Mr. Percy Hoar* ...	200	0	0	Anonymous... ..	0	17	6
Mrs. Harrison* ...	5	0	0				

* Per Dr. Des Vœux.

† Per Sir Rickman Godlee.

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under ...	0	6	0
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Whole single column ...	4	0	0
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An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

THE
British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

SUPPLEMENT

CONTAINING

PROCEEDINGS OF COUNCIL

REPORTS OF STANDING COMMITTEES

MEETINGS OF BRANCHES AND DIVISIONS

PROGRAMME OF ANNUAL MEETING

MEDICAL BILLS IN PARLIAMENT

PROCEEDINGS OF THE GENERAL MEDICAL COUNCIL

ETC.

VOLUME I, 1918.

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SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

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THE MEDICAL NEEDS OF THE SERVICES.

ACTION BY THE NATIONAL SERVICE MINISTRY.

MEDICAL MEN OF MILITARY AGE.

WE are informed by the Ministry of National Service that the following circular letters have been issued to the medical practitioners concerned. With regard to the second letter, asking medical men of military age to present themselves for physical examination, it is desirable to point out that recipients of the letter need be under no apprehension in this matter. It is, as stated, *not* a calling up notice, nor will it be even a remote preliminary to calling up, except in the cases of medical men who in any circumstances would be under the consideration of the Central Professional Committees with a view to possible service in the Royal Army Medical Corps.

Ministry of National Service,
Westminster, S.W.1.
December, 1917.

Sir,

I am directed to inform you that, with a view to maintaining the required number of officers in the Royal Army Medical Corps consistently with the least disorganization of medical service throughout the country, it is necessary to call upon all medical practitioners of military age who have resigned, or may resign, their temporary commissions on the expiry of an annual contract on and after October 31st, 1917, to resume their commissions.

This decision has not been arrived at without a very full consideration of the medical needs of the civilian population on the one hand and of the urgent requirements of the army on the other, as well as of the services which such officers have already rendered. This proposal will not affect the customary privilege which has hitherto been accorded to the profession, of laying any difficulties, which individual practitioners may have in accepting or resuming service, before a Committee of their professional colleagues.

The Minister of National Service therefore urgently requests that you will immediately place yourself in the hands of the appropriate Central Professional Committee in order that within the next fourteen days the Professional Committee may be put in possession of the facts, which will enable it to determine whether your services may again be placed at the disposal of His Majesty's Government.

I am, Sir, your obedient Servant,
E. A. SANDFORD FAWCETT,
Secretary.

* The following are the addresses of the Central Professional Committees:

The Central Medical War Committee, 429, Strand, London, W.C.2, for all enrolled practitioners in England and Wales,
The Committee of Reference, 8 to 11, Queen Square, London, W.C.1, for practitioners on the staffs of all hospitals in the London area.
The Scottish Medical Service Emergency Committee, 9, Queen Street, Edinburgh, for practitioners in Scotland

Ministry of National Service,
Westminster, S.W.1.
December, 1917.

Sir,

In connexion with the general survey of the man-power resources of the nation, the Minister of National Service requires to have an index, brought up to date, of the physical fitness of all medical practitioners throughout the country who are of military age, irrespective of whether they have or have not already served in the Royal Army Medical Corps.

You are therefore requested, notwithstanding any previous examination, to present yourself for medical examination by a National Service Medical Board at , between the hours of and , on or before the 12th January, 1918.

If your ordinary residence is more than five miles distant from the place of examination, your railway fare will be paid by the Ministry of National Service on application to the Deputy Commissioner of Medical Services.

Please take this notice with you as a warrant for your examination.

Kindly observe that this is not a "calling up" notice, but a request that you will assist the organization of the National Service by submitting yourself for medical examination on or before the above-mentioned date.

Special arrangements are being made in each area for the examination of medical men, which will be communicated to you by the Deputy Commissioner of Medical Services in your area.

I am, Sir, your obedient Servant,
E. A. SANDFORD FAWCETT,
Secretary.

MEDICAL STUDENTS.

The Ministry of National Service is now in touch with the deans of the medical schools throughout the country on the whole question of military service as it affects medical students, and we understand that a conference was held recently at the Ministry, which was attended by more than thirty deans. Several of those present gave it as their opinion that the situation with regard to the possible shortage of medical students was not so urgent as the public has been led to suppose from desultory unofficial paragraphs in the lay press. The difficulties and complexities of the problem were fully realized, and certain recommendations were made, which, we learn, are being acted upon by the Ministry.

The large demands by the Admiralty for the services of students as surgeon probationers in the navy for a period of six months were discussed at the conference. It is probable that in future every physically fit male student will be expected to give this or some similar service during his course of professional study. By arrangement with the licensing bodies, such service will not delay qualification, and the need for it is so urgent that the Ministry of National Service cannot fail to meet it as fully as possible.

Meetings of Branches and Divisions.

SHROPSHIRE AND MID-WALES BRANCH.

The following resolutions were carried unanimously at the meeting of the Branch on December 18th, 1917, and have been forwarded to the Salop County Council:

- (1) In the opinion of the Shropshire and Mid-Wales Branch of the British Medical Association it is desirable that a pathological and research laboratory should be established by the public authorities for the benefit of the county of Salop; that it should be equipped for all microscopical, analytical, and pathological work, and that it should have an efficient staff, part of whose duties it should be to undertake research work. It is suggested that such an institution would be valuable not only for work connected with medicine, public health, and veterinary surgery, but, in addition, might undertake research work in agricultural matters.
- (2) In cases of midwifery attended by midwives under the control of the County Council, the Shropshire and Mid-Wales Branch of the British Medical Association is of opinion that an arrangement should exist for the payment of a fee of £2 2s. to medical men called in to the assistance of the midwives.

SUSSEX BRANCH: HORSHAM DIVISION.

A MEETING, with Mr. Mark Vernon in the chair, was held at Horsham on December 21st, 1917. All medical men practising in the area were invited to attend, and the meeting was representative of the whole area.

After consideration of information furnished by the Medical Secretary as to action taken by other areas, it was unanimously resolved that:

At the present time, when the cost of living is so greatly increased and the price of all drugs and appliances is so much higher, it is right and proper that the charges made for medical and surgical attendance and medicines ought to be higher than those made previous to the war, and that such increase should be an amount not exceeding 25 per cent.

The scale of payment recommended in the British Medical Association letter for treatment of disabled sailors and soldiers in voluntary hospitals was approved.

The CHAIRMAN put before the meeting the claims of the British Medical Association as the best and most efficient body to represent the interests of the profession, and appealed to non-members to join the Association and strengthen it in its efforts.

MOTOR CAR BADGE FOR MEMBERS OF THE ASSOCIATION.

THE motor car badge referred to on page 101 of the SUPPLEMENT of November 24th, 1917, is now ready for issue to members of the Association, and may be obtained at the cost of 1s. on application to the Financial Secretary and Business Manager, 429, Strand, London, W.C.2. The badge is intended to be affixed by gum or paste to the inner surface of the wind screen. The badge will only be issued on the distinct understanding that the member to whom it is supplied will only use it when his car is engaged on professional or other purposes expressly authorized in the Motor Spirit Restriction Order No. 2 of 1917, and that the Association does not accept any responsibility for any improper use that may be made of the badge.

THE ORGANIZATION OF THE PROFESSION.

WE have received the following communication from Dr. R. H. Botham (Skelton-in-Cleveland) in reply to the letter from the Medical Secretary printed in the SUPPLEMENT of December 22nd, 1917 (p. 124):

Sir,—

As a member of the North Riding Panel Committee, I should like to be allowed to reply to the letter of Dr. Alfred Cox in which he accuses us of violating the fundamental principles of democratic government.

Of course if Dr. Cox is to be allowed to define these principles, and to apply them as he pleases, he should have no difficulty in proving his case. He takes it for granted that the Insurance Committee of the British Medical

Association is a thoroughly democratic representative of the panel practitioner. Our view is that it is a friendly committee which assisted at the birth of the panel doctor, tended him in his infancy, and now that he is come of age must be prepared to surrender its guardianship.

The proper representatives of the panel practitioners are the Panel Committees, and the proper representative of the Panel Committee is a general committee, the members of which have been elected by the Panel Committees. There is as yet no such general committee in existence, but it is "on the way."

In the meantime, while we are still in tutelage, our Panel Committee can only undertake to accept the ruling of the British Medical Association Insurance Committee when it has been, at least, consulted. This did not happen when the scheme for the treatment of invalid soldiers was under discussion; in fact, I am told that the whole negotiations were conducted by two gentlemen without even the knowledge of the Insurance Committee of the British Medical Association.

I am, etc.,

R. H. BOTHAM.

INSURANCE.

THE NATIONAL ASSOCIATION OF INSURANCE COMMITTEES.

THE Executive Council of the National Association of Insurance Committees has sent to all Insurance Committees copies of resolutions which it has passed, urging that steps should be taken to secure that every Local War Pensions Committee contains representatives of the Insurance Committee of the area; that the best means of obtaining this would be by an amendment in the bill now before Parliament giving Insurance Committees a statutory right to such representation; but if such an amendment be not inserted, the Council asks the Minister of Pensions to recommend local authorities to make provision in any amended scheme for the appointment of representatives on the nomination of local Insurance Committees. On this question a deputation waited on the Minister of Pensions, who replied that he had come to the conclusion that many difficulties would arise if it were dealt with in the amending bill as other bodies might also claim representation, and as a corollary the Pensions Committees might also claim a right to representation on Insurance Committees. He would, however, favourably consider any amended schemes submitted for the constitution of Local Pensions Committees, tending to promote their efficiency.

Discharged Tuberculous Soldiers.—The Council some time ago suggested to the Insurance Commissioners that the Orders of the Army Council should be so amended as to permit soldiers suffering from tuberculosis to be retained under military discipline and control while in receipt of sanatorium treatment granted by an Insurance Committee. The Commissioners, while holding out no hope that this suggestion would be adopted by the Army Council, stated that it had been arranged that men discharged from the services with tuberculosis might be granted a short furlough in suitable cases prior to their admission to civil institutions, and the Commissioners anticipate that this arrangement might to a large extent remove the conditions which have hitherto contributed to the refusal of soldiers to accept sanatorium treatment.

A Ministry of Health.—The Council resolved that, while strongly in favour of legislation to reduce child mortality, such legislation should be initiated under a Ministry of Health and not in a prior and separate bill. On this matter it will be seen that the Council is in close agreement with the views expressed in the letter sent to the Cabinet on November 30th by the British Medical Association, and similar views have been expressed in a letter sent to the Prime Minister by the National Union of Women Workers. When this subject came before the Salford Insurance Committee, Dr. J. H. Taylor suggested that it was eminently desirable to obtain, if possible, some concerted action between the National Association of Insurance Committees and the British Medical Association as the two bodies agreed in many respects in their views as to a Ministry of Health. The chairman of the Insurance Committee, Alderman Huddart, who is this year Mayor of Salford and is a member of the Executive Council of the Association of Insurance Committees, promised that

the question of co-operation should be considered by the Council. The Council was also of opinion that Insurance Committees, as they have to deal with maternity benefit, ought to have a statutory right to representation on all local public health committees dealing with maternity and child welfare, especially in view of what follows in the next paragraph.

Medical Benefit for Dependents.—A further important decision was reached by the Executive Council—namely, that it should press for the immediate provision of medical benefit for the widows and orphans of soldiers and sailors and also for the early provision through Insurance Committees of medical benefit for the dependants of insured persons. This resolution appears to have the support of a large majority of Insurance Committees.

LOCAL MEDICAL AND PANEL COMMITTEES.

Surrey Panel Committee.—In a recent circular to panel practitioners, issued by the Surrey Panel Committee, it is pointed out that although the Panel Medico-Political Union, through its representatives at the recent conference, declared itself as acting in no spirit of hostility to the British Medical Association and desirous of acting in unison with it, it is impossible to reconcile this attitude with their recent issue of a circular dated November 17th, 1917, asking panel practitioners to refuse treatment to discharged soldiers and sailors under the British Medical Association scheme, which a representative conference had accepted by an overwhelming majority. The circular states that such action can only be stigmatized as disloyal to the Conference of Panel Committees at which the policy was adopted.

Gloucestershire.—At a recent meeting of the Gloucestershire Local Medical and Panel Committee it was agreed to send a subscription of 10 guineas towards the expenses of the Insurance Acts Committee in connexion with the special inquiry into the central pool. A proposal to join the Association of Panel Committees was defeated. The scheme for collective bargaining, as set out in document M. 18 of the Insurance Acts Committee, was agreed to. It was resolved to circularize all the practitioners on the panel with regard to the new regulations respecting the treatment of discharged disabled soldiers and sailors, but it was considered that in the present circumstances the statistics of illness amongst these men would be faulty and quite unreliable.

Nottingham and Nottinghamshire.—At a joint meeting of the Nottingham and Nottinghamshire Local Medical and Panel Committees on November 27th, 1917, to which all panel practitioners in the city and county were invited, it was resolved that all prescriptions ordered from a local formulary or otherwise containing a deleted pharmacopoeial preparation will be interpreted in the absence of evidence of contrary intention on the part of the prescriber, as indicating the equivalent for the deleted preparation contained in the addendum (War Emergency Formulae) of the B.P.C.

It was resolved that those present pledge themselves loyally to support the Insurance Acts Committee of the British Medical Association, should it be found necessary to carry into effect the scheme for collective bargaining submitted by the Insurance Acts Committee to and approved by the 1917 Conference.

Glasgow Burgh.—At a joint meeting of the Local Medical and Panel Committees on December 13th, 1917, the Secretary was instructed to submit to the Insurance Committee an estimate of the administrative expenses of the Panel Committee for 1918 on the same lines as in current year, including one-third of Glasgow's share of the cost of the Central Checking Bureau, and including a sum for clerical expenses not exceeding £50. It was resolved to recommend to the Insurance Committee that no change be made in the list of Emergency Drugs and Appliances for 1918.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty:—**Fleet Surgeons:** E. T. Burton to the *Indomitable*; R. S. Osborne to the *Pembroke*, additional, for disposal; P. F. Alderson to the *Africa*. **Staff Surgeons:** J. C. F. D. Vaughan to the *Forth*; D. P. Chapman to the *Thames*; W. H. Edgar, M.D., to the *Talbot*. **Surgeon E. St. G. S. Goodwin, M.B., to Gibraltar Hospital.** **Temporary Surgeons:** A. T. Woodward, M.B., to the *Suipie*; P. Macarthur to the *Woodcock*; B. Burnside to Chatham Hospital; J. D. Dimock and T. F. Reason to Plymouth Hospital; P. Ward to Haslar Hospital; R. St. A. Heathcote, M.B., to the *Fandicture*; H. R. Buttery to the *Hyacinth* for Zanzibar (shore); D. L. Lewis to the *Pembroke*, additional, for medical transport duties (ambulance train); G. R. Lynch, M.B., to R.N. Depot, Crystal Palace. To be temporary Surgeons: W. G. Gover, M.B., C. H. Laver.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Staff Surgeon: T. D. Luke, M.D. To be Surgeon Probationers: W. H. Smorfitz, W. L. Kennedy.

ARMY MEDICAL SERVICE.

The undermentioned are placed on retired pay on having attained the age limit:—**Surgeon-Generals:** H. R. Whitehead, K.C.B., F.R.C.S., J. G. MacNeece, C.B., T. M. Corker, C.B., M.D., Sir D. Bruce, C.B., F.R.S., M.B., Sir R. W. Ford, K.C.M.G., C.B., D.S.O., Sir T. P. Woodhouse, K.C.M.G., C.B., R. H. S. Sawyer, C.M.G., M.B., Colonels (temporary Surgeon-Generals, and are granted the honorary rank of Surgeon-General): J. M. Irwin, C.B., M.B., B. M. Skinner, C.M.G., M.V.O., J. Maher, C.B., G. D. Hunter, C.B., C.M.G., D.S.O., R. S. F. Henderson, C.B., M.B., M. W. Russell, C.B., S. Hickson, C.B., M.B., Colonels: H. J. Barratt, H. O. Trevor, C. E. Nichol, C.M.G., D.S.O., M.B., S. Westcott, C.B., C.M.G., R. Kirkpatrick, C.B., C.M.G., M.D., E. H. L. Lynden Bell, C.B., M.B., R. H. Firth, F.R.C.S., E. A. Tate, C.M.G., C. E. Faunce, R. J. Gendes, C.B., D.S.O., M.B., H. M. Sloggett, C. Birt, S. C. Philson, J. H. Daly, M. J. Sexton, C.B., M.D., H. E. Cree, R. J. Widdle, M.B., W. H. Horrocks, C.B., M.B., E. A. Burnside, C. R. Elliott, M.D., J. W. Bullen, M.D., R. Caldwell, F.R.C.S., C. A. Lane, M.B.

To be Surgeon-Generals: Colonels (temporary Surgeon-Generals) H. N. Thompson, C.M.G., D.S.O., M.D., A. A. Sutton, C.B., D.S.O., M. T. Yarr, K.C.M.G., C.B., F.R.C.S., C. H. Burchall, C.B., C.M.G., M.B., Colonels: W. T. Swan, C.B., M.D., G. Cree, C.B., C.M.G., H. Carr, C.B., M.D.

Lieut.-Colonels from R.A.M.C. to be Colonels: Brevet Colonels O. L. Robinson, C.M.G., K.H.P., E. M. P. J.cher, D.S.O., M.B., F.R.C.S., W. G. Bexys, D. J. Collins, M.D., G. T. K. Maurice, C.M.G.; Lieut.-Colonels G. S. McLoughlin, C.M.G., D.S.O., M.B., W. W. O. Beveridge, C.B., D.S.O., M.B., H. J. M. Baile, D.S.O., M.B., G. B. Armstrong, C.M.G., M.B., F. W. Peggie, H. A. Hinge, C.M.G., H. A. Bray, C.M.G., E. W. Slaxter, C.M.G., H. S. Thurston, C.M.G., T. P. Jones, C.M.G., M.B., G. A. Moore, C.M.G., M.D., E. H. Condon, M.B., C. E. Pollock, D.S.O., F. R. Buswell, C.M.G., T. H. J. C. Goodwin, C.M.G., D.S.O., A. E. C. Keble, D.S.O., J. R. MacMunn, C.M.G., H. V. Prynce, D.S.O., F.R.C.S., G. D. Browning, S. F. St. D. Green, M.D., P. Evans, C.M.G., M.B., C. K. Morgan, C.M.G., M.B., G. St. C. Thom, C.M.G., M.B., G. W. Profeit, D.S.O., M.B., F. Kiddo, C.M.G., M.B., R. J. Blackham, C.B., D.S.O., H. W. Grattan, J. V. Forrest, C.M.G., M.B., J. C. B. Statham, C.M.G., E. T. F. Birrell, C.B., C.M.G., M.B., E. W. Bliss, D.S.O., A. H. Morris, R. W. Clements, D.S.O., M.B., W. E. Hudleston, D.S.O.

Temporary Lieut.-Colonel W. N. Barron, C.M.G., M.V.O., from R.A.M.C. to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieut. Colonels placed on retired pay on having attained the age limit: T. B. Winter, A. T. I. Lily, H. J. Fletcher, M.B., M. O'Halloran, M.B., W. E. Berryman, A. E. Morris, M.D., C. T. Blackwell, M.D., H. H. Brown, R. Holyoake, H. E. Winter, (Brevet Colonel) F. Smith, C.M.G., D.S.O.

Temporary Major C. C. Choyce, M.D., F.R.C.S., to be temporary Lieut.-Colonel.

Major L. L. G. Thorpe is placed temporarily on the half-pay list on account of ill health.

A. G. W. Bowen, M.B., Fleet Surgeon R.N. (ret.), to be temporary Major.

J. McC. Martin, D.S.O., late temporary Major, is granted the honorary rank of Major.

Temporary Captain W. B. Cosens to be temporary Major whilst specially employed.

The notification in the *London Gazette* of November 14th, 1917, regarding temporary Captain J. A. Smith, M.C., M.B. is cancelled.

A. D. Claunch, late temporary Captain, is granted the honorary rank of Captain.

Temporary Captain J. H. Wilson relinquishes his commission on account of ill health contracted on active service.

Temporary Captain M. Chadwick relinquishes his commission on account of ill health, and is granted the honorary rank of Captain.

Temporary Captains relinquish their commissions: A. Burton, M.D., F.R.C.S., J. M. N. Paton, M.B., E. F. Reeve, M.B., C. C. B. Thompson, C. Fraser, M.D., A. Montgomery, M.B., L. T. Dean, M.B., J. G. Copland, M.B., E. C. Moore, M.B., F.R.C.S.E., R. N. Watson, H. Smith, E. McIntyre, R. B. Hennessy, M.B., A. Whyte, M.D., W. S. Williamson, L. Levy, M.B., W. D. G. Mulloy, M.B., J. Craig, M.B., S. Infield, and is granted the honorary rank of Captain: A. McI. Cato, H. W. Teague, M.B., C. O. Jones, M.D., W. E. Hills, R. H. Shephard, J. B. Milne, M.B., T. D. Kennedy, J. L. Aymard.

To be temporary Captains: F. A. R. Hacker, A. R. Hall, M.D., J. T. Kirkland, M.C., M.B.

Temporary Lieutenants to be temporary Captains: P. B. Brown, H. Findlay, M.B., C. E. H. Paley, J. C. G. Bacon, S. W. Fisk, D. Cozan, W. D. Thomson, M.D., R. C. Rogers, M.B., D. Finlayson, M.B., H. W. Bernard, M.B., T. M. Thomson, T. R. Robertson, M.B., H. A. Grierson, M.B., A. E. Hart, M.B., A. Newton-Brady, M.B., G. H. Adam, J. K. Watson, M.D., C. D. H. Corbett, M.D., A. G. Macdonald, M.D., F. Challans, M.D., C. E. Tangye, M.D., M. E. A. Wallis, I. G. Cobb, H. Freeth, M.D., J. H. Kay, M.B., D. F. Borrie, H. O'H. H. May, P. Steele.

Temporary Lieutenants relinquish their commissions: T. S. Robson, H. D. Wilson, M.B., T. P. Campbell, M.B., H. C. Schockett, M.B., W. P. Morgan, M.B., M. H. Bland, M.D., W. Daunt, J. A. Berlyn, M.B., J. M. Smith, C. Watson, C. R. Brown, H. H. Moyle.

Temporary Lieutenant C. P. Crouch relinquishes his commission on account of ill health and is granted the honorary rank of Lieutenant.

Temporary Lieutenant J. J. W. Evans, F.R.C.S., relinquishes his commission on account of ill health contracted on active service.
To be temporary Lieutenants: J. W. O. van Milligan, M.B., W. J. McNab, M.B., H. M. Berry, M.D., J. L. Schilling, T. A. Fall, A. Robin, M.D., R. H. Vercoe, H. M. Birkett, C. A. A. Lever, S. Johnson, M.D., J. B. Munford, L. W. Huellin, H. Gibson, C. Clyne, M.B., F. G. F. Browne, M.B., S. Nix, M.D., T. J. Cobbe, M.B., F.R.C.S., P. Savill, M.D., D. Holroyde, M.B.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Lieut.-Colonels (acting Colonels) to be temporary Colonels: A. Primrose, O. A. Peters, R. P. Wright, E. C. Hart, C.M.G., F. Etherington, C.M.G.

Temporary Lieut.-Colonels to be temporary Colonels: S. H. McKee, G. D. Farmer, W. Webster, D.S.O., W. B. Hendry, D.S.O., J. T. Clarke, E. G. Davis, C.M.G.

Temporary Majors (acting Lieut.-Colonels) to be temporary Lieut.-Colonels: E. L. Stone, J. C. Meakins, J. A. Amyot, R. S. Pentecost, T. A. Starkey, F. C. Bell, L. E. W. Irving, D.S.O., D. A. Whitton, H. E. Kendall, D. P. Kappela, J. N. Gunn, G. H. Reason, G. J. Boyce, A. T. Bazin, A. L. C. Gilday, P. G. Bell, J. J. Fraser.

Temporary Majors to be temporary Lieut.-Colonels: L. R. Murray, P. Bennett, D.S.O., H. C. Parsons, L. C. Harris, C. E. C. Cole, S. Campbell.

Temporary Captains to be temporary Majors: W. J. McAlister, M.C., C. McMane, T. Lyon, A. F. Macanlay, H. E. Ridgewood, J. H. Leeming, D. W. McKechnie, C. Cartwright, R. Y. Kenny.

Temporary Captain T. L. Harrison is seconded for duty with the War Office.

Temporary honorary Captains resign their commissions: E. K. Clarke, F. F. Tisdall.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

Colonels placed on the Territorial Force Reserve: S. S. Hoyland, M.D., E. C. Freeman, C.M.G., M.D., J. V. W. Rutherford, C.B., de B. Birch, C.B., M.D., H. J. Mackay, M.D., C. E. Harrison, C.M.G., M.V.O., M.B.

Lieut.-Colonels from R.A.M.C.T.F. to be Colonels: A. W. Sheen, M.D., W. Ranson, D.S.O., F.R.C.S., H. E. B. Bruce-Porter, C.M.G., (Brevet Colonel) A. M. Connell, F.R.C.S.E., A. D. Sharp, C.M.G., F.R.C.S., E. J. R. Evatt, M.B.

ROYAL ARMY MEDICAL CORPS.

G. G. Little, late temporary Captain, R.A.M.C., to be Captain for service with the Senior Division O.T.C.
Corporal I. Walker from R.E. to be Lieutenant.

TERRITORIAL FORCE RESERVE.

Captains R. S. Young, M.B., and L. W. Hignett, M.B., from R.A.M.C., to be Captains.

MINISTRY OF NATIONAL SERVICE.

The following relinquish their commissions on appointment to the Ministry of National Service: Lieut.-Colonel (Brigade Surgeon Lieut.-Colonel) W. J. Fleetwood (T.F.R.). Temporary Captains S. J. Cullum, H. H. Folker, D. J. G. Johnston, M.B., R. A. Jones, and N. Smith, R.A.M.C.

EXCHANGES.

M.O. attached Northern Command would like to exchange with M.O. attached London Command.—Address, No. 4349, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.2.

M.O. attached Southern Command would like to exchange with M.O. Irish Command, preferably Dublin or the South.—Address, No. 100, BRITISH MEDICAL JOURNAL Office, No. 429, Strand, W.C.2.

Medical officer serving in the Northern Command would like to exchange with one serving in the London Command.—Address, No. 4200, BRITISH MEDICAL JOURNAL Office, No. 429, Strand, W.C.2.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ALNWICK INFIRMARY.—House-Surgeon.

AUSTRALIAN COMMONWEALTH: SERUM LABORATORIES.—(1) Biochemist. (2) Two Senior Bacteriological Technical Assistants. (3) Three Bacteriological Technical Assistants. Salary for (1), £450, increasing to £500; (2) £336, increasing to £408; and (3) £216, increasing to £312.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170.

BIRMINGHAM CITY.—Lady Doctor for Infant Welfare Work.—Salary, £350 per annum, increasing to £450.

BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum and £5 travelling expenses.

BLACKPOOL: VICTORIA HOSPITAL.—Lady House-Surgeon. Salary, £250 per annum.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Resident House-Surgeon. Salary, £350 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

CARNARVONSHIRE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £400 per annum.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.—Two House-Surgeons. Salary at the rate of £100 per annum and £5 washing allowance.

HULL: ROYAL INFIRMARY.—Senior House-Surgeon. Salary, £250 per annum.

INVERANON PARISH, Banffshire.—Medical Officer. Salary, £75 per annum.

LEAMINGTON SPA: WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Resident Medical Officer. Salary, £200 per annum.

LONDON HOMOEOPATHIC HOSPITAL, Great Ormond Street, W.C.—Two Resident Medical Officers. Salary, £100 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon (male). Salary, £150 per annum.

MANCHESTER CITY.—(1) Locumtenant Second Assistant Medical Officer to the Baguley Sanatorium for Tuberculosis. (2) Temporary Assistant Tuberculosis Officer for the City. Salary, £400 and £450 per annum respectively.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Two House-Physicians.

ST. PANCRAS PARISH.—Assistant Medical Superintendent of the South Infirmary. Salary, £300 per annum.

STAFFORDSHIRE, WOLVERHAMPTON AND DUDLEY JOINT COMMITTEE FOR TUBERCULOSIS.—Two Senior and two Assistant Tuberculosis Officers. Salary for senior officers £500 and £350 for assistant officers.

STOKE-ON-TRENT COUNTY BOROUGH.—Assistant Lady Medical Officer. Salary, £350 per annum.

VICTORIA HOSPITAL FOR SICK CHILDREN, Tite Street, S.W.—House-Surgeon. Salary, £200 per annum.

WOOLWICH BOROUGH.—Woman Assistant Medical Officer of Health. Salary, £350 per annum.

YORK COUNTY HOSPITAL.—House-Physician (lady). Salary, £200 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Penarth (Glamorgan), Tavistock (Devon).

MEDICAL REFEREE.—Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 58 and to be specially attached to the Plymouth, Kingsbridge and Totnes, and Paignton County Courts. Applications to the Private Secretary, Home Office, by January 18th.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made:—Resident Physicians: J. A. A. Duncan, to Dr. Rainy. Resident Surgeons: A. V. T. Muir, to Mr. Hodsdon; Lewis N. Nott, to Mr. Chiene; Harry M. Jacobs, to Dr. A. H. F. Barbour. Clinical Assistants: George Buchanan, to Dr. Rainy; Miss G. A. A. Boyd, to Dr. J. V. Paterson.

MECHAN, Arthur, M.B., C.M., Medical Referee in Glasgow under the Ministry of Pensions.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

JACKSON.—On December 27th, 1917, to Dr. and Mrs. D. J. Jackson, 62, Thornshead Road, London, S.E.—a son.

MARRIAGES.

GRIFFITH—RUCK.—On December 6th, 1917, at the Parish Church, Corris, Merioneth, by the Rev. D. Thomas, Vicar, Major Alexander Hill Griffith, R.A.M.C.(T.), of 17, St. John Street, Manchester, to Mary Ursula, second daughter of Lieut.-Colonel A. A. Ruck, late The King's Regiment, and Mrs. Ruck, Esgair, Pantperthog, Merioneth.

SHARRARD—WELLS.—On December 22nd, 1917, at All Saints' Church, Gloucester, by the Rev. A. Chastel de Boinville, M.A., W. Sharrard, M.B., Captain R.A.M.C.(T.), of Sheffield, to Winifred H. Wells, M.B., M.R.C.S., only daughter of Mr. and Mrs. A. J. Wells, Gloucester.

DEATHS.

BLYTHMAN.—On December 29th, 1917, at Swinton, near Rotherham, Yorks, Clement Samuel Blythman, M.B., C.M. Edin., M.R.C.S. Eng., in his 75th year.

BURMAN.—At 12, Bondgate Without, Alnwick, on December 26th, 1917, aged 63 years, Charles Clark Burman, L.R.C.P. and S. Edin., dearly beloved husband of Isabella Mande Burman.

DIARY FOR THE WEEK.

ROYAL SOCIETY OF MEDICINE.—Section of Psychiatry: Tuesday, 4.30 p.m., Major F. W. Mott, F.R.S.: Psychology of Soldiers' Dreams. Section of Epidemiology: Friday, 5.30 p.m., Sir Filippo de Filippi: The Italian Medical War Services.

FRIDAY.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, W.—8 p.m., Cases. 8.30 p.m., Presentation of the West London Medal to Major H. E. Priestley, C.M.G., R.A.M.C. 9 p.m., Clinical Meeting.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JANUARY.	
10 Thur.	London: Grants Subcommittee, 2.45 p.m. London: Organization Committee, 3 p.m.
16 Wed.	London: Finance Committee, 2.30 p.m.
23 Wed.	London: Council Meeting.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 12TH, 1918.

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British Medical Association.

CURRENT NOTES.

Increase of Mileage Grant for Insurance Practice.

The Rural Practitioners Subcommittee of the Insurance Acts Committee met representatives of the National Insurance Commissioners on January 3rd and discussed the method of distribution of the new grant made by the Treasury for the purpose of increasing the rate paid for mileage to rural practitioners. The Commissioners hope to make an early announcement of their intentions.

Payment of Medical Men called in by Midwives.

The Midwives Act, 1902, and the rules made thereunder by the Central Midwives Board provided that in certain circumstances a midwife must call in a medical practitioner, but no provision was made for the payment of the doctor's fee. In February, 1908, the Local Government Board issued a circular providing for the payment by boards of guardians of any medical man so called in. The Annual Representative Meeting, 1908, expressed the opinion that those payments should be made compulsory on the local supervising authority—that is, the town council. This view was pressed upon the Departmental Committee appointed by the Privy Council in 1909; also that any such scale of fees should be fixed by the Local Government Board. The Departmental Committee agreed that the scale should be fixed by the Local Government Board, but recommended that the fees be paid by the Boards of Guardians. In April, 1910, the Medico-Political Committee of the British Medical Association laid down a scale of fees, which, though later amended in detail, is practically that in existence now. In the same year the Government introduced into the House of Lords, but subsequently withdrew for amendment, an amending bill, and the Association took the opportunity of making representations to the Privy Council and the Local Government Board, and asked the President of the Board (Mr. Burns) to receive a deputation, which he did on November 8th. The bill was subsequently dropped.

The Local Government Board now intimates to the British Medical Association that it is approving, in connexion with schemes for the payment of doctors called in by midwives, the scale which the Association laid down in 1910, and was prepared to put before the Board then. The schemes so approved by the Board would appear to be those of the local supervising authority—a reversal of its 1908 policy of using boards of guardians, and in conformity with the views urged by the Association in 1910. It should be pointed out, however, that whereas the Association has urged that payment should be made for all cases, the letter of the Local Government Board only agrees to payment for necessitous cases.

The Cocaine and Opium Regulations.

In the JOURNAL of November 17th, 1917, p. 657, appeared an explanatory statement regarding the Cocaine and Opium Regulations under the Defence of the Realm Act. There is reason to believe that some medical practitioners still

fail to comply strictly with the terms of Regulation 40B, either by omitting to indicate that a prescription containing cocaine is not to be repeated, or by failing to state their professional qualifications. Such irregularities are probably due to a misapprehension. While prescriptions issued for National Insurance purposes on the forms provided by Insurance Committees need not be marked with the practitioner's address and qualifications, nor with the words "not to be repeated," this does not apply to prescriptions given to their private patients by insurance practitioners. Pharmacists are forbidden to supply these drugs unless the terms of the regulations are strictly complied with in all respects.

INDIAN MEDICAL SERVICE:

MEMORANDUM

ON ITS PRESENT POSITION AND THE REFORMS NECESSARY

SUBMITTED BY THE BRITISH MEDICAL ASSOCIATION TO THE SECRETARY OF STATE.

The following memorandum has been presented by the British Medical Association to the Secretary of State for India. It will be remembered that in October, 1917, the Association asked the Secretary of State to receive a deputation, to lay before him the causes of the present unsatisfactory position of the service, and of its consequent unpopularity in the schools. Mr. Montagu was unable to receive the deputation before his departure for India, but promised to receive it shortly after his return. Meanwhile it was thought well that this memorandum, containing a general statement of the most important points demanding the attention of the India Office in this country and of the Government of India, should be submitted in anticipation of the deputation. It is here published for information.

MEMORANDUM ON THE INDIAN MEDICAL SERVICE.

Preamble.

The British Medical Association submits the following observations in the hope that they may assist the Secretary of State in settling the policy to be pursued with regard to the future of the Indian Medical Service.

The Association is not actuated by selfish or class motives. The officers of the Indian Medical Service constitute less than 2 per cent. of the total number of medical practitioners on the *Medical Register*, issued by the General Medical Council under the authority of the Privy Council; and the abolition of the Indian Medical Service would not appreciably affect the prospects of the medical profession in the British Empire or of the medical schools and Universities.

The Association assumes that the maintenance of an efficient Indian Medical Service is essential to the interests of the peoples of India, and that the duty of ensuring an efficient service appertains to the Secretary of State and the Government of India.

The Association is interested in the matter in so far as, for the honour of the profession it represents, it is anxious that the Secretary of State and the Government of India should not fail to obtain an efficient service owing to lack of information the Association may be able to supply.

The Association is concerned that the Government of India should not, through any want of appreciation of social and economic conditions as they affect the medical profession, or through a want of acquaintance with conditions governing the progress of medicine, surgery, pathology and hygiene, pursue a policy which must in the near future deprive India of the benefits which a highly efficient and skillful medical service has had the privilege of rendering in the past.

The Association is aware that the officers of the Indian Medical Service are extremely discontented and that they deeply resent the treatment to which they have been subjected by the Government of India and also, and more especially, by Local Governments. It is confident that the knowledge of this discontent and resentment has deterred, and must in the future deter, young men from entering the service, and the authorities of medical schools from advising them to do so.

The Association begs to inform the Secretary of State that in order to ensure to India an efficient and contented Medical Service certain reforms are necessary, certain defects must be remedied, and certain general conditions be fulfilled as follows:—

INDIA OFFICE.

Defects.

There is need of a fuller recognition by the Secretary of State and the Government of India of the obligation on all governments to-day to apply the best modern means for the treatment of diseases and for the investigation of their causes with the view to prevention. To this end the Secretary of State, the Governor-General, and the Governors of Provinces need direct and continuous skilled advice on medical and sanitary problems, especially as to the enquiries and researches required for their solution, and as to the application of the results of such enquiries and researches by administrative action. The adviser should in each case be in a position to take a direct part in discussions preceding the decisions of the executive authority.

Remedies.

The Secretary of State has already taken a step towards remedying this defect in the case of the India Office at home. By the Order in Council of June 20th, 1916, the Secretary of State for India provided that the President of the Medical Board at the India Office shall also be the Medical Adviser to the Secretary of State for India. All reports and communications regarding medical and sanitary matters, and the organisation, personnel, recruitment and appointment of officers in the Indian Medical Service, and of persons to the nursing and sanitary services, are referred to him for his advice acting in his capacity of Medical Adviser to the Secretary of State. He supervises the recruitment of the Indian Medical Service, and for this purpose is authorised to visit centres of medical teaching, in order to bring to the notice of the Secretary of State all questions in connection with recruitment. This officer should be relieved of the duties pertaining to the Presidency of the Medical Board, India Office. He should be the head of a distinct department of the India Office to which all proposals affecting medical and sanitary matters should be referred for advice, and no order, minute or other document relating directly or indirectly to any medical or sanitary matter should be issued by the India Office until his observations thereon have been considered by the Secretary of State, to whom he should have direct access.

GOVERNMENT OF INDIA.

Defects.

There are ten Secretaries to the Government of India in various departments, but no Secretary to the Government in the Medical and Sanitary Department. The Director-General, Indian Medical Service, is not a Secretary to the Government of India and hence his recommendations and the reasons on which they are based reach the Executive, that is to say, the Governor-General and his Council, at second hand.

Remedies.

The Director-General of the Indian Medical Service should be a Secretary to the Government of India in the Medical and Sanitary Department, and the Secretary of the Director-General should be an Under-Secretary to the Government of India in that Department.

PROVINCIAL GOVERNMENTS.

Defects.

A Provincial Government has no Medical Secretary. The Surgeon-General of a Province is not a Secretary to Government, so that his recommendations and the reasons on

which they are based reach the Executive of the Province at second hand (if at all).

Remedies.

In each Province the Surgeon-General should be a Secretary to Government in the Medical and Sanitary Department, and his Personal Assistant should be an Under-Secretary to Government in that Department.

EDUCATION AND RECRUITMENT.

Defects.

1. At present permanent commissions in the Indian Medical Service are being granted without examination, and a large number of temporary commissions are being issued.

2. Not only the competitive examination but also the training for it should be as practical as possible. Candidates from India are not required to undergo any period of training in British medical schools, and in consequence their acquaintance with certain subjects, especially the diseases of women and children, may be insufficient.

3. Ordinary leave had, before the war, become difficult to obtain at the time it was due and was often postponed for long periods. The same was true of Study leave.

4. The Government of India does not afford sufficient incentives to officers, I.M.S., to devote themselves to scientific investigation of the causes and the prevention of disease which it should be its special anxiety to encourage. It does not afford sufficient facilities, though the work of the Indian Research Fund has to some extent removed this reproach, and it does not afford them sufficient recognition and distinction, nor provide them adequate emoluments.

Remedies.

1. The practice of giving permanent commissions only on the result of open competitive examination should be resumed as soon as war conditions permit. The number of permanent commissions given by selection should be kept within the narrowest possible limits. It should be made plain that the grant of a Temporary Commission, Indian Medical Service, does not afford any presumption that the recipient will eventually be granted a permanent commission except on the ground of professional knowledge and ability.

2. Successful candidates for the Indian Medical Service should be encouraged to hold resident hospital appointments, being seconded for this purpose.

Candidates from India should be required to undergo a period of training in British Medical Schools, especially in the diseases of women and children, and should, if necessary, be given special facilities for this purpose.

3. Leave should be granted when due, and the cadre should be increased so as to permit reserves for leave, deputization and training. The regular grant of Study leave to junior officers to attend courses of instruction in medical schools, hospitals, and laboratories, in order to make themselves practically acquainted with the advance of scientific methods, is essential to the efficiency of the Service, and provision should be made for them when fixing the establishment of Medical Officers.

Opportunities should be afforded to Officers during the early part of their service to attend the practice of hospitals in the Presidency and other large towns.

4. The Government of India should regard it as one of its first duties to encourage scientific investigation by officers, I.M.S., and should take care that such work received conspicuous marks of its approval and appreciation both by the granting of suitable promotion and adequate remuneration, and in the bestowal of honours.

PAY AND EMOLUMENTS.

Defects.

The prospects for a young man entering the Indian Medical Service have ceased to be attractive owing to:—

1. The low scale of pay, and the lack of opportunities open to members of the Indian Medical Service of attaining to offices carrying large emoluments. The pay of the Director-General, Indian Medical Service, the most highly paid appointment open to the Indian Medical Service, is only 3,000 rupees, whilst that of the Secretaries to the Government of India is 4,000 (as a rule).

2. The diminution of the emoluments to be obtained from private practice. This is due in large part to the action of Government.

3. The decline in the value of money and the increased cost of living.

4. The serious expenses, much exceeding the present inadequate allowance, attendant on frequent transfers from one post to another.

Remedies.

1. There should be a substantial increase in the scale of pay throughout the service; the emoluments of the highest posts, the possibility of attaining to which may induce officers not to retire, should be revised, so that they shall better correspond to the salaries paid to the occupants of posts involving similar grave responsibilities.

2. The curtailment of the right to receive fees from private patients is (a) impolitic since that right remains one of the chief attractions of the service to men who have a prospect of a career in Europe, and an incentive to officers of the service in civil employ to maintain and increase their knowledge and skill. It is also (b) contrary to the plain terms of the conditions under which candidates seek admission to the service.

Any rule or order curtailing, whether directly or indirectly, the right to receive fees from private patients should be at once withdrawn. The Association desires a definite assurance from the Secretary of State for India that the Officers of the Indian Medical Service retain the right to private practice save in the case of certain specified appointments.

3. The decline in the value of money and the increased cost of living should, pending the revision of the scale of pay recommended, be met by a substantial allowance.

4. The frequency of transfers should be reduced as far as possible; an officer transferred should receive an adequate allowance for travelling.

THE ORGANIZATION OF THE PROFESSION AND RURAL PANEL PRACTITIONERS.

SIR,—I read with interest the speech of Dr. Cox on "the organization of the profession," delivered at Preston on November 29th, 1917, and reported in the SUPPLEMENT, BRITISH MEDICAL JOURNAL, December 15th, 1917 (p. 117).

As representing the practitioners on the North Riding Yorks Insurance Committee, a county which is largely rural, and containing some of the largest and most scattered rural practices in England, I should like to ask what the Insurance Acts Committee has done "to discover the will of their constituents so far as rural practitioners are concerned? or when the Association applied its machinery to the business of finding out what it was that (rural) practitioners wanted"? I believe I am correct in stating that the Insurance Acts Committee, or other committee, has a subcommittee appointed to look after rural interests and advise thereon. I should like to know if this subcommittee was consulted when the terms for attending discharged and disabled soldiers in rural districts were agreed upon.

In dealing with a proposed increased capitation fee for 1918, and non-signing of agreements, Dr. Cox says this portion of the resolution was "withdrawn after discussion because of the evident impracticability of collecting within one month the resignations of 80 per cent. of panel practitioners," and later, "obviously the first thing to do was to find out how far the individual practitioners were prepared to go, and to do this and collect the resignations could not be carried through in the brief time available."

Will Dr. Cox kindly say which year since the Insurance Act has been in force the Insurance Commissioners have given sufficient time between presenting a new agreement and its coming into force to allow anything of this nature to take place? So far as my memory goes the Commissioners have always produced the new agreement at the eleventh hour, when there was no time for discussion, and certainly no time for any committee "to discover the will of their constituents." If the Committee really mean business it is about time to move now for the 1919 agreement, if they can get it from the Commissioners.

The Insurance Acts Committee and the Commissioners have been so long in giving attention to or correcting the just grievances of rural practitioners, it would almost appear neither body yet fully understood the fundamental differences between town and country practice as applied to work under the Insurance Act. Without much examination or comparison it is quite easy to realize that in rural practice the distances are longer, the patients fewer, the expenditure of time per visit greater, the work harder, the working expenses higher, the cost of drugs heavier, and so forth; but other and serious differences are not so obvious without experience or closer study of the subject. In town practice, when many serious medical or surgical cases occur, the patients may easily be advised to go to the hospital or call in a consultant, and, if the panel practitioner cares to do so, here his responsibility ends.

Although this might be strictly legal in the country, it is impossible in most cases in a scattered area, and the panel doctor has, therefore, to see all the cases through himself. This leads one to another aspect of rural practice. In attending tedious cases of this kind many long journeys have to be travelled, which means time and money.

In these circumstances, without taking time or exertion into consideration, it is quite easy—in fact, common—for one patient in an outlying district, not only to swallow up in working expenses the capitation and mileage grant for the year of himself and those about him, but the total fees of all panel patients living within a wide area of the patient's residence. This is not possible in a town practice. I always understood one of the golden rules in ordinary insurance work was to adjust the premiums according to the risks incurred. Yet here we have the same capitation fee or premium for town and country alike, although the risks incurred in out-of-pocket expenses are widely different. Again, many workmen seriously injured, or after sudden onset of disease in the town, are taken straight to the hospital, but in rural areas all are attended by the panel doctor—a further example of increased liability.

Another difference is the class of patient transferred from the private on to the panel list in the two classes of practice. In the country many patients who, or their employers, previously paid from 5s. to 10s. a visit, such as domestics in county houses, farmers' sons, etc., are now on the panel list. Very few patients previously paying such fees in towns have been transferred to the panel I should think. Up to the present time, in spite of this glaring injustice, nothing has been done to improve the lot of the rural practitioner. Can it be that the Insurance Acts Committee, or the Commissioners, think the rural practitioners are of no consequence? If so, they are greatly mistaken. If it ever comes to resignation from the panel, where does the Insurance Acts Committee think it has the stronger lever or the best prospect of success, in the town or in the country? Much of the town panel practice could be run by whole-time officers from dispensaries or other institutions, and what is more could be worked at much the same cost. I do not say it would be so good, or so popular, but it could be worked without great difficulty. Try the same in the country, however; expense alone would prevent it. It would cost at least three times as much as the present capitation grant, probably a great deal more, not to mention other insurmountable difficulties perhaps hardly dreamt of and certainly not understood by the Commissioners. Therefore, if it comes to a fight, it might in the end serve the best interests of the town practitioner if they viewed this question of capitation fee for the country with a sympathetic eye. The rural practitioners are not afraid; they have nothing to lose; and if the Insurance Acts Committee will do nothing to try to rectify the glaring injustices when the proposed increased capitation grant is under consideration, country practitioners are quite prepared to act on their own behalf.

When the Insurance Bill was first considered and the capitation fee arranged "with no deductions," I believe the original intention was to divide the capitation grant in such a way that the rural practitioners would receive payment on a higher scale than the town doctor for very obvious reasons, but this was never carried out as at first intended. What rural practitioners would like to know is whether this question is going to be reconsidered when the new increased capitation rate is granted, or whether they are still to be left with this gross injustice unremedied—an injustice so glaring that it should in all fairness be the first thing to be considered, and fully considered, before going into the larger question of any general capitation increase. A basis on which to work would not be difficult to devise—for instance, according to the density of population, and density of population can easily be translated into average miles per visit. In wide practices in the North Riding, where the number of people per acre is low, the average miles per visit work out in some cases as high as five miles, some perhaps higher. Is it reasonable, is it fair that such practice should be worked on the same capitation basis as the crowded town areas?

I am pleased to note a glimmer of hope in the letter from the Commissioners under date December 19th promising increased mileage in rural areas, an increase long overdue, and trust this may be a forerunner for the

removal of the greater grievance. Dr. Cox said: "It was incumbent upon all who had to deal with the Government and other bodies that they should bring forward a reasonable case, and be prepared to discuss it on its merits." If any such reasonable case is wanted, and one which will bear discussion and close investigation on its merits, the Committee might do worse than take up the case of the rural panel practitioner.—*am, etc.,*

Northallerton, Jan. 6th.

WILLIAM BAIGENT.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty:—
Fleet Surgeons S. Connor, M.B., to the *Firid*; W. H. S. Stalkart, M.B., to R.N. Auxiliary Hospital, Peebles; A. C. Manson, F.R.C.S., to the *Crescent*, for Peebles R.N. Auxiliary Hospital; A. H. H. Vizard, M.B., to Sherness Barracks and Yard. Staff Surgeons M. W. Haydon to the *Forth*; G. Carlisle to R.N. College, Greenwich. Temporary Surgeons G. L. Ritchie, M.B., to the *Blonde*; W. P. Startforth, M.B., to the *Penbrooke*; T. R. S. Thompson to the *Firid*; L. H. Woods to the *Hegmouth*; J. E. Purvis, M.B., to Chatham Hospital; J. G. Gilruth, M.B., to Plymouth Hospital; J. A. Starling, M.B., J. G. McG. Robertson, M.B., and G. Bulsille, M.B., to Haslar Hospital. To be temporary Surgeons: J. G. Gilruth, M.B., J. E. Purvis, M.B., R. T. D. Roberts, F. Caldecott, M.B., B.S., C. W. Armstrong, M.B.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon D. D. E. Macintyre promoted to Staff Surgeon; Surgeon A. E. W. Hird to Granton Naval Hospital. To be Surgeon Probationers: J. Grant, W. R. P. Templeton, W. L. Tullis.

ARMY MEDICAL SERVICE.

Colonel M. P. C. Holt, K.C.M.G., C.B., D.S.O., to be temporary Surgeon-General.

Lieut.-Colonel H. M. Morton, D.S.O., M.B., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division, October 29th, 1915 (substituted for notification in the *London Gazette* of January 12th, 1917).

To be temporary Colonels: Temporary Lieut.-Colonel T. R. Elliott, M.D., Temporary Captain Owen Richards, D.S.O., M.D., F.R.C.S., Temporary Major (acting Lieut.-Colonel) A. E. Webb-Johnson, D.S.O., G. E. Gask, D.S.O., F.R.C.S. (Major K.A.M.C. (T.F.)).

Temporary Colonel Sir A. Macfarlane (Colonel A.A.M.C.) relinquishes his temporary commission.

Lieut.-Colonel F. S. Penny, C.M.G., C.B., relinquishes the rank of temporary Colonel on reposting.

Lieut.-Colonel F. J. Brakeuridge, C.M.G., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

ROYAL ARMY MEDICAL CORPS.

Major H. C. Hildreth, D.S.O., relinquishes the acting rank of Lieut.-Colonel on reposting.

To be acting Lieut.-Colonels while in command of a medical unit: Majors G. G. Tabuteau and A. R. Greenwood, Captain C. M. Drew, M.B.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

T. D. Redwick, late Captain, is granted the honorary rank of Captain.

Lieutenants to be Captains: B. Mountain, M. J. Burns, M.B., C. Weir, J. A. H. Miller, W. M. Morris, M.B.

To be Lieutenants: J. A. Stewart, M.B., from Glasgow University Contingent O.F.C., Second Lieutenant F. L. Richard, M.B., from Unattached List T.F., C. H. Warner and F. Cameron from University of London Contingent O.T.C., A. Winfield from Manchester University Contingent O.T.C., J. L. D. Buxton, E. P. N. Creagh, T. F. Lloyd.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major R. H. MacDonald, M.C., to be acting Lieut.-Colonel and to command a Canadian Field Ambulance, vice Lieut.-Colonel C. F. McGuffin, D.S.O.

Temporary Major H. H. Moshier to be acting Lieut.-Colonel, D. H. Paterson to be temporary Captain.

SOUTH AFRICAN MEDICAL CORPS.

Captain J. W. Lee is cashiered by sentence of a general court-martial (August 13th, 1917).

TERRITORIAL FORCE RESERVE.

Surgeon-Major (honorary Surgeon Lieut.-Colonel) R. Bullock from Yeomanry to be Surgeon-Major.

Captain R. G. Wills, M.B., relinquishes his commission on account of ill health, and is granted the honorary rank of Captain, November 11th, 1917 (substituted for announcement which appeared in the *London Gazette* of November 10th, 1917).

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

AUSTRALIAN COMMONWEALTH: SERUM LABORATORIES.—(1) Biochemist. (2) Two Senior Bacteriological Technical Assistants. (3) Three Bacteriological Technical Assistants. Salary for (1), £450, increasing to £500; (2) £336, increasing to £408; and (3) £216, increasing to £312.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170.

BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary, £300 per annum and £5 travelling expenses.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Resident House-Surgeon. Salary, £350 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

COSFORD RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary, £100 per annum.

COSFORD UNION.—Medical Officer and Public Vaccinator for the Cosford Relief District. Salary, £50 per annum.

COVENTRY AND WARWICKSHIRE HOSPITAL.—House-Physician. Salary, £300 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway Road, N.—Honorary Medical Officer, in charge of Electro-Therapeutic and Massage Department.

HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HOSPITAL OF ST. JOHN AND ST. ELIZABETH, Grove End Road, N.W.—Resident Medical Officer. Salary, £250 per annum.

INVERANON PARISH, Banffshire.—Medical Officer. Salary, £75 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon (male). Salary, £150 per annum.

LIVERPOOL PARISH.—Resident Medical Officer for the Browlow Hill Poor Law Hospital. Salary, £300 per annum.

MANCHESTER: COUNTY ASYLUM, Prestwich.—Locumtenent. Salary, £7 7s. per week.

PORTSMOUTH PARISH.—Fifth Assistant Medical Officer for the Workhouse Infirmary, etc. Salary, £300 per annum.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Surgeon; salary at the rate of £100 per annum. (2) Temporary Medical Officer to act as surgeon in charge of the Ear, Nose, and Throat Department. Honorarium, £25 per annum.

RATHDOWN UNION.—Medical Officer for the Bray No. 1 Dispensary District. Salary, £125 per annum, rising to £165.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Resident Clinical Assistant. Salary, £110 per annum.

ROMSLEY HILL SANATORIUM, near Birmingham.—Assistant Medical Superintendent. Salary, £350 per annum.

ROYAL FREE HOSPITAL, Gray's Inn Road, W.C.—Medical Registrar (female).

SALFORD POOR LAW UNION INFIRMARY.—Male Resident Second Assistant Medical Officer. Salary, £300 per annum.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum, rising to £150.

STAFFORDSHIRE, WOLVERHAMPTON AND DUDLEY JOINT COMMITTEE FOR TUBERCULOSIS.—Two Senior and two Assistant Tuberculosis Officers. Salary for senior officers £500, and £350 for assistant officers.

SWANSEA EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.

VICTORIA HOSPITAL FOR SICK CHILDREN, Tite Street, S.W.—House Surgeon. Salary, £200 per annum.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces the following vacant appointment: Holywell (Flint).

To insure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

MENSON—LAMBERT.—On December 24th, 1917, at Ferriby Parish Church, by the Vicar, the Rev. Harris Lloyd, Captain Ronald Kelberoe Merson, R.A.M.C., son of Dr. and Mrs. Merson of Willeby, to Dorothy, daughter of Mr. and Mrs. H. C. Lambert, Wold Edge, Ferriby, East Yorks.

DEATH.

ROTHERA.—On January 5th, 1918, at Beeston, Notts, Frank Rothera, M.D. Edin., M.S., M.R.C.S.E., M.O., aged 56 years.

DIARY FOR THE WEEK.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.—Monday, Wednesday, and Friday, 5 p.m., Professor Arthur Keith: Principles Underlying the Treatment of Injuries to Muscles, Joints, and Bones.

ROYAL SOCIETY OF MEDICINE.—Tuesday, 5 p.m., General Meeting of Fellows. Section of History of Medicine: Wednesday, 4.30 p.m., Exhibition of Books, Pictures, etc. 5 p.m., Dr. R. W. Lefkwich: Shakespeare's Son-in-law, Dr. John Hall. Mr. D'Arcy Power: Dr. John Hall (of Maidstone). Section of Dermatology: Thursday, 5 p.m., Cases. Section of Electro-Therapeutics: Friday, 8.30 p.m., Stereoscopic Radiographs illustrating the Anatomy of the Fallopian Canal. Demonstration of the Radiography of Injuries of the Mandible by Lieutenant H. M. Johnston, R.A.M.C., and Captain Kelsey Fry, R.A.M.C. Mr. E. E. Burnside: (a) A Portable Snook Apparatus; (b) A Transformer for Heating Current of Coolidge Tube.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JANUARY.	
16 Wed.	London: Finance Committee, 2.30 p.m.
23 Wed.	London: Council Meeting, 11 a.m.

LONDON: SATURDAY, JANUARY 19TH, 1918.

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THE EDUCATION BILL.

THE following is an abstract of the agreed report of a deputation from the British Medical Association which waited upon the Right Hon. H. A. L. Fisher, M.P., President of the Board of Education, on December 14th, 1917.

The deputation consisted of Drs. H. B. Brackenbury, T. Ridley Bailey, John Clarke, C. E. S. Flemming, T. W. H. Garstang, and H. C. Maetier, Mr. N. Bishop Harman, Dr. Alfred Cox (Medical Secretary), and Dr. J. Neal (Deputy Medical Secretary). Sir Amherst Selby-Bigge, K.C.B., Sir George Newman, M.D., and Mr. Bosworth-Smith were present in support of the President.

In a brief speech Dr. GARSTANG introduced the chief spokesman of the deputation, Dr. BRACKENBURY, who said that the British Medical Association objected to the provisions of Clauses 18 and 19 of the Education Bill in their present form, and stated that their proposal was that "extension of the powers of medical treatment should be for the time being excluded from these clauses." He gave the following reasons for their objection:

(a) If the clauses go as they at present are, they will add immediately and seriously to the difficulties of an already chaotic muddle.

(b) They will prejudice by considerable confusion any steps which the Government might take in another direction to simplify the existing state of things.

(c) They will act prejudicially to the position of the general medical practitioner and through him to the detriment of the public.

Dr. Brackenbury then went on to particularize the objections of the Association which he had already stated in general terms.

THE PRESIDENT replied to the deputation as follows:

Gentlemen,—I thank you for the clear way in which you have stated your case, and I will give careful consideration to the weighty opinions which you have offered me. I am fully sensible of the difficulties involved in this question. I take it I may assume that your Association is in favour of the inspection of school children by the school medical service, and that you are in favour of the extension of this service with the extension of the education system, and that you feel that if the age of attendance is to be raised it is desirable that the local education authority should be the agency for medical inspection, and that that agency should be in the hands of the school medical service. Why you have joined issue with the bill is that you would have preferred treatment to have been left out. In any event, you consider it important that treatment of children of all ages should be left to the private practitioner, or at any rate that the position should not be compromised until a Ministry of Health has been set up, or until the Public Health Services have been reorganized and co-ordinated.

After an expression of thanks to the President, the deputation withdrew.

THE ORGANIZATION OF THE PROFESSION AND RURAL PANEL PRACTITIONERS.

SIR.—I should like to be permitted to welcome the forceful letter of Dr. Baigent as an admirable statement of the case for differential treatment of the rural insurance practitioner. I am entirely without personal experience of any but urban practice, but I am now in my second year of chairmanship of the Rural Practitioners Subcommittee, which was appointed in consequence of a suggestion made by me at the Conference of 1916. The work of this subcommittee has enabled me to realize in a way that would otherwise have been impossible the position of rural practitioners and their claims to preferential remuneration under the Insurance Acts.

The tone of impatience which is evident in Dr. Baigent's letter is natural enough. His experience from day to day gives him a vivid consciousness of the disadvantages and inequity of the present state of things. But these things, in my opinion, have never adequately been brought before the profession or before the Insurance Acts Committee or the Association. Recent reforms which have resulted in an enlarged and reinforced Rural Subcommittee and a much increased representation of rural practitioners on the Insurance Acts Committee itself, are now beginning to produce their effect. That action is overdue I know, but these changes cannot be accomplished by one coup, and all effective reforms are painfully slow in maturing. This characteristic is not confined to those desired by insurance practitioners and by the Insurance Acts Committee.

The position is now this. Strong representations have been made to the Government that, owing to conditions produced by the war, there is need for an increase both of the ordinary capitation fee and of the amounts allowed for mileage (both ordinary and that for temporary residents and for invalided soldiers). The mileage claim has been allowed, and the increased capitation claim is being considered, we hope favourably. This is not a bad beginning. But the reconsideration of remuneration on a more permanent basis remains, and may have to be insisted upon almost at once if the results of our present negotiations should be regarded as unsatisfactory. In this connexion, whether sooner or later, the preferential treatment of rural practitioners must be fully considered. Whether an equitable result can be secured by a reformed mileage scheme or in some other way, or whether there should be a larger capitation fee for rural than for urban practitioners, is one of the important matters. In case the latter is asked for, there are several requirements that must be fulfilled: (1) The rural practitioners must convince their fellows in the towns that such an arrangement is just; (2) the profession must convince the Government that this is right in principle; (3) it must be shown that the arrangement is administratively possible. This last point is not by any means so simple as it seems to some, for there are all sorts of practices intermediate between the truly rural and the purely urban. But even the first of the three requirements has not yet been met; and, convinced as I am that the rural

practitioner's ease is a just one. I hope that such presentations of that case as that contained in Dr. Baigent's letter will continue to be put before the profession in the JOURNAL, in Panel Committees, and elsewhere, so that urban practitioners may be shown what equity demands, and so that when a considered request is put forward it may be at the instance not of rural practitioners only, but of the whole of those who are doing work under the Insurance Acts.—I am, etc.,

London, N., Jan. 14th.

H. B. BRACKENBURY.

SIR,—Dr. Baigent's letter in the SUPPLEMENT of January 12th is very much to the point. At the Conference of Representatives held on October 18th, 1917, Dr. Brackenbury stated that the Rural Subcommittee was not specially consulted on the matter of discharged disabled soldiers. He also stated that the Rural Subcommittee was working very well. To those of us concerned by their work it would be interesting to learn something of the nature of the operations of this subcommittee. The following examples show that the present rates of payment for either temporary residents, disabled soldiers, or insured persons are inadequate:

Example 1: Temporary resident 4½ miles: serious accident; 21 visits morning and evening.

	£	s.	d.
Fees earned	2	19	6
Mileage allowed, 1s. per mile over 3 miles one way	1	1	0
	4	0	6
Total distance 178 miles at 6d. per mile ...	4	9	0
Loss on case	0	8	6

Example 2: Temporary resident 8½ miles away; 4 visits.

	£	s.	d.
Fees earned	0	10	0
Mileage allowed	1	0	0
	1	10	0
Total distance 66 miles: hire of car at 10d. per mile both ways	2	15	0
Loss on case	1	5	0

If own car had been available at 6d. per mile, loss on case would only have been 5s.

Example 3: Insured person 9½ miles away; 33 visits morning and night within 2 months.

	£	s.	d.
Capitation fee per annum	9	0	
Mileage allowance per annum	15	2	
	1	4	2
Total distance 600 miles, cost at 6d. per mile...	15	0	0
Loss on case	13	15	10

There are twelve other insured persons in this locality at a distance of eight to ten miles, the value of their capitation fees and mileage allowance was £14 10s. per annum; if we deduct the loss on above case 14s. 2d. remains to cover the risk of attending these twelve persons for the remaining ten months of the year.

These cases are not exceptional; something of the same kind happens every year. The motor car is, without doubt, a boon to the country practitioner; whether it is an unmixed blessing must depend on our capacity to be reimbursed for the cost of using it. It is not easy to make exact calculation of the cost as compared with the horse, but, as regards the latter, it may be said that the more work the noble animal did the less the cost, with the car the more work the greater the cost. Which of us who are getting on in years cannot recall the doctor's mare costing £40 as a four-year-old and retiring to the stud after ten years' work to produce a useful foal or two; or the cob which was bought for £30 as a three-year-old and sold for £30 at six or eight years. To say nothing of the nearly extinct dogcart, good for fifteen years, and the almost everlasting saddle and bridle, and the sometimes faithful groom at 18s. a week: as also the good old days when we hired horse and trap from the local hotel at a charge of 1s. a mile on the outward journey and drove home for nothing? It is difficult nowadays to realize that we ever got over the ground in the day, but we did. To-day we get the amenities of the car to the advantage of ourselves and the public, but it has to be paid for. The groom at 18s. a week is replaced by the chauffeur at 30s.; the £300 car has to be sold for £50 at the end of five or six years, and

may have had £50 spent on it during the time, and the new car costs as much as one can afford and sometimes more; petrol, tyres, and oil are probably more expensive commodities to-day than hay, corn, and horseshoes in the past, and the local hotel charges 10d. a mile (1s. to-day) all the way. No self-respecting taxi-driver would take on a contract to drive his car six miles for nothing, or even twenty miles for 7s., an indefinite number of times, yet this is what we have to do under the mileage allowance for temporary residents.

The army allowance is a fairer one, and having been conceived by a Government department is not likely to err on the side of extravagance. The Medico-Political Committee is reported to have stated that our proper remedy to cope with our increased travelling expenses is to put up our fees. This is a counsel of perfection; unfortunately a proportion of our most distant patients are also the poorest; the profession has always tempered the wind to these shorn lambs, and must always do so, for obvious reasons; but that is no reason, when dealing with a State department, why we should acquiesce in playing the part of the shorn lamb, or sell our wool at less than cost price. As Dr. Baigent says, the large amount of time occupied in paying visits at a distance of many miles is a serious matter for some rural practitioners.

The situation as regards the allowance for drugs is almost Gilbertian. In spite of a rise in price of drugs and appliances from 20 to 200 per cent. we are docked 20 per cent. on the amount due on the plea of "inflation of life," but only 15 per cent. of capitation fees on the same plea: in this rural district the "inflation" is probably not more than 5 per cent., if as much. If the drug allowance was not too much in 1913 it is certainly too little for the following years. This is a subject which it is to be hoped the Rural Subcommittee will bear in mind and will be consulted upon by the Advisory Committee.—I am, etc.,

January 13th.

"ONLY" A COUNTRY DOCTOR.

SIR,—I have read with much interest Dr. Baigent's letter on rural practitioners, in the SUPPLEMENT of January 12th.

I can fully endorse all that he says concerning the additional trouble and expense entailed in attending insured persons in rural districts, for though residing in the borough of Oldham, a large proportion of my work lies in part of the West Riding of Yorkshire. It is particularly gratifying to learn that the Commissioners have promised an increased grant for mileage in rural areas, but it would be more gratifying to learn that this grant would be paid at the end of each year.

On looking through the balance sheets from the West Riding Committee, I find that the last mileage grant I received was in November, 1916, that being for the year 1915, and even that grant was only 90.3 per cent. of the amount standing to my credit. Apparently equivalent amounts for the years 1916 and 1917 are still standing to my credit with the Commissioners, whereas they might well be gaining interest for me if invested in National War Bonds, which by every post I am requested to "buy now."

This extra grant for long distance work barely covers the increased cost of the petrol consumed in doing the work, yet before the petrol can be even ordered from the dealer, the tax must be paid on it, and the licences for car and chauffeur must be paid, also in advance.

The Prime Minister, in one of his memorable speeches on the Insurance Act, said "there will be no bad debts for the doctors," but what are these delayed and reduced payments? Little better than bad debts! Is the delay in paying the mileage grant another war-time economy, like the reduction of the notification fee?

How many years will the profession tolerate treatment from Government departments such as no right-minded body of working men would stand for months—nay, for weeks? By all means organize the profession and let us demand, not only reasonable fees, but fees paid within seven days of the termination of each quarter.

If the Insurance Acts Committee really means business, let it move now for 1919, not by asking the Commissioners for an agreement, but by laying before them a contract—legally binding to both parties—acceptable to the whole profession.—I am, etc.,

Oldham, Jan. 13th.

ERNEST MARTIN.

SIR,—Dr. Baigent's valuable letter has come at a most opportune time, and will help to focus attention on the claims of rural practitioners. The Commissioners are now considering the request of panel practitioners for an increased capitation fee, and it is incumbent on rural practitioners to press their just claims for favourable discrimination. All Panel Committees should be asked to pass resolutions in this sense, and the resolutions should be sent to the Insurance Acts Committee and the Commissioners; or, better still, the Insurance Acts Committee should consider the advisability of directly inviting an expression of opinion from all Panel Committees on the question of a discriminating capitation fee.

It has been suggested that considerable opposition would come from the large urban centres. But the absurdity of applying the same regulations to such varying conditions as those of urban and rural practice must be patent to every one, and I have every confidence that, provided the matter is properly explained, urban practitioners will give their rural brethren every assistance in evolving an equitable scheme of apportionment of the capitation grant. The Rural Practitioners Subcommittee has not yet had an opportunity of specially considering this question but will no doubt do so at the proper time. The hands of the sub-committee would be greatly strengthened by expressions of opinion such as I have suggested.—I am, etc.,

Towcester, Jan. 14th.

ALFRED LINNELL.

We have received other letters on this subject—for instance, Dr. W. W. Nock (Penkridge), in the course of a letter, writes: Though a rural practitioner, I have never received one penny for mileage. A fortnight ago I wrote to the secretary of my Insurance Committee calling his attention to the increased mileage grant to rural practitioners and asking him to put my letter before his committee. So far I have not had an acknowledgement. If only we rural practitioners would combine, we could certainly enforce fair treatment, which we have never had owing to lack of combination amongst ourselves, and equally to want of support from our urban brethren. Though the present is certainly the psychological moment for a "strike," most of us would not wish to embarrass the Government until the war is over.

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, January 23rd, in the Council Room, 429, Strand London, W.C.2, at 11 a.m.—By order,

GUY ELLISTON,

Financial Secretary and Business Manager.

January 17th, 1918.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

Berkshire.—At a meeting of the practitioners on the Berkshire panel on November 29th, 1917, the report of the Committee for 1916-17 was adopted. It was decided to continue the voluntary contribution of 1d. per insured person per year. It was resolved that mileage should be paid to all rural practitioners for distances exceeding two miles. It was resolved to ask the local food control committees to exercise the powers delegated to them by the Food Controller to conserve a sufficient supply of milk for the use of infants and sick persons.

West Riding of Yorkshire.—At a meeting of the Local Medical and Panel Committee on November 16th, 1917, Dr. Fry gave a report of the proceedings of the October conference, referring particularly to the decisions with regard to the regulations for invalided seamen, marines, and soldiers, and the proposed investigation of the process of calculation of the central pool. It was resolved to pay the expenses of the members attending the conference. It was decided to ask the Insurance Committee to increase the flat rate for surgical dressings from 3d. to 6d. per dressing as from October 1st last.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty:—Fleet Surgeon E. H. Meaden, C.M.G., is placed on the retired list with the rank of Deputy Surgeon-General. Fleet Surgeons J. A. Keogh, M.B., and F. F. Mabon, to Chatham Hospital, temporarily. Staff Surgeon A. T. Rivers to Chatham Hospital, January 10th, and to Chatham Hospital as Radiographer, February 10th. Surgeons: F. E. Fitzmaurice to the *Victorious*; W. G. Thwaytes, M.B., to the *Alecto*. Temporary Surgeons: A. L. P. Gould, M.B., H. C. Broadhurst, M.B., and R. K. Shaw, M.B., to the *Victory*, for R.N. Division; R. Pollock and R. N. Gibson, M.B., to the *Victory*, for Sailors' Home Auxiliary Hospital, Chatham; D. R. Currock and A. C. Craig, M.B., to Plymouth Hospital; A. O. Ross to the *Roxburgh*; A. J. Hamilton to Haslar Hospital. To be Temporary Surgeon: R. L. Stewart, M.B.

ARMY MEDICAL SERVICE.

Lieut.-Colonel J. H. Campbell, D.S.O., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division, November 6th, 1917 (substituted for notification in the *London Gazette* of December 14th, 1917).

Lieut.-Colonel J. H. R. Bond, D.S.O., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

ROYAL ARMY MEDICAL CORPS.

Major G. W. Fitzgerald, M.D., R.A.M.C.(T.F.), to be temporary Lieut.-Colonel whilst in charge of Fushill War Hospital.

Majors relinquish the acting rank of Lieut.-Colonel on reposting: A. E. Smithson, M.B. (March 21st, 1915), W. M. B. Sparkes, D.S.O. November 6th, 1917.

To be acting Lieut.-Colonels whilst in command of a medical unit: Majors A. W. Sampey, A. D. Waring, M.B., W. Davis, Captain R. G. S. Gress, M.B.

H. B. G. Newham, M.D., to be temporary Lieut.-Colonel. Temporary Major F. G. W. Deane, F.R.C.S.E., from Springburn and Woodside Central Red Cross Depot, to be temporary Major whilst in charge of Leith War Hospital, seafield.

Temporary Major C. H. G. Ramsbottom relinquishes his commission on ceasing to be employed with the Welsh Metropolitan War Hospital.

Temporary honorary Major Sir R. Armstrong-Jones to be temporary Major.

Temporary honorary Major T. M. Burn-Murdoch, M.B., F.R.C.P.E., is transferred from Smithston War Hospital to Springburn and Woodside Central Red Cross Hospital.

Temporary Captain J. M. Macmillan to be temporary Major (without increased emoluments) whilst specially employed December 21st, 1917 (substituted for notification in the *London Gazette* of December 20th, 1917).

Temporary Captains to be temporary Majors (without increased emoluments) A. Stodart-Walker, C. B. Heald, M.D.

Temporary honorary Captain A. M. Westwater to be temporary honorary Major while serving with Red Cross Hospital, Bellahouston, December 11th, 1917 (substituted for notification in the *London Gazette* of December 11th, 1917).

Temporary Captain W. T. Finlayson to be temporary Major while specially employed.

Temporary Captain F. W. Broderick to be temporary Major (without increased emoluments) whilst specially employed.

Temporary Captain Trevor Owen Williams, M.B., is dismissed the service by sentence of a general court-martial October 27th, 1917.

Temporary Captain A. E. Sellar relinquishes his acting rank of Major on reposting, October 7th, 1917.

The name of temporary Captain James J. Robb, M.D., is as now described and not as in the *London Gazette* of December 5th, 1917.

Temporary honorary Captain B. H. Alton to be temporary honorary Major whilst serving with No. 22 General Hospital.

Temporary Captains relinquish their commissions: D. A. Warren, M.C., J. C. Matthews, D. M. Moffatt, M.C., M.D., R. Paul, A. F. Laird, M.C., M.D., N. Briggs (on transfer to I.M.S.), J. R. Christian, H. B. Moyle, W. H. Godby, W. H. Rivers, M.D., F.R.S. (on ceasing to be employed at Craiglockhart War Hospital), E. H. Sheehan, M.B. (on account of ill health contracted on active service), C. C. Beatty (on account of ill health contracted on active service, and is granted the honorary rank of Captain), J. L. O. Tilley, W. H. Neil (and is granted the honorary rank of Captain), J. B. Dunning, M.C., M.B. (on account of ill health caused by wounds, and is granted the honorary rank of Captain), J. J. O'Kelly, L. T. Burra, M.D., C. H. Lloyd, M.B.

Temporary Captains H. Case, J. R. Currie, M.D., and R. McL. Veitch, M.D., relinquish their commissions on appointment under the Ministry of National Service.

Late temporary Captains granted the honorary rank of Captain: R. B. Hennessy, M.B., E. T. Jones, J. H. N. F. Savy, M.B., S. Pinion, M.B., R. P. N. B. Bluet, M.C., C. A. Dupont, M.D.

Temporary Lieutenants to be temporary Captains: T. Barbour, J. M. Inverarity, J. Langwill, M.D., T. E. Flitcroft, H. W. B. Ruxton, G. R. Phillips, J. S. Leslie, G. H. H. Almond, W. A. Wilson-Smith, M.D., W. O'Donnell, G. S. Gordon, M.B., W. J. Ashby, M.D., C. A. H. Gee, M.B., W. A. L. Marriott, M.B., J. McGarrity, M.B., B. Haigh, R. N. Phease, M.B., A. B. Lindsay, M.D., A. J. McNair, M.B., L. F. Lovell-Revs, A. F. Horn, J. F. MacLeod, A. G. J. Thompson, D. A. Chamberlain, G. E. Beaumont, S. D. Bridge, W. S. Sheppard, M.B.

To be temporary Captains: K. J. Aveling, M.B., G. W. Stone, Lieutenant (acting Captain) R. Thorp, M.C., M.B., from R.F.A.(S.R.).

Temporary Lieutenant T. J. McDonald relinquishes his commission on account of ill health, and is granted the honorary rank of Captain.

W. T. Dobson, late temporary Lieutenant, is granted the honorary rank of Lieutenant.

Temporary Lieutenants relinquish their commissions: T. J. Lennan, W. Laird, W. J. Weaver, M.D.

L. O. Weinman to be temporary Lieutenant.

To be temporary honorary Lieutenants: L. M. Earle, M.D. (whilst serving with the British Red Cross Hospital, Netley), H. Halstead, R. M. Dodson (whilst serving with No. 22 General Hospital).

To be temporary Lieutenants: E. A. B. Poole, M.D., G. R. Jeffrey, M.D., F.R.C.P. and S. Edin., W. B. Vail, E. Gandy, M.B., E. O. Hughes, A. P. Hall, M.B., O. Le F. Milburn, J. F. O'Mahony, G. B. Proctor, J. Mathewson, M.D., W. J. B. Lavery, M.B., C. E. Elliston, M.D., J. C. Duncanson, M.B., A. J. Ferguson, M.B.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captains relinquish their commissions: D. H. Paterson, M.B. (on joining the C.A.M.C.), C. Weir (on account of ill health).
Lieutenants to be Captains: J. W. Hyatt, A. B. Daumery, J. A. Hill, R. G. Simpson, William Burridge, M.B., T. Stantor, M.B., G. G. Jack, D. Mitchell, M.B., H. C. Roberts, M.B., C. Tighe, M.B., J. A. Charles, M.B., W. B. Lawson, W. Garde-Brown, M.B.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

The announcement regarding Colonel S. S. Heyland in the *London Gazette* of December 25th 1917, is cancelled.

ROYAL ARMY MEDICAL CORPS.

Major (acting Lieut.-Colonel) P. R. Ash relinquishes his acting rank on alteration in posting.

Surgeon-Major R. B. Parves, M.B., F.R.C.S., from the Yeomanry, to be Major, with precedence from August 23th, 1915, January 13th, 1916 (substituted for notification in the *London Gazette* of January 12th, 1916).

Captains (temporary Majors) relinquish their temporary rank on alteration in posting: G. L. L. Lawson, O. K. Wright, M.B.

Captain A. B. Whitton to be Major, but without pay and allowances.
Captain (acting Major) E. G. Annis relinquishes the acting rank on alteration in posting.

Major G. W. Fitzgerald and Captain C. C. Cuthbert, M.D., are seconded.

Major (Brevet Lieut.-Colonel) J. Wilson, M.B., to be acting Lieut.-Colonel whilst commanding a general hospital.

Captain C. R. Handfield-Jones, M.B., resigns his commission on account of ill health and is granted the honorary rank of Captain, December 7th, 1917 (substituted for announcement in the *London Gazette* of December 6th, 1917).

Captains J. Kearney and J. Farquhar, M.B., resign their commissions on account of ill health and are granted the honorary rank of Captain.

G. G. Lytle, late temporary Captain R.A.M.C., to be Captain for service with the Senior Division O.T.C., December 25th, 1917 (substituted for announcement in the *London Gazette* of December 24th, 1917).

Captain A. W. Harrington is restored to the establishment.

Captain C. P. Lapage, M.D., is temporarily placed on the permanent personnel.

Captains E. F. Skinner, N. McCall Smith, M.D., and R. B. Perry, M.B., resign their commissions on account of ill health contracted on active service, and are granted the honorary rank of Captain.

Captain F. G. Armstrong, M.B., is seconded for duty with a general hospital.

VOLUNTEER FORCE.

Kent Medical Volunteer Corps.—J. P. Henderson to be temporary Captain.

City of Dundee Volunteer Regiment.—D. J. Forbes (late Surgeon R.N.V.R.) to be Medical Officer and temporary Captain.

Northumberland Medical Volunteer Corps.—To be temporary Major: H. L. Rutter, M.D. To be temporary Captains: A. H. Hobbs, W. S. Fraser.

Glasgow City Medical Volunteer Corps.—Medical Officer and temporary Lieutenant J. F. Gemmill, from 1st Battalion City of Glasgow Volunteer Regiment, to be temporary Major.

East Riding Medical Volunteer Corps.—H. D. Johns, M.D., to be temporary Captain.

Derbyshire Volunteer Regiment.—G. E. Sawdon to be Medical Officer and temporary Lieutenant.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

AUSTRALIAN COMMONWEALTH: SERUM LABORATORIES.—(1) Biochemist. (2) Two Senior Bacteriological Technical Assistants. (3) Three Bacteriological Technical Assistants. Salary for (1), £450, increasing to £500; (2) £336, increasing to £408; and (3) £216, increasing to £312.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House-Surgeon. Salary, £170.

BIRMINGHAM MATERNITY HOSPITAL.—House-Surgeon. Salary, £100 per annum.

BRISTOL MEDICAL MISSION.—Superintendent. Salary, £300 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

CARDIFF: GLAMORGAN COUNTY COUNCIL.—Medical Officer for inspection of children in public elementary schools. Salary, £550 per annum.

COSFORD RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary, £100 per annum.

COSFORD UNION.—Medical Officer and Public Vaccinator for the Loxford Relief District. Salary, £50 per annum.

HASTINGS: EAST SUSSEX HOSPITAL.—House-Surgeon. Salary, £150 per annum.

HUDDERSFIELD COUNTY BOROUGH.—Assistant Medical Officer of Health (woman). Salary, £550 per annum.

INVERANON PARISH, Banffshire.—Medical Officer. Salary, £75 per annum.

LEEDS CITY.—Woman Medical Assistant chiefly for Infant Welfare Work. Salary, £400 per annum.

LIVERPOOL: DAVID LEWIS NORTHERN HOSPITAL.—House-Surgeon (male). Salary, £150 per annum.

MAIDSTONE: KENT COUNTY OPHTHALMIC HOSPITAL.—Temporary Aural Surgeon. Honorarium, 50 guineas for six months.

METROPOLITAN ASYLUMS BOARD.—Assistant Medical Officer (female) at the Children's Infirmary, Cleveland Street, W. Salary, £250 per annum.

NEW HOSPITAL FOR WOMEN, Enston Road, N.W.—(1) Senior Clinical Assistant in Children's Out-patient Department (female); (2) Clinical Assistants for Out-patient Department.

OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary, £325 per annum, rising to £400.

PUTNEY HOSPITAL, S.W.—Resident Medical Officer. Salary, £150 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) House-Surgeon. (2) Temporary Medical Officer to act as surgeon in charge of the Ear, Nose, and Throat Department. (3) Medical Officer in charge of Electrical Department. Salary for (1) and (3) £100 per annum; and for (2) £25 per annum.

READING: BERKSHIRE EDUCATION COMMITTEE.—Assistant School Medical Inspector. Salary, £400 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £400 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Resident Clinical Assistant. Salary, £110 per annum.

SALFORD ROYAL HOSPITAL.—Honorary Assistant Surgeon.

SHEFFIELD ROYAL INFIRMARY.—House-Physician. Salary, £120 per annum, rising to £150.

SUFFOLK HOSPITAL, Ampton Hall, near Bury St. Edmunds.—Assistant Resident Medical Officer. Salary, £300 per annum.

SWANSEA EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.

WILTS COUNTY COUNCIL.—Oculist and Assistant School Medical Officer. Salary, £400 per annum.

WIMBLEDON BOROUGH.—Lady Assistant Medical Officer of Health. Salary, £350 per annum, rising to £400.

CERTIFYING FACTORY SURGEON.—The Chief Inspector of Factories announces the following vacant appointment: Ramsgate (Kent).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

DIXON, Captain H. B. F., R.A.M.C., M.C. Resident Medical Officer, Leopardstown Park Home of Recovery for Discharged Neuroasthenic Sailors and Soldiers.

GABRIEL, V., F.R.C.S. Eng., Assistant Medical Officer, Shoreditch Parish Infirmary.

NATHAN, N. R., M.R.C.S., L.R.C.P., Assistant Medical Officer, Shoreditch Parish Infirmary.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

NOALL.—On January 15th, at Dulcote, Strensall, York, the wife of W. Paynter Noall, M.S., F.R.C.S., of a son.

MARRIAGE.

PENNY-CARTWRIGHT.—On 18th December, 1917, at Camberwell Green, Captain W. Maxwell Penny, R.A.M.C., of Tudor Lodge, Cator Road, Sydenham, son of Thomas S. Penny, J.P., of Taunton, to Mary, only daughter of Mr. and Mrs. Cartwright, of West Norwood.

DEATHS.

FENTON.—On January 15th, at Catliff, Bakewell, Philip Sheldon Fenton, M.D. Edin., M.R.C.S. Eng., aged 76. No flowers.

GIVEN.—On Sunday, January 6th, at his residence, 39, Muswell Rise, Muswell Hill, N.10, Dr. George Kilpatrick Given, J.P., aged 71.

HATTON.—On Tuesday, the 15th inst., at Glen Ashton, Wimborne, George Stokes Hatton, M.D., F.R.C.S., late of Newcastle-under-Lyme, in his 61st year.

DIARY FOR THE WEEK.

MONDAY.

TUBERCULOSIS SOCIETY, 1, Wimpole Street, W., 8 p.m.—Discussion: Farm Colonies in the Treatment of Tuberculosis, to be opened by Sir R. Philip, Dr. T. Dyke Acland, Dr. N. Bardswell, and Dr. A. H. Macpherson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Lectures by Professor Arthur Keith, 5 p.m.:—Monday: Modern Practice of Bone Grafting. Wednesday: Wolff's Law of Bone Growth. Friday: Specimens exemplifying stages of ankylosis.

ROYAL SOCIETY OF MEDICINE.—Section of Neurology: Thursday, 8.30 p.m., Dr. Wilfred Harris: Functional Muscular Atony; Dr. Leonard Guthrie: Muscular Atony associated with Lesions of the Sensory Cortex; Captain G. Riddoch: Muscular Atony associated with Lesions of the Posterior Columns and Nerve Roots. Section of Study of Disease in Children: Friday, 4.30 p.m., Cases. Paper:—Dr. Carnegie Dickson: Congenital Obliteration of the Bile Ducts.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JANUARY.	
23 Wed.	London: Council Meeting, 11 a.m.
26 Sat.	Insurance Acts Subcommittee (Scotland), North British Station Hotel, Edinburgh, 11 a.m. Scottish Committee, North British Station Hotel, Edinburgh, 2.30 p.m.
FEBRUARY.	
5 Tues.	London: Non-Panel Committee.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JANUARY 26TH, 1918.

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INSURANCE.

INCREASED MILEAGE GRANT FOR INSURANCE PRACTICE.

THE following communication, dated January 21st, 1918, has been forwarded by the National Health Insurance Commission (England) to the secretaries of Panel Committees:

Sir,—I am directed by the National Health Insurance Commission (England) to enclose, for your information, a copy of a circular letter which they have this day addressed to the Insurance Committee for your area. Your attention is particularly directed to the date in the enultimate paragraph of the letter: in view of this date you will doubtless wish to get into communication with the Insurance Committee without delay.

I am, Sir, your obedient servant,
S. P. VIVIAN.

Extra Mileage Grant on Account of War Conditions.

Sir,—I am directed by the National Health Insurance Commission (England) to inform you that, as a result of representations which have been made to them as to the increased difficulty and cost of travelling in rural areas owing to war conditions, funds have been made available by His Majesty's Treasury which will permit of a substantial increase, by reference to those conditions, as from 1st January, 1917, in the special payments made to rural practitioners in respect of mileage, and will also permit of extra payments for mileage under the scales laid down in the regulations applying to the treatment of temporary residents and of invalided sailors and soldiers.

The Commissioners have had the opportunity of consulting representative rural practitioners on the question of the basis on which the distribution of this sum might proceed, and it has been generally agreed that in areas where payments have hitherto been made to practitioners from the Special Mileage Grant, the most equitable and convenient basis of distribution will be secured by distributing the additional sum available to each Committee as a uniform percentage addition to the sums payable to doctors under the current mileage scheme for the area. It is considered that the simplicity of this procedure and the avoidance of the necessity for detailed discussion between the Insurance Committee and the Panel Committee (involving the collection of fresh and possibly complicated data), will, in general, outweigh any small improvement in precision of distribution which might be possible under a more elaborate scheme.

The Commissioners recognize, however, that in some areas exceptional cases of hardship may have arisen, for which, in the opinion of the Panel Committee, it is essential that some provision should be made by an amendment of the existing scheme. If the Insurance Committee and the Panel Committee consider that some part of the extra grant available to the Committee should be earmarked for such special cases before the general proportionate distribution takes place, the Commissioners will be prepared to consider any proposed amendment giving effect to such provision. If, after consultation with the Panel Committee, it is considered that there are no special cases which would justify the expenditure of time and labour involved in the preparation of a special scheme, the Committee should submit an addendum to their mileage scheme for 1917 providing for the distribution of the

extra war grant among practitioners on the panel in proportion to the sums payable to them under that scheme.

It will be open to the Insurance Committee for a county in which no payments have hitherto been made in respect of special mileage, but in which there has been considerable travelling in attendance on insured persons resident more than three miles from the nearest doctor, to submit to the Commissioners a statement showing the special circumstances which, in the opinion of the Committee, would justify the allocation to them of a portion of the new grant. Any such application for 1917 should be made *within ten days of the date of this letter*. In such areas it will, of course, be necessary to prepare a special scheme for the distribution among practitioners of the sum allocated to the Committee. The Commissioners will be glad to afford assistance in the preparation of this scheme.

The additional mileage payments in respect of temporary residents and invalided men will take the form of a uniform percentage addition to the mileage fees allowed under the appropriate schedules. This will be the subject of a separate communication to the Committee at a later date.

It is essential that the Commissioners should have before them at a very early date all claims which will be made upon the extra grant for the year 1917 in order that they may determine the sum which can be allocated to each Committee. The Committee should therefore at once consult the Panel Committee, and, where an allocation from the extra grant is desired, should prepare and submit the necessary addendum to the 1917 scheme *not later than the 21st February*. In view of the urgency of the matter, a copy of this circular is being sent direct to the Panel Committee with an intimation that they should communicate at once with you on the subject.

A communication will be addressed to you with reference to the mileage grant for 1918 as soon as the claims on the extra grant 1917 have been considered.

I am, Sir, your obedient servant,
S. P. VIVIAN.

The Clerk,
..... Insurance Committee,
January 21st, 1918.

Association Notices.

MOTOR CAR BADGE.

THE Army Council having taken objection to the use of the Red Cross in the motor car badge as issued by the Association, it is necessary at once to withdraw those badges already issued to members. A new design is under consideration, and will be issued as soon as practicable.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeons F. G. Wilson to the *Parotous*; H. M. Langdale to the *Groton*. Temporary Surgeons L. Mandel, M.D., and H. W. Cooke to the *Fred*; S. C. Shaw and H. Hurst to Plymouth Hospital; J. P. Ryan to the *Duke of Edinburgh*; D. Bell, M.B., to the *Pembroke*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg on A. G. L. Reade to the *King George*; Surgeon Probationer G. P. Monk to be Dental Surgeon, and appointed to the *Fred*. To be Surgeon Probationers, G. W. Hollings, E. S. Clayton, W. H. Marston.

ARMY MEDICAL SERVICE.

Colonel C. E. Morgan, C.M.G., M.B., to be Assistant Director of Medical Services at the War Office.
Colonel H. O. Trevor is placed on retired pay, December 10th, 1917, is substituted for the notification in the *London Gazette* of December 25th, 1917.

ROYAL ARMY MEDICAL CORPS.
Majors (Brevet Lieut.-Colonels) to be Lieut.-Colonels: A. H. Safford, P. H. Henderson, D.S.O., M.B., FitzG. G. Fitzgerald, D.S.O., F. McLennan, M.B.
Majors to be Lieut.-Colonels: E. B. Knox, M.D., J. Matthews, D.S.O., P. S. O'Reilly, C.M.G., A. M. McLaughlin, M.B., J. A. Hartigan, D.S.O., M.B., J. F. Martin, C.M.G., M.B., E. McDonnell, D.S.O., M.B., T. E. Fielding, D.S.O., M.B., C. H. Stratton, R. D. Brown, D.S.O., M.D., S. W. Siberry, B. F. Wingate, D.S.O., J. W. West, M.B., C. S. Smith, M.B., A. F. Carlyn, W. C. Croly, W. M. H. Spiller, M.B., A. D. Jameson, B. B. Burke, D.S.O., P. C. Douglass, W. L. Baker, F. W. Cotton, F. M. Parry, M.B., B. R. Dennis, M.B., W. J. P. Adye Curran, J. Powell, M.B., W. Bennett, D.S.O., M.B., T. Piggan, M.B., B. S. Bartlett, D.S.O., D. O. Hyde, D.S.O., M.B., A. E. Hamerton, D.S.O., G. J. Houghton, J. G. Churton, A. B. Waring, A. F. Weston, J. Dorgan, M.B., C. H. Furnivall, F. P. Lander, J. G. Foster, F. S. Walker, F.R.C.S.I., L. M. Purser, D.S.O., M.B., J. H. Robinson, P. S. Lelean, C.B., F.R.C.S., W. H. Mackenzie, M.D., to be temporary Major whilst in charge of Glenelg War Hospital, Kinross.

Temporary Captain James Wilson, M.B., F.R.C.S.E., is dismissed the service by sentence of a general court-martial, October 9th, 1917.
Temporary Lieutenants to be temporary Captains: J. R. Burnett, M.B., P. C. Prince, C. T. Birks, M.B., J. Carriek, M.B., B. Muir, C. H. Burgess, M.B., E. H. White, M.B., P. A. Leighton, M.D., L. B. C. Trotter, M.D., M. Raper, M.D., M. R. Lawrence, M.B., H. Dearden, B. H. Woodvatt, J. Chabre, M.D., J. Gardner, M.D., T. Burrell, M.B., C. A. Parsons, J. G. Henth, J. D. O'Brien, M.D., A. P. Thom, M.B., E. C. B. Iobson, M.D., J. Hogg, M.B., J. B. Howell, R. L. Jones, A. M. Crawford, M.D., T. D. Hardie, M.B., G. S. Hett, M.B., F.R.C.S., J. H. Mayston, V. Glendinning, M.B., F.R.C.S., W. E. Cooper, G. R. Potter, J. Pender, M.B., T. Winning, M.B., B. Barnett.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major P. Burnett, D.S.O., to be temporary Lieut.-Colonel, December 10th, 1917 (substituted for *London Gazette* notification of December 22nd incorrectly describing name as P. Bennett).

Temporary Lieutenants to be temporary Captains: E. McK. Shorley, E. W. Nolan, E. C. Mick, R. K. Johnston, D. K. Fletcher, G. F. Denyes, N. D. Black, J. P. Bonfield, W. C. Page, F. A. O'Reilly, C. L. Corbett, J. E. Fraser, W. W. McKay, F. L. Reid, E. J. Gordon, W. G. Robertson, B. Lyon, C. M. Sellyer, G. L. Sills, J. R. Patterson, B. W. Cannon, H. R. Nicklin, G. S. Purvis, J. M. Clark, G. K. Shinton, J. S. Sutherland, E. H. Whelpley, F. C. Wilson, P. J. O'Dwyer, M. Mackay, T. H. Williams, T. D. Wheeler, C. W. Burns, C. W. Torrance, A. M. Jeffrey, W. E. Brown, H. A. Elliot, H. A. Mitchell, F. G. Eanting, G. M. Dobbin, J. S. Douglas, C. D. Farquharson, D. G. Findlay, C. E. Frain, A. R. Hagerman, C. V. Mills, C. S. Macdonald, R. MacKinlay, A. Montgomery, G. R. Scott, W. E. L. Sparks, F. McN. Johnson, W. V. Barracough, T. W. Bleakley, R. M. Harvie, N. O. Thomas, F. S. Parney, J. F. Adams, H. C. McAlister, W. G. Jamieson, E. D. Hutchinson, D. I. Davis, T. E. White, M. G. Graham, A. Mackay, F. W. W. Hipwell, G. D. Jeffs, D. StC. Campbell, J. D. G. Campbell, J. A. Davies, D. W. N. Gwicker, W. M. MacDonald, R. G. Mahabir.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Majors T. A. Barron and J. R. Harper to be acting Lieut.-Colonels while commanding a field ambulance and a stationary hospital respectively.

The announcement regarding Major A. B. Whitten published in our last issue, p. 12, was incomplete; the following extract from the *London Gazette* of January 1st should replace it: Captain A. B. Whitten, M.B., to be Major, but without pay and allowance of the rank prior to March 23rd, 1916. June 25th, 1915 (substituted for that which appeared in the *London Gazette* of November 19th, 1917).

Major R. B. Sidebottom resigns his commission on account of ill health and is granted permission to retain his rank and to wear the prescribed uniform.

To be Majors: Major J. O. Summerhayes, D.S.O., from R.A.M.C., Captain W. Dyson, M.D.

Captain (temporary Major) D. S. Sutherland, M.D., relinquishes his temporary rank on alteration in posting.

Captain C. F. Coombs, M.D., is restored to the establishment.
The following announcement is substituted for that in the *London Gazette* of March 10th, 1915: Surgeon-Captain G. D. Kettlewell from R.G.A. to be Captain, August 4th, 1914.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

AUSTRALIAN COMMONWEALTH: SERUM LABORATORIES.—(1) Biochemist. (2) Two Senior Bacteriological Technical Assistants. (3) Three Bacteriological Technical Assistants. Salary for (1), £450, increasing to £500; (2) £335, increasing to £408; and (3) £215, increasing to £312.

BIRKENHEAD UNION INFIRMARY.—Junior Resident Assistant Medical Officer. Salary, £300 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary, £250 per annum and £5 for laundry.

BRISTOL MEDICAL MISSION.—Superintendent. Salary, £300 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

CARDIFF: GLAMORGAN COUNTY COUNCIL.—Medical Officer for inspection of children in public elementary schools. Salary, £350 per annum.

DERBYSHIRE SANATORIUM, Walton Lane, near Chesterfield.—Assistant Medical Officer. Salary, £350 per annum.

FULHAM TUBERCULOSIS DISPENSARY.—Chief Tuberculosis Officer. Salary, £500 per annum.

HAMPTSTEAD GENERAL AND NORTH WEST LONDON HOSPITAL.—Gynaecologist.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.—House-Physician. Honorarium, 30 guineas for six months.

HUDDERSFIELD COUNTY BOROUGH.—Assistant Medical Officer of Health (woman). Salary, £350 per annum.

MAIDSTONE: KENT COUNTY OPHTHALMIC HOSPITAL.—Temporary Aural Surgeon. Honorarium, 50 guineas for six months.

OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary, £325 per annum, rising to £400.

OLDHAM ROYAL INFIRMARY.—Third House-Surgeon. Salary, £225 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—Medical Officer in charge of Electrical Department. Salary, £100 per annum.

RHONDDA URBAN DISTRICT COUNCIL.—Assistant Medical Officer of Health and School Medical Officer. Salary, £350 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Senior House-Surgeon. Salary, £400 per annum.

SALFORD ROYAL HOSPITAL.—Honorary Assistant Surgeon.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—House-Surgeon (female). Salary, £100 per annum.

SOUTHAMPTON COUNTY BOROUGH.—Resident Medical Officer for Isolation Hospital. Salary, £300 per annum.

STOKE-ON-TRENT COUNTY BOROUGH.—Temporary Tuberculosis Officer. Salary, £500 per annum.

SWANSEA EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.

UNIVERSITY OF LONDON.—External Examiner in (1) Obstetric Medicine, (2) Pathology.

WIMBLEDON BOROUGH.—Lady Assistant Medical Officer of Health. Salary, £350 per annum, rising to £400.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

JONES, J., M.D., Medical Referee for Swansea Valley under the Ministry of Pensions.

MACMARTIN, F. J., F.R.C.P. and S.I., Certifying Factory Surgeon for the Killeshandra District, co. Cavan.

MENZIES, E. G. D., M.B., Ch.B. Edin., Certifying Factory Surgeon for the Wolsingham District, co. Durham.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

SPENCE.—At 5, Meadow Place, Edinburgh, on January 12th, the wife of Lieutenant R. C. W. Spence, R.A.M.C., twin sons.

MARRIAGES.

HARTLEY-LAIRD.—On January 22nd, Harold Hartley, F.R.C.S., of Stoke-on-Trent, to Janet Stewart Laird, M.B., Ch.B. Edin.

THOMPSON-LAMBRIGOT.—On January 12th, at St. Francois Xavier Church, Paris, George L. Thompson, M.B., Ch.B. Edin., Senior Assistant Medical Officer, Southern Hospital, Dartford, to Marie Antoinette Lambrigot, step-daughter of Controller-General Audibert, Commander of the Legion of Honour, and Mrs. Audibert, 67, Boulevard des Invalides, Paris.

DEATHS.

ARBuckle.—On January 16th, 1918, at 12, Clark Street, Kilmarnock, John Hunter Arbuckle, M.D. Glasg., D.P.H. Camb., late M.O.H. Kilmarnock Burgh, in his 73rd year.

CUFF.—On January 20th, at 40, Filey Road, Scarborough, Marian, the dearly beloved wife of Robert Cuff, M.B. Funeral on Wednesday, Service at St. Martin's Church at 12.30. No flowers by request.

FINNY.—On January 19th, 1918, Thomas Clements Leslie Martin, aged 17½ years, only child of W. E. StL. Finny, M.D., M.Ch., J.P., Barrister-at-Law, of Inner Temple, and Mrs. Finny, of "Tamesa," Kingston Hill, Surrey.

O'SULLIVAN.—On January 21st, 1918, at Gleneairn House, Bathwick, Bath, in her 72nd year, fortified by Rites of Holy Church, Sarah, wife of Daniel A. O'Sullivan, M.D., N.U.I., etc., and daughter of the late John Sutcliffe-Witham, Esq., Bury, Lancashire. Deeply regretted. R.I.P.

TEMPLEMAN.—At Duncarth, Dundee, on the 20th inst., Charles Templeman, M.D., D.Sc., Medical Officer of Health for the city of Dundee, aged 53 years. Funeral private. No flowers by request.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8.30 p.m., Interlobar Empyema and other Surgical Complications of the Thorax, by Major Walter Broadbent, M.D., R.A.M.C.(T.). Eye Strain in General Practice (Analysis of 100 Cases), by Dr. H. A. Des Vaux.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Lectures by Professor Arthur Keith, 5 p.m.:—Monday: Specimens illustrating Necrosis and Reproduction of Bone. Wednesday and Friday: Specimens recently added to the Army Medical Collection.

ROYAL SOCIETY OF MEDICINE.—Section of Bacteriology and Climatology: Thursday, 5.30 p.m., Dr. Percy Lewis (Folkestone): The Mental Factor in Spa Treatment. At 7.15 p.m., Dinner at Pagani's Restaurant, Great Portland Street, W. Section of Laryngology: Friday, 4 p.m., Major H. D. Gillies, R.A.M.C., and Mr. G. Seccombe Hett: Demonstration on Rhinoplasty: Cases.

[N.B.—Owing to the urgent need of food economy no refreshments will be served at meetings after February 1st.]

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 2ND, 1918.

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British Medical Association.

CURRENT NOTES.

Motor Car Badge.

IN consequence of the objection taken by the Army Council to the use of the red Maltese Cross in the motor car badge as issued by the Association, it has been decided to print the badge without the red cross. Members who have already received the original design should at once either cut off the upper part of the print on which the red cross appears, or apply to the Financial Secretary and Business Manager, 429, Strand, W.C.2, for a copy of the new print, which will be supplied to them gratis. Members who have not yet ordered a copy of the badge may obtain one of the revised prints on application, price 1s., on the distinct understanding that the member to whom it is supplied will only use it when his car is engaged on professional or other purposes expressly authorized in the Motor Spirit (Consolidated) and Gas Restriction Order, 1918, dated January 3rd, 1918.

The Demand for an Increased Capitation Fee.

As is well known, the last conference of Local Medical and Panel Committees on October 18th, 1917, instructed the Insurance Acts Committee to press for an increase in the capitation fee from 7s. to 10s., this sum to cover the increased liabilities with regard to discharged disabled soldiers and sailors and all services now rendered to tuberculous patients by panel practitioners. This decision was communicated to the Insurance Commissioners by letter on November 5th; a deputation waited on the Commissioners on November 15th; and on December 8th a memorandum was forwarded to the Chairman of the Joint Committee of Insurance Commissioners setting out the reasons for the demand. The memorandum was printed in full in the SUPPLEMENT of December 22nd, 1917; the Commissioners' reply has not yet been received. In reporting these matters to the Council of the British Medical Association on January 23rd, the Chairman of the Insurance Acts Committee pointed out that it might be necessary in the near future to call a conference of Local Medical and Panel Committees for the purpose of considering the reply which is now awaited from the Commissioners. The Council authorized the calling of such a conference if need should arise.

Medical Fees for Private Practice.

As a result of statements in the lay press to the effect that in certain districts medical practitioners were raising their fees, and of requests from many doctors for advice from the Association on this matter, the Council at its October meeting, on the suggestion of the Medico-Political Committee, expressed the opinion that, without prejudice to the sufficiency or otherwise of medical fees before the war, under present war conditions individual or local collective action in the direction of securing an increase of medical fees is justified. Since then in a number of Divisions throughout the country steps have been taken to obtain the opinion of the local medical profession, and in many cases it has been decided that fees for private practice must be raised. There can be no question of the propriety and reasonableness of such a decision. Apart from the greatly increased cost of living, medical practitioners now have to pay more for everything used in connexion with

their work. In the case of country doctors the enormously increased price of petrol would alone justify a higher visiting fee, whilst doctors who do their own dispensing are especially affected by the great rise in the cost of drugs, dressings, and appliances.

Association Notices.

CHANGES OF BOUNDARIES.

Malta Branch.

Notice is hereby given to all concerned of a proposal made by the Malta and Mediterranean Branch that the name of the Branch be altered to "Malta Branch," and that the area of the Branch in future consist of the Island of Malta and its Dependencies.

THE ORGANIZATION OF THE PROFESSION AND RURAL PANEL PRACTITIONERS.

SIR,—Dr. Baigent's letter has at last roused the feelings of country practitioners in regard to the shockingly unfair way in which they are treated as regards payment under the Insurance Act. It clarifies matters and must be most instructive to urban practitioners, who have no conception of the trials of a country doctor. Take myself, for instance; I have a car and a motor bicycle. The former is in dock for repairs, and I have to go over the most appalling roads, all ruts and mud—and what is worse, greasy mud. I am continually skidding and every journey out is an adventure. Imagine what this is like at night when I arrive home, looking as if I had just arrived from the trenches. It has to be endured to be believed. In the course of twenty years' country practice I have been thrown out of a dog-cart three times, off my motor bicycle a good many more than that, not forgetting a rather nasty motor car accident. It is, therefore, not merely a matter of increased payment for mileage, but the conditions under which these journeys are made—increased expense and increased risk as compared with town doctors.

It is indeed high time that country practitioners should act, and in this matter I am sure they will be supported by their town brethren.—I am, etc.,

January 19th.

RUSTICUS.

SIR,—Dr. Ernest Martin, in the SUPPLEMENT of January 19th, asks, "How many years will the profession tolerate treatment from Government departments such as no right-minded body of working men would stand for months?" The answer is, Until the iron has entered the soul of the medical man and the profession realizes that union is strength. He then suggests organizing the profession and making certain demands. For many years the Association has been endeavouring to organize the profession, and the result has so far clearly brought into view the interesting fact that the average medical man, in spite of urgent appeals, remains profoundly apathetic over any matter that concerns his interests. This is sufficiently indicated by the care with which he absents himself from meetings of his Division when business matters or medico-political questions are to be discussed. Possibly a perusal of the history of the German Insurance Act will help Dr. Martin to form an opinion as to how long it will be before the medical profession sinks its individualistic propensities and puts on the strong armour of "Unity," which alone will enable that body to win the fight with any Government department.—I am, etc.,

Torquay, Jan. 20th.

G. YOUNG EALES.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments have been announced by the Admiralty: Staff Surgeons G. C. Cross to the *Indus*; P. B. Egan, M.D., to the *Topaze*; Surgeon G. E. D. Ellis to the *Hazard*. Temporary Surgeons J. F. Macquenn to Sheerness Barracks and Yard; N. C. Carver, M.B., to R.N. College, Greenwich; W. McH. Binning to Portland Dockyard and Depot; J. B. Mutch, M.B., F. C. Odling, F. N. Reynolds, W. D. Nicol, and H. B. Bullen to Plymouth Hospital; J. C. Blake, E. A. Gibb, B. L. Skeggs, B. S. Collings, and H. G. Taylor to Haslar Hospital; J. C. Gie, J. J. Brennan, C. C. O'Malley, M. H. Jupe, R. W. Payne, C. V. Isard, and B. Maclean to Chatham Hospital. To be temporary Surgeons: H. S. Bryan, J. M. Higginton, C. K. Scales, E. A. Holmes, M. E. Jones.

ROYAL NAVAL VOLUNTEER RESERVE.

Honorary Staff Surgeon C. S. Brewer promoted to Staff Surgeon. To be Surgeon Probationers: C. G. Payton, W. S. Moir, G. G. Buchanan, G. F. S. Parker, J. Yates, E. J. L. Jones-Evans.

ARMY MEDICAL SERVICE.

Surgeon-General T. J. O'Donnell, C.B., D.S.O., is placed on the retired list.

Surgeon-General Sir W. G. Macpherson, K.C.M.G., C.B., M.B., is placed on retired pay.

ROYAL ARMY MEDICAL CORPS.

Temporary Colonel F. M. Sandwith, C.M.G., M.D., F.R.C.P., relinquishes his commission on account of ill health.

Lieut.-Colonels J. D. Ferguson, C.M.G., D.S.O., and B. Watts, D.S.O., relinquish the rank of temporary Colonel on reposting.

Lieut.-Colonel L. Humphry, C.M.G., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Temporary Lieut.-Colonel W. I. Donaldson, M.D., relinquishes his commission on ceasing to be employed at the Manor (County of London) War Hospital on account of ill health.

Temporary honorary Lieut.-Colonel J. Macpherson, M.D., F.R.C.P.E., relinquishes his commission.

Major R. F. Ellery and Captain J. H. Gurley relinquish the acting rank of Lieut.-Colonel on reposting.

To be acting Lieut.-Colonels:—Whilst specially employed: Majors W. W. Browne and P. Dwyer, M.C., M.B. Whilst in command of a medical unit: Majors R. C. Wilson, M.B., J. W. West, M.B., C. G. Thomson, D.S.O., Captain E. W. Vaughan, M.B., Temporary Captain J. H. Fletcher, D.S.O., M.C.

Temporary honorary Major K. Emerson relinquishes his commission on ceasing to be employed with No. 22 General Hospital.

Officers relinquish their commissions:—On account of ill health contracted on active service: Temporary Captains E. C. E. Van Eyck, A. Stewart, M.B., F. W. Murray, A. N. W. Colahan, M.B., and W. F. Gibson, M.B. On account of ill health: Temporary Captains G. Morris and F. C. Drew, M.B.; Temporary Lieutenant R. H. G. Bruce, M.B.

To be temporary Captains: W. J. G. Gayton, J. T. Kitchin, M.D., R. K. S. Sutherland, M.B., Temporary Lieutenants J. S. Mitchell, M.B., F.R.C.S.E., T. A. Davidson, J. T. Bowman, M.D., D. V. O'Malley, M.B., J. E. Ainsley, W. E. Glover, M.B., J. M. Christie, M.B., F.R.C.S.E., H. J. Hoile, M.B., A. L. Robinson.

To be temporary Lieutenants: W. Murray, M.B., E. G. Bunbury, E. M. Grace, G. C. M. Davies, E. R. Griffiths, A. L. Black, M.D., G. A. Thompson, D. Davies, F.R.C.S., D. C. McCormick, M.B., A. W. Musson, M.B., C. G. Burton, D. Robertson, M.B., R. N. Porter, M.B., F.R.C.S., B. A. I. Peters, M.D., W. Robertson, M.D., F. J. Cairns, J. B. Taylor, G. T. Wrench, M.D.

Temporary Lieutenants relinquish their commissions: A. McCreadie, B. S. Hyslop, M.B., H. D. Pollard, M.B., F.R.C.S., P. J. Holmes, T. M. Guthrie, M.B., H. R. Sinclair, M.B., F. W. Cheese, M.D., W. E. Ord, M.D., F. C. Sprawson, M.B., F.R.C.S., J. Young, M.B., H. G. Peal, T. Y. Finlay, M.D., E. Miskin, M.B., T. R. Wilschaw, C. L. Williams, C. K. Smith, M.B.

Temporary honorary Lieutenant E. K. le Fleming relinquishes his commission on ceasing to be employed with British Red Cross Hospital, Netley.

TERRITORIAL FORCE.

Major (Honorary Surgeon Lieut.-Colonel) E. W. Barnes resigns his commission on account of ill health and is granted permission to retain his rank and to wear the prescribed uniform.

Captain (acting Lieut.-Colonel) C. E. H. Milner relinquishes his acting rank on ceasing to command a general hospital.

Captain A. H. Pemberton resigns his commission on account of ill health and is granted the honorary rank of Captain.

Captain F. V. Deuna relinquishes his commission on account of ill health and is granted the honorary rank of Captain, December 9th, 1916 (substituted for notification in the *London Gazette* of December 8th, 1916).

Captain R. B. Stamford from T.F.R. to be Captain, with precedence as from September 30th, 1918.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements)—Important Notice re Appointments appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BARROW-IN-FURNESS COUNTY BOROUGH.—Assistant Medical Officer, Assistant School Medical Officer, and Assistant Tuberculosis Officer. Salary, £350 per annum (plus war bonus) rising to £400.

BRISTOL MEDICAL MISSION.—Superintendent. Salary, £300 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician: (2) House-Surgeon. Salary, £120 per annum.

DERBY: DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer (lady). Salary, £200 per annum.

DEWSBURY COUNTY BOROUGH.—Lady Assistant Medical Officer for Maternal and Child Welfare. Salary, £350 per annum.

EALING: KING EDWARD MEMORIAL HOSPITAL.—Ophthalmic Surgeon.

EVELINA HOSPITAL FOR CHILDREN, Southwark.—House-Surgeon. Salary, £160 per annum.

HEMEL HEMPSTEAD: WEST HERTS HOSPITAL.—Resident Medical Officer.

ITALIAN HOSPITAL, Queen Square, W.C.—House-Surgeon. Salary, £150, with honorarium of £50 per annum for acting as pathologist.

LINCOLN MENTAL HOSPITAL.—Assistant Medical Officer. Salary, £250.

LONDON COUNTY COUNCIL DENTAL CENTRE, Bethnal Green.—Anaesthetist. Salary, £25 per annum.

MANCHESTER EDUCATION COMMITTEE.—(1) Lady Assistant School Medical Officer. Salary, £350 per annum, rising to £500. (2) Assistant School Medical Officer (temporary). Salary, £400 per annum.

MIDDLESBROUGH: NORTH ORMESBY HOSPITAL.—Resident House-Surgeon. Salary, £300 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood.—Radiographer. Honorarium, £100 per annum.

NORTHAMPTONSHIRE WAR HOSPITAL, Duston.—Resident Medical Officer. Salary, £1 daily.

ROCHDALE INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £200 per annum.

SHERBURN HOSPITAL, near Durham.—Medical Officer to Charge of Infirmary and Dispensary.

SOUTH LONDON HOSPITAL FOR WOMEN, Clapham Common, S.W.—House-Surgeon (female). Salary, £100 per annum.

SOUTHAMPTON COUNTY BOROUGH.—Resident Medical Officer for Isolation Hospital. Salary, £400 per annum.

STOKE-ON-TRENT COUNTY BOROUGH.—Temporary Tuberculosis Officer. Salary, £500 per annum.

UNIVERSITY OF LONDON.—External Examiner in (1) Obstetric Medicine, (2) Pathology, (3) Pharmacy.

WAKEFIELD: WEST RIDING COUNTY COUNCIL.—School Medical Inspector. Salary, £320 per annum, rising to £400.

WARWICKSHIRE COUNTY COUNCIL.—Temporary Assistant County Medical Officer of Health. Salary, £400 per annum.

WINCHESTER: HAMPSHIRE COUNTY COUNCIL.—Temporary Assistant County Medical Officer of Health. Salary, £400 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

EDINBURGH ROYAL INFIRMARY.—The following appointments have been made:—Resident Physicians: A. R. C. McKerrrow, to Professor Russell; J. Kauch, to Dr. Chalmers Watson. Resident Surgeons: Duncan Cook, M.B., Ch.B., to Colonel Caird; D. A. Knight, to Colonel Wallace; Norman W. Johnston, to Captain Thomson; R. L. Stewart, M.B., Ch.B., to Captain Miles; Charles Simpson, to Captain Dowdall; Ernest G. Pyott, M.B., Ch.B., Ernest C. Fahmy, and E. B. Themissen, to Mr. Jardina in the Surgical Out-patient Department. Clinical Assistant: George Coote Field, to Mr. D. P. D. Wilkie.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGES.

DYKES—GREENWOOD.—On January 19th, 1918, at St. Michael's Church, Bournemouth, Andrew Leslie Dykes, M.D., D.P.H., Temporary Surgeon R.N., younger son of Mr. Andrew Dykes, of Leamington Spa, to Gladys, youngest daughter of the late John Greenwood, Esq., of Manchester, and Mrs. Greenwood, of Ambleside.

UMANSKI—LANDMAN.—On Tuesday, January 29th, at the residence of the bride's parents, 5, Newton Grove, Chapeltown, Leeds, by the Rev. I. Simon, of Manchester, assisted by Rev. M. Abrahamson, B.A., and Rev. Koppel, Augusta Umanski, M.B., Ch.B., the eldest daughter of Dr. and Mrs. M. Umanski, to Samuel Landman, M.A., the younger son of Mr. and Mrs. L. Landman, of Leeds.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8.30 p.m. Papers postponed from January 28th on account of air raid: Major Walter Broadbent, M.D., R.A.M.C.(T.): Interlobar Empyema and other Surgical Complications of the Thorax. Dr. H. A. Des Vaux: Eya strain in General Practice (Analysis of 100 Cases).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—5 p.m.:—Monday: Professor Arthur Keith: Specimens recently added to the Army Medical Collection. Wednesday: Professor J. Hutchinson, Surgical Treatment of Neuralgia. Friday: Professor P. P. Cole, Treatment of War Injuries of the Jaw and Face.

ROYAL SOCIETY OF MEDICINE.—Section of Ophthalmology: Wednesday, 8.30 p.m., Lieut.-Colonel R. H. Elliot, I.M.S.: Changes in the Vitreous from Penetrating Septic Wounds (Couching). Section of Epidemiology and State Medicine: Friday, 5.30 p.m., Dr. John Brawnlee: The Epidemiology of Plague. Members of the Section wishing to dine should send in their names to Captain M. Greenwood, Ministry of Munitions, 7, Northumberland Street, W.O.2, by February 5th. For the remainder of the Session meetings of the Section will be held on the second Friday of the month instead of the fourth.

[N.B.—Owing to the urgent need of food economy no refreshments will be served at meetings after February 1st.]

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 9TH, 1918.

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British Medical Association.

CURRENT NOTES.

Promotion and Pay of Territorial Medical Officers.
We printed in the JOURNAL last week the recommendations contained in the Second Report of the Committee on Promotion of Officers in the Special Reserve, New Armies, and Territorial Force, which dealt with the promotion and pay of officers of the R.A.M.C., Special Reserve, and Territorial Force. While the report itself may be taken as an attempt to do justice to the officers concerned, its practical outcome is clearly unsatisfactory. The first recommendation of the Committee, that "officers of the Royal Army Medical Corps, Special Reserve, and Territorial Force who joined before the war should be put on a level with temporarily commissioned officers as regards pay, allowances, and gratuities where they would gain thereby," went a good part of the way towards meeting the strongest recommendation put forward by the British Medical Association in its memorandum of May last.¹ But this, which was by far the most important of the Committee's six recommendations, was the only one negated by the Government. The report is now being considered in detail by the Naval and Military Committee of the Association with a view to proposals in regard to future action.

The Organization of the Profession and Rural Panel Practitioners.

We regret that we are unable this week to publish several letters on this subject recently received.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

OXFORD AND READING BRANCH: OXFORD DIVISION.—Dr. P. W. M. Higgs (Honorary Secretary, 88, James Street, Oxford), gives notice that a meeting of the Division will be held on Saturday, February 9th, at 3.30 p.m., in the Museum, when a cinema demonstration of war neuroses will be given by Major Hurst, R.A.M.C.

INSURANCE.

THE DEMAND FOR AN INCREASED CAPITATION FEE.

THE Insurance Acts Committee has received a communication from the National Health Insurance Joint Committee in the following terms, dated February 5th, 1918:

"I am directed by Sir Edwin Cornwall to send herewith to the Committee instructed by the Conference of Local Medical and Panel Committees of October last to communicate with him in regard to the resolutions of that Conference, a copy of a letter which he has sent to the Secretary of the Panel Medico-Political Union in reply to communications from that Union."

The letter addressed to the General Secretary of the Panel Medico-Political Union is as follows:

National Health Insurance Joint Committee,
Buckingham Gate, London, S.W.1.

February 5th, 1918.

Sir,—I am directed by Sir Edwin Cornwall to inform you that he has considered carefully your letter of January 30th concerning your Council's "minimum demands" for an increase of capitation fees of all insurance practitioners "from 7s. to 10s. exclusive of drugs," but including the treatment of discharged soldiers, as also the earlier letter of your Council on the same

subject, in which it was stated that the proposed capitation fee of 10s. was not to be regarded as adequate, but as "the minimum which the union is prepared to accept."

Sir Edwin desires me to state that he has for some time been considering the question of various effects that are alleged to result from war conditions upon the rate of remuneration offered in 1912 by the Government and at that time accepted by insurance practitioners, particularly in connexion with certain resolutions adopted by the Conference of Local Medical and Panel Committees last autumn and published at the time in the medical press. Those resolutions were sent to him by the Committee instructed by the Conference (at that meeting) to take that action on their behalf. That Committee subsequently came to this department to discuss the matter, as reported in the BRITISH MEDICAL JOURNAL of November 24th last, and have since been in correspondence with Sir Edwin Cornwall on the subject.

Having regard, first, to the position of the Local Medical and Panel Committees as the *statutory bodies* representative of insurance practitioners and of the profession in their several areas, and, secondly, to the constitution of the Conference as a body of delegates specially elected for the purpose by Local Medical and Panel Committees throughout Great Britain, and instructed by them with reference to an agenda paper circulated before the Conference, Sir Edwin Cornwall considers that he must necessarily regard that Conference as the body representing the opinion of insurance practitioners as a whole. And it is, therefore, necessarily to the Committee for the time being instructed by that Conference to represent them for this purpose that Sir Edwin Cornwall will intimate whatever decision the Government may come to on the question of the remuneration of insurance practitioners.

In these circumstances it would seem to Sir Edwin that no useful purpose would be served, but rather that confusion would be likely to result, from any attempts at negotiations on the same subject between your Council and himself, seeing that your union, as was intimated by the last deputation of your Council here when this point was raised, comprises representatives of a small minority only of the several thousands of insurance practitioners of Great Britain who are affected by the question, unless, indeed, it should be the case (of which he has had no evidence before him) that the membership of your union constitutes a special class of insurance practitioners whose interests in this matter are divergent from those of the insurance practitioners generally of Great Britain.

In connexion with the whole subject, I am to remind you that the important and difficult question of the methods of calculating the actual amount due in respect of the remuneration of insurance practitioners generally throughout the country is being specially investigated, at the request of the Conference above referred to, by a special Committee set up by that Conference (aided, at their request, by the President of the Institute of Actuaries), and that this department is placing at their disposal all the information needed for the elucidation of that problem, which is of necessity an essential part of the whole question of remuneration for insurance practice and closely involved in any suitable solution of it. This investigation is still proceeding.

In conclusion, I am to say that any such demands as those presented by your union would of necessity raise the important question of the kind of services to be rendered by the practitioners in return for the increased remuneration demanded apparently for every insurance practitioner, as also the ways in which these services are in fact being rendered in various parts of the country in respect of the remuneration at present given.

I am, Sir, your obedient Servant,
(Signed) E. JACKFORTH.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Temporary Surgeons D. McAlpine to the *Vivid* for R.N. Barracks; A. H. Haynes to the *Emperor of India*; A. G. Brown, M.B., to R.N. College, Dartmouth; J. L. Owen, M.B., to the *New Zealand*; A. W. Walker to Gibraltar; A. L. Abel to the *Donegal*; J. L. Gregory, M.B., to Plymouth. To be temporary Surgeons: F. G. Wood, T. M. Payne, A. S. Shacklock, D. M. Muir, H. B. Jackson, P. N. V. Dyer, C. G. Boney.

¹ SUPPLEMENT, May 19th, 1917, p. 116.

ROYAL NAVAL VOLUNTEER RESERVE.

To be temporary Surgeon: A. W. Mackenzie. To be Surgeon Probationers: R. W. R. Watson, D. Slight, A. E. Beckwith.

ARMY MEDICAL SERVICE.

Surgeon-General R. Porter, C.B., is placed on the retired list. Honorary Colonel Sir Frederick Treves, Bt., G.C.V.O., C.B., to be temporary Colonel.

Temporary Lieut.-Colonel L. S. Dudgeon to be temporary Colonel. Temporary Lieut.-Colonel F. R. Hill, R.A.M.C., to be Deputy Assistant Director-General, vice Lieut.-Colonel F. McLennan.

ROYAL ARMY MEDICAL CORPS.

Temporary Major W. Bickerton Edwards relinquishes his commission on appointment under the Ministry of National Service and is granted the honorary rank of Major, October 17th, 1917 (substituted for notification in the *London Gazette* of December 5th, 1917.)

T. J. Lloyd, N. D. Bardswell, and A. G. Bodman, late temporary Captains, are granted the honorary rank of Captain.

J. F. MacKenzie and E. F. Buckell, late temporary Captains, are granted the honorary rank of Lieutenant.

Lieutenants (temporary Captains) seconded for service with Egyptian Army: S. Arnott, W. H. A. D. Sutton.

M. Brunk to be temporary honorary Lieutenant.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Deputy Assistant Directors of Medical Services: Temporary Major S. G. Chown, C.A.M.C., vice temporary Captain H. B. Logie, C.A.M.C. Temporary Captain W. S. Macdonnell, C.A.M.C., vice temporary Major E. A. Neff, C.A.M.C.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major (acting Lieut.-Colonel) T. McC. Leask to be temporary Lieut.-Colonel, and to command a Canadian Field Ambulance.

Temporary Major N. B. Gwyn to be acting Lieutenant-Colonel while specially employed.

Temporary honorary Major C. W. Buckley relinquishes his commission.

Temporary Captains to be temporary Majors: (Acting Major) D. A. L. Graham, W. T. Lockhart, A. B. Walter, W. W. Francis, L. H. McKim, L. L. Reford, R. M. Shaw.

Temporary Captains to be acting Majors: H. W. Wadge, M.C., April 21st, 1917 (substituted for *London Gazette* notification of July 26th, 1917, incorrectly describing rank as substantive Major), R. St. J. MacDonald, B. E. Kelly, T. H. Bell, M.C., W. C. Laidlaw.

Temporary honorary Captain F. R. Sawdon relinquishes his commission.

Temporary Captain J. A. McCourt is dismissed the service by sentence of a general court-martial, December 17th, 1917.

BRITISH WEST INDIES REGIMENT.

F. A. Norton, M.D., to be Surgeon-Lieutenant.

TERRITORIAL FORCE RESERVE.

Captains from R.A.M.C. to be Captains: R. W. Meikle, A. Coleridge, H. C. Phillips, C. D. Edwards, M.C., A. H. Savage.

Captain W. G. Lloyd, from 2nd London Field Ambulance, to be Captain.

EXCHANGE.

CAPTAIN R.A.M.C.T., Home Service, at present employed in Northern Command, wishes to exchange into Southern Command.—Address, No. 500, BRITISH MEDICAL JOURNAL Office, No. 429, Strand, W.C.2.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

ALNWICK INFIRMARY.—House-Surgeon. Salary, £150 per annum. BARROW-IN-FURNESS COUNTY BOROUGH.—Assistant Medical Officer, Assistant School Medical Officer, and Assistant Tuberculosis Officer. Salary, £350 per annum (plus war bonus) rising to £400.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary, £250 per annum.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.—House-Surgeon (woman). Salary at the rate of £100 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary, £320 per annum.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—House-Surgeon. Salary, £150 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £200 per annum.

CHESTER ROYAL INFIRMARY.—Locumtenent House-Surgeon.

COSFORD UNION, Hadleigh.—Medical Officer and Public Vaccinator of the Boxford Relief District. Salary, £50 per annum.

DERBY: DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer (lady). Salary, £200 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Resident Surgical Officer.

DORCHESTER: DORSET COUNTY COUNCIL.—Temporary Lady Assistant Medical Officer. Salary, £350 per annum.

DUDLEY: GUEST HOSPITAL.—Vacancy on Honorary Surgical Staff.

GLASGOW: ROYAL HOSPITAL FOR SICK CHILDREN.—Attendant or Assistant for Pathological Department.

GUY'S HOSPITAL, S.E.—Clinical Assistant for Children's Out-patient Department. Honorarium, 2ls. per session.

HEMEL HEMPSTEAD: WEST HERTS HOSPITAL.—Resident Medical Officer.

HOSPITAL FOR DISEASES OF THE THROAT, Golden Square, W.—House-Surgeon. Salary, £100 per annum.

LINCOLN MENTAL HOSPITAL.—Assistant Medical Officer. Salary, £250.

LONDON TEMPERANCE HOSPITAL, Hampstead Road, N.W.—Casualty Officer (non-resident). Honorarium, £120 per annum.

MANCHESTER: ANCOATS HOSPITAL.—Unqualified Resident (male). Salary, £50 per annum.

NORFOLK WAR HOSPITAL, Thorpe.—Resident Medical Officers.

NORTHAMPTONSHIRE WAR HOSPITAL, Duston.—Resident Medical Officer. Salary, £1 daily.

NORWICH: JENNY LIND HOSPITAL FOR SICK CHILDREN.—Lady Resident Medical Officer. Salary, £350 per annum.

NOTTINGHAM: NOTTS EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.

OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary, £325 per annum, rising to £400.

PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician (male). Salary, £200 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—Temporary Surgeon in charge of Ear, Nose, and Throat Department. Honorarium, £25 per annum.

ROCHDALE INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £200 per annum.

SHERBURN HOSPITAL, near Durham.—(1) Medical Officer to Charge of Infirmary and Dispensary. (2) Locumtenent, salary, £9 9s. per week.

UNIVERSITY OF LONDON.—External Examiner in (1) Obstetric Medicine, (2) Pathology, (3) Pharmacy.

WARWICKSHIRE COUNTY COUNCIL.—Temporary Assistant County Medical Officer of Health. Salary, £400 per annum.

WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Second Assistant Medical Officer (male). Salary, £200 to £250 per annum.

WIGAN EDUCATION DEPARTMENT.—Assistant School Medical Officer. Salary, £300 per annum.

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APPOINTMENTS.

ALCOCK, W., L.M.S.S.A., District Medical Officer of the Leekesall Bierlow Union.

ASPLEN, W. R. W., M.B., B.S. Lond., Certifying Factory Surgeon for the Kenilworth District, co. Warwick.

DAVIES, H. W., M.B., District and Workhouse Medical Officer of the Swaffham Union.

GOULDEN, H. E., M.D. Durh., District Medical Officer of the Newton Abbot Union.

SHEPPARD, H. P., M.B., District Medical Officer of the Bodmin Union.

WORTS, C. C., L.S.A., District Medical Officer of the Laxden and Winstrete Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

NELIGAN.—On February 3rd, at the British Legation, Tehran, Persia, the wife of A. R. Neligan, M.D., of a son.

MARRIAGE.

SMITH—WILLIAMS.—On February 1st, by licence, at the Parish Church, by the Rev. Hiram Rees, Vicar, James Tait Smith, M.A., M.B., Ch.B., second son of Mr. and Mrs. T. Smith, Glasgow, to "Meta," younger daughter of the late J. T. Williams and of Mrs. Williams, Cwmillery House, Cwmillery, Mon.

DEATHS.

HERRING.—On January 27th, 1918, at 109, Earl's Road, Nunneaton, John Francis Herring, L.R.C.P., L.R.C.S. Edin., D.P.H. Cantab., late of St. Mary's House, Atherstone, aged 75.

PETTITT.—On January 15th, 1918, William Brakenridge Pettitt, M.R.C.S., of Long Melford, Suffolk, from injuries sustained in a motor-cycle accident, aged 53 years.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8.30 p.m., Mr. H. W. Carson: Clinical Aspects of Tuberculous Mesenteric Glands.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W.—5.30 p.m., Sir Ronald Ross: Treatment of Malaria.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.15.

ROYAL SOCIETY OF MEDICINE.—Wednesday, 5.30 p.m., Lecture by Sir Almroth Wright, M.D., F.R.S.: The Methods of Testing and Judging the Divers Forms of Wound Treatment. Thursday, 8.30 p.m., Conjoint meeting of the Sections of Neurology and Surgery with the War Office Committee for the Study of Tetanus: Muscle Contracture Following Injury. Section of Otolaryngology: Friday, 5 p.m., Discussion: The Influence of Disorder of the Nose on the Ear. To be opened by Dr. William Hill.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.—Lectures, 5 p.m.: Monday, Professor H. Carllil: Diagnosis and Treatment of Syphilis of the Central Nervous System. Wednesday and Friday, Professor W. Wright: Quaderini d'Anatomia by Leonardo da Vinci.

BRITISH MEDICAL JOURNAL.

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British Medical Association.

CURRENT NOTES.

The Education Bill.

ON December 14th, 1917, a deputation from the British Medical Association waited on the President of the Board of Education to urge that the scope of Clauses 18 and 19 of the Education Bill should be limited to medical inspection, the proposed extension of the power to provide medical treatment being excluded from them.¹ As a result of this deputation it was hoped that the suggestion of the Association would be carried into effect, especially in view of the fact that the bill had been withdrawn on the understanding that a new bill would be at once introduced. At the Council meeting on January 23rd it was reported that the bill had been reintroduced in an amended form as regards some of its clauses, but that Clauses 18 and 19 were unaltered. After discussion, the Council recorded its opinion that Clause 18 of the Education Bill ought to be deleted, and authorized the Medico-Political Committee to take appropriate action in support of this decision. Discretion was given to the Committee, should it not be found feasible to obtain the omission of the whole of the clause, to revert to the former policy of pressing for amendment of the clause by leaving out power to provide medical treatment.

Payment of Medical Officers of Auxiliary Hospitals.

SINCE the last Representative Meeting, when this matter was very fully debated, many inquiries as to the payment of medical officers of auxiliary hospitals have been addressed to the Central Medical War Committee; it appeared that the methods and the amount of remuneration varied considerably in different areas. When the question was raised with the War Office, the Committee received the reply that it was proposed to issue a circular dealing comprehensively with the subject; but, in spite of several reminders by the Committee, the circular has not been issued. The Committee, therefore, in its quarterly report to the Council of the Association, had to express its regret that, in spite of repeated representations to the War Office, and obvious dissatisfaction in many parts of the country, the authorities have not yet dealt firmly and finally with this matter. At its last meeting, on January 30th, the Committee decided to press upon the authorities the desirability of settling the question by the payment of a uniform sum of 10s. a day, in the same form and manner as obtain in the Aldershot Command.

Inquiry into the Composition of the Central Insurance Pool.

AT the Conference of Local Medical and Panel Committees held in October last, when the subject of the inquiry into the composition of the Central Medical Benefit Pool was being discussed, representatives of several Committees said they had no doubt their Committees would be glad to subscribe to the cost of this inquiry. No application has yet been made to the Panel Committees on the subject, but

¹ SUPPLEMENT, January 19th, 1918, p. 9. See also SUPPLEMENT, November 3rd, 1917, p. 91.

the following Committees have already spontaneously forwarded subscriptions to be applied to this purpose: Gloucestershire, Essex, and Staffordshire. The Staffordshire Committee forwarded its subscription "as a mark of its appreciation of the work of the Insurance Acts Committee."

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1918.

THE Annual Representative Meeting of the Association, 1918, will be held in London on Thursday, July 25th, 1918, and following day(s) as may be required.

Notices of Motion from Divisions and Branches for the consideration of the Annual Representative Meeting, proposing to make any addition to or any amendment, alteration, or repeal of any Regulation or By-law, or to make any new Regulation or By-law, or proposing material alteration of the policy of the Association in matters relating to the honour and interests of the medical profession or of the Association (Article 30, By-law 40), must be published in the BRITISH MEDICAL JOURNAL not later than the issue of May 25th, and for this purpose should be received by me not later than May 16th, 1918.

By order,

ALFRED COX,

Medical Secretary.

January 28th, 1918.

Meetings of Branches and Divisions.

LANCASHIRE AND CHESHIRE BRANCH: MID-CHESHIRE DIVISION.

THE following officers have been elected for 1918:

Chairman: Dr. W. C. Reushaw. *Vice-Chairman:* Dr. H. G. Cooper. *Representative in Representative Meetings:* Dr. T. W. H. Garstang. *Deputy Representative:* A. T. Blease. *Representatives on Branch Council:* Drs. H. A. Burrows, A. T. Blease. *Secretaries:* A. T. Blease and P. R. Cooper.

THE ORGANIZATION OF THE PROFESSION AND RURAL PANEL PRACTITIONERS.

SIR,—The correspondence in recent numbers of the SUPPLEMENT shows that rural practitioners are at last becoming alive to their grievances, or rather that they are beginning to give them adequate expression.

It seems to have been a fixed idea among the Insurance Commissioners that, owing to the lower sickness incidence, the country doctor would have less work in proportion than his brother in the town. Experience has completely knocked the bottom out of this fallacy. The sickness incidence may be less, but it must be remembered that the town doctor sees probably 60 to 70 per cent. of his patients in his surgery, the country doctor probably 30 to 40 per cent. The insured person does not relish the idea of walking a distance to see his doctor when he considers that it is his right to send for him.

There are few country doctors who have not had the experience of going five or six miles into the country

to find his patient going about or even at his work. Employers, too, are quite alive to the advantages of the situation. A ploughman, perhaps, is off work for a day through a cold. His employer will tell him that if he is unfit for his work he must call in his panel doctor, especially as it costs nothing.

It is not only the country doctors who realize the injustice of their position. In his admirable pamphlet on "Medical Benefit in Scotland" the clerk to the Insurance Committee of the County of Lanark expresses his opinion with no uncertain voice and shows by statistics how fallacious is the argument that the country doctor has less to do in proportion to his panel than the town man.

It is to be hoped that the Insurance Committees will show a better appreciation of the position than they have done in the past. Dr. Brackenbury's statement is little more than a confession of ignorance. Country doctors may have been inarticulate, but it must be remembered that in few instances can they afford the time to attend meetings and conferences, and when they do they have little chance of a hearing.

The Rural Practitioners Subcommittee does not appear to be doing much. The member for Scotland, the late Dr. Grant, of Blantyre, though a most excellent man, could not in any sense be termed a rural practitioner. His practice was in a large mining village on the outskirts of a considerable town.

The country doctor must realize that the time has come to make a fight for his position, and if the Insurance Acts Committee will not or cannot look after his interests an independent organization must be formed.

I, for one, would regret anything in the nature of a split in the Association, but the members must recognize the rights of every class in the profession to fair treatment.—I am, etc.,

Thornhill, Dumfriesshire,
Jan. 28th.

M. BRYSON,
Secretary, Panel Committee,
Dumfriesshire.

SIR,—I should like to comment upon Dr. Baigent's letter (SUPPLEMENT, January 12th) from the townsman's point of view.

The case for better treatment of the rural panel practitioner is overwhelming, and it seems to me that differences of opinion can only arise in connexion with the method of securing the remedy.

There are statements in Dr. Baigent's letter with which I cannot agree. He says, for instance:

When the Insurance Bill was first considered and the capitation fee arranged . . . I believe the original intention was to divide the capitation grant in such a way that rural practitioners would receive payment on a higher scale than the town doctor.

So far as it refers to the *capitation grant*, I challenge that statement. I had occasion to follow closely the Insurance Bill during its passage through Parliament, and I have not before been aware of any suggestion that the capitation fees should be divided unequally between town and country practitioners.

As I understand the matter, any extra allowance to rural practitioners was to be made from a special fund (the mileage fund) which was to be set up quite independently of the capitation grant, and, so far as I know, it was never intended that deductions should be made from the capitation fee of the townsman, to be added to the capitation fee of the country practitioner.

It is necessary to keep clearly in view how the remuneration of the panel practitioner is made up; disregarding extras, such as temporary residents, we have:

1. *The capitation fee*, which was a flat rate of (as we supposed) 6s. 6d. a head, and was accepted, more or less willingly, by all classes of practitioners, town and country alike, as payment for all ordinary services, which, under agreement, could properly be demanded from the average practitioner, for insured persons who reside within a limited distance of the practitioner's residence (in my agreement the distance is two miles). It is intended to cover all expenses incurred in attending insured persons, including locomotion, within the limited distance, as well as remuneration for services rendered. The nature and extent of these services must, of course, vary according to the practice, and this applies not only to town and country, but also to colliery, industrial, and health resort panel practice.

2. *The mileage allowance* is a separate and distinct fund, and has no connexion with capitation fees. As Dr. Baigent says, in rural practice the distances are longer, expenditure of time per visit greater, working expenses higher, and work harder. These special conditions of hardship peculiar to country practice only arise, of course, in attending persons who live beyond the distance covered by the capitation fee, and the mileage allowance was created for the particular purpose of remunerating practitioners for these specially arduous conditions, and it is the only fund which can properly be called upon to meet these conditions.

3. *The Drug Fund* is for the purpose of providing drugs and appliances either through practitioners or chemists. It has no connexion with capitation fee or mileage allowance.

These three funds are therefore entirely separate, and each for a specific purpose, and I submit if the Drug Fund is inadequate to cover the increased cost of drugs, this is no reason for pilfering part of the capitation fee, but it is a very pertinent reason for increasing the Drug Fund.

Similarly, if the mileage allowance is inadequate, and I am sure it has been grossly so, this also is no justification for annexing part of the capitation fee, but it is a proper and potent reason for adjusting the mileage fees.

In my opinion, the only satisfactory solution for the rural practitioner is that he should have a sufficient and fixed payment per mile travelled, which should fairly cover time as well as outlay involved in transit.

I am sure Dr. Baigent would receive general support in this, as I am sure he will receive opposition if, as he suggests, he proposes to take away from the townsman part of his properly and hard-earned capitation fee to supplement an inadequate mileage fund.—I am, etc.,

Thornaby-on-Tees, Feb. 2nd.

W. MURRAY.

INSURANCE.

NATIONAL INSURANCE, 1914-17.

THE Report on the Administration of National Health Insurance during the years 1914-17 recently presented to Parliament is divided into parts describing the work of the Joint Committee and the four countries separately. Practically all the questions dealt with of interest to the medical profession have been noticed in the *BRITISH MEDICAL JOURNAL* as they arose, and a general notice of the report, and a special notice so far as it relates to Ireland, has already been given, and it is now further proposed to refer to the parts that relate to England, leaving Scotland and Wales to a subsequent notice. In connexion with the work of the Joint Committee, the establishment of the new Advisory Committee of 48 members in place of the old committee of 168 members is recorded. Actuarial questions affecting the approved societies are dealt with at length, and it appears that, taking England alone, the amounts paid for sickness and maternity benefits have fallen considerably from 1914, but the Commissioners believe that the high rates of sickness benefit during the earlier years were not normal, but due to some extent, specially in the case of women, to inexperienced supervision of claims. On the other hand, disablement benefit has increased more than five-fold since 1914, and further increase may naturally be expected for some years until it attains its normal.

The financial provisions of the Acts as they affect soldiers and sailors and the position of the Navy and Army Fund are explained in detail, but nothing of importance is added to what has appeared in the *JOURNAL*. On July 1st, 1917, the number of discharged men entitled to benefits out of the Navy and Army Fund was 22,468, and the number of men notified for tuberculosis by the naval and military hospitals was 8,420. To compensate Insurance Committees for the additional cost of dealing with these cases additional funds have been voted by Parliament, and the arrangements made to secure co-ordination between insurance and pensions authorities in the provision of treatment for disabled men are fully described. Among the other activities of the Commission in connexion with the war is that of securing a continuance of an adequate medical and pharmaceutical service for the civil population in view of the number of doctors and pharmacists required for the forces, and work done in co-operation with the Central Medical War Committee is described.

In certain places it has been necessary to make special arrangements for the treatment of persons engaged in the construction of War Office camps and munition works, and something like 12,000 persons have been treated under these arrangements. Under the scheme for the provision of free medical service to the dependants of serving sailors and soldiers, which came to an end in August, 1916, when the War Pensions Statutory Committee was formed, about 400,000 medical books were issued and payment was made for about 1½ million prescriptions. About 12,000 doctors and 6,500 chemists volunteered their services under the scheme.

The effect of the war in imposing increased work on the lessened staffs of approved societies is dealt with at length, and it is stated that the total contributions of societies towards the financing of the war by investment in War Securities of moneys arising through National Health sources is about £7,000,000, apart from the sums invested in these securities by the National Debt Commissioners on behalf of the Commission. The number of approved societies operating in England in 1916 was 1,475, but in the public interest the membership is only given for the beginning of the war, when it was 10,874,079.

An abstract of cash receipts and issues out of the National Insurance fund is given for 1915 and 1916, and it appears that the total receipts in 1915 were £20,438,129, and in 1916, £19,016,790. In the latter year the amount received from the sale of stamps was rather over £13,500,000, and the Exchequer grants were £3,744,000. The amount paid out to societies for benefits and administration was about £7,024,000, and to Insurance Committees for medical and sanatorium benefits and administration £4,975,529, while about £5,320,000 was handed over to the National Debt Commissioners for temporary investment.

(To be continued.)

THE INCREASED MILEAGE GRANT.

THE clerk of the Insurance Acts Subcommittee (Scotland) of the British Medical Association has forwarded a copy of a letter issued by the Scottish Insurance Commissioners to the clerks of Insurance Committees in Scotland, dealing with the extra mileage grant on account of war conditions. This letter closely resembles that issued by the English Insurance Commission on January 21st, and reproduced in the SUPPLEMENT of January 26th. As in the case of England, application forms must be forwarded not later than February 21st.

WAR EMERGENCY FUND OF THE ROYAL MEDICAL BENEVOLENT FUND.

THE following subscriptions have been received from Divisions of the British Medical Association in response to the recent appeal, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL:

	£	s.	d.
Southport Division, per Dr. R. Harria, Hon. Sec.	81	8	0
Glasgow Central Division, per Dr. W. S. Syme, Hon. Sec.	151	2	0
(three instalments)	10	10	0
Bolton Division, per Dr. T. O'Neill, Hon. Sec.	21	0	0
Chesterfield Division, per Dr. H. B. Fletcher, Hon. Sec.	8	18	0
Swindon Division, per Dr. Dismorr, Hon. Sec.	33	8	0
Torquay Division, per Dr. G. Young Eales, Hon. Sec.	2	2	0
Leeds Division, per Dr. J. Allan, Hon. Sec.			

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeons L. M. Morris, A. K. S. Shand, J. Fullarton, W. N. L. Cherry, J. G. Peebles, T. W. Myles, and E. R. L. Thomas, to rank as Fleet Surgeons. Surgeon H. E. White to the *Proserpine*. Temporary Surgeons: C. H. Laver, to Chatham Hospital; R. C. W. Staley, to Haslar Hospital; W. O'G. Donoghue, to Plymouth Hospital. To be temporary Surgeons: A. L. Johnston, G. H. Sime, G. H. StG. Griffiths.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers: J. P. Hope, to the *Lance*; F. R. Hall, to the *Laverock*; G. W. Hollings, to the *Porpoise*. To be Surgeon Probationers: C. C. Elliott, C. F. Edmunds, H. Hollingbourne, G. W. Owen, J. R. Hetherington, H. S. Savago, A. G. Mathieson, A. Bearblock, J. M. Duthie.

ARMY MEDICAL SERVICE.

Surgeon-General T. H. J. C. Goodwin, C.M.G., D.S.O., to be Deputy Director-General.
Surgeon-General J. C. Culling, C.B., is placed on retired pay.
Lieutenant-Colonel J. V. Forrest, C.M.G., to be temporary Colonel whilst employed as Deputy Director of Medical Services, Lines of Communication.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieut.-Colonel D. Macaulay relinquishes his commission. Captains (acting Lieut.-Colonels) to be Majors: A. S. Littlejohns, D.S.O., W. Egan, D.S.O., C. R. M. Morris, D.S.O., R. E. U. Newman, M.C., E. M. O'Neill, D.S.O., G. B. Edwards, D.S.O., J. W. L. Scott, D.S.O., T. T. H. Robinson.

Captains (Brevet Majors) to be Majors: R. G. H. Tate, M. G. Dill. Captain (temporary Major) to be Major: P. Sampson, D.S.O. Captains to be Majors: C. M. Drew, A. G. Cummins, M.C., W. R. Galwey, M.C., R. G. Archibald, D.S.O., F. A. McCannion, M.C., G. de la Cour, A. Dawson, A. S. Williams, D.S.O., V. C. Honeybourne, C. T. Edmunds, V. G. Johnson, F. W. M. Paine, F. D. G. Howell, D.S.O., M.C., J. B. Grogan, W. C. Smales, D.S.O., A. H. Bond, T. C. C. Leslie, D. de C. O'Grady, L. G. Gibson, P. S. Stewart, T. W. O. Sexton.

Temporary Major A. G. Phear to be temporary Lieut.-Colonel. Temporary Major J. C. Webb relinquishes his commission and is granted the honorary rank of Major.

Temporary Captain C. M. Row to be temporary Major without increased emoluments whilst specially employed.

Temporary honorary Major T. M. Burr-Murdoch relinquishes his commission on ceasing to be employed at Springburn and Woodside Central Red Cross Hospital.

Temporary honorary Lieutenant G. Hodge to be temporary honorary Major whilst in charge of the Springburn and Woodside Central Red Cross Hospital.

Temporary Major W. H. Bryce, from Craiglockhart War Hospital, to be temporary Captain.

Temporary Captain W. H. Allen relinquishes the rank of temporary Major on ceasing to command troops on a hospital ship.

Temporary Captain R. H. McGillicuddy, M.C., to be acting Major whilst commanding troops on a hospital ship.

Temporary Captain E. F. Ackery to be temporary Major without increased emoluments.

The following relinquish their temporary commissions:—Lieut.-Colonels: E. H. Taylor, A. R. Parsons, T. E. Gordon. Majors: W. A. Winter, R. C. B. Maunsell, C. P. Ball, A. J. McCa, Blaney, D. Kennedy. Captains: W. Boxwell, F. H. McC. C. Crawley, M. R. J. Hayes, G. E. P. Meldon. Temporary Captains: R. J. Rogers, R. Brookes, J. S. Fowler, G. Thom, H. M. Churchill, J. Bain, C. J. Singer, D. M. C. M. C. Dickson, B. E. Spurgin, W. E. Barker, A. J. Beadell, A. Davidson, H. E. Dyson, D. Kennedy, T. Meagher, M. C. F. Barnes, R. J. English, M. W. Talbot (and is granted the honorary rank of Captain), T. S. Brook, R. C. J. Stevens, C. H. Mossop, V. E. Sorapure, H. H. Tipping, E. Purcell, C. Berry, W. A. Berry, J. S. English, G. W. Fleming, J. C. Wilson, I. A. Dowling, J. Craig, E. Ashby, C. W. J. Dunlop, J. A. Montgomerie, W. A. Murphy, J. W. Harvey, T. H. Twigg, D. M. Clements, J. G. Higgins, P. P. Grove, S. Lyle, J. P. O'Connor, B. H. Shaw, D. Forde, M. J. Houghton, W. L. A. Leslie, R. P. McDonnell, J. A. Cameron, A. E. Sutton, J. H. Igher, R. Proctor, J. MacArthur, C. Bannigan, M. C. J. G. Taylor, H. Caplan, F. M. Murphy, F. M. Murray, E. Evans, M. C. J. Lee, P. H. Rawson, M. C. W. G. Thompson, S. A. D'Arcy, J. Warwick, J. L. O'Sullivan, M. C. J. A. Arkwright, E. Mansfield, J. H. Crofton, S. R. Richardson, G. Sutherland, P. de C. Potter, W. H. Gray, J. F. Ruck, A. R. O. Milton, B. T. Edye, R. Roberts, W. V. Pegler, C. R. Skyrme, H. W. Evans, J. D. Fiolay, G. J. Jones, R. D. Bell, J. R. Humphreys, M. Ffonke, J. R. Forde. Temporary Lieutenants: I. Clarke, E. O'Reilly, D. A. H. Moses, F. R. Elwood, A. Y. Hntchison, R. Tempny, N. Flower, A. G. Holmes, T. H. Macfie, B. A. Slocombe, J. R. Sinton, J. H. Pratt (and is granted the honorary rank of Lieutenant).

Temporary Captains relinquish their commissions on account of ill health contracted on active service and are granted the honorary rank of Captain: L. A. P. Bort, D. Campbell, F. Murchie.

Temporary Captains relinquish their commissions on account of ill health contracted on active service: S. L. Alexander, T. E. Hammond, R. L. Norman.

Temporary Captains S. Ritson and D. S. Steele-Perkins and temporary Lieutenant G. Barnes relinquish their commissions on account of ill health.

To be temporary Captains: W. Millerick, C. R. Brown; temporary Lieutenants H. Barber, J. T. W. Stewart, H. F. Devis, G. H. Jones, J. P. Fehly, M. Henry, J. W. Lindsay, A. E. Woodall, T. E. Regan, J. D. Laidlaw, J. R. O'Brien, G. R. Rew, H. F. Stephens, R. D. MacGregor, G. C. Swanson, H. W. Perkins, A. G. Jenner, J. L. Johnston, W. J. Isbister, M. C. T. C. D. Watt, M. C. G. Robertson, J. G. Havelock, D. H. Fraser, M. C. S. Marie, T. H. G. Shore, R. Dane, E. A. Runtig, E. J. Peill, A. P. Draper, M. C. A. H. Bostock, D. L. Morrison, F. R. Tickle, V. G. Ward, H. S. McLennan, A. L. Gardner, J. H. F. Wilgess, W. E. Tanner, J. Howells, H. L. W. Wemyss, F. Osborne, H. H. V. Welch, K. L. Bates, L. V. Gatt, N. Bradley, J. Crean, H. W. Windsor-Aubrey, O. Barton, N. Navarra, W. E. Peck, A. J. B. Leckie.

The notification in the *London Gazette* of October 8th, 1917, regarding temporary Captain C. L. Dold is cancelled.

Lieutenant L. L. Cassidy, from Unattached List T.F., to be temporary Lieutenant (substituted for notification in the *London Gazette* of November 18th, 1914).

To be temporary Lieutenants: C. Dean, F. Heatherley, R. Theron, J. W. O'Farrell, G. D. M. Beaton, V. J. A. Wilson, C. E. F. Salt, F. King, G. C. Maguire, J. A. Johnson, S. S. Rosebery, G. Young, A. L. Sutherland, W. H. A. Elliott, H. S. Dixon, A. Barrett, A. T. Moon, G. H. Redolph, F. A. Hadden.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Major H. G. Smeeth, M.D., relinquishes the acting rank of Lieut.-Colonel on reposting.

Captain T. Gray, M.B., relinquishes his commission on account of ill health.

Lieutenants to be Captains: J. T. Westby, J. H. E. Annequin, O. C. L. Hughes, W. C. Craig, G. C. McEwan, R. J. Smith, P. D. McLaren, J. R. S. Mackay, R. A. Woodhouse, E. R. W. Gilmore, J. A. Paton, N. C. L. B. Tweedie.

J. O. Hamilton, late Captain, to be honorary Captain.
G. N. Groves, from Edinburgh University Contingent O.T.C., to be Lieutenant.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel (temporary Colonel) F. Kelly relinquishes his temporary rank on vacating the appointment as Assistant Director of Medical Service, and is restored to the establishment.

Lieut.-Colonel (Brevet Colonel) J. A. Rooth is dismissed from His Majesty's Service by sentence of a general court-martial, January 12th, 1918.

Major (temporary Lieut.-Colonel) S. A. Coad to be Lieut.-Colonel.

Captain (acting Major) S. R. Matthews relinquishes his acting rank on an alteration in posting.
 Captain A. A. McWhan, to be temporary Major whilst specially employed.
 Captain G. Holmes, M.B., resigns his commission on account of ill health, and is granted the honorary rank of Captain.
 Captain G. Henderson resigns his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain.
 Captain A. R. Short, M.D., is restored to the establishment.
 Captain G. W. Ellis is seconded whilst holding a special appointment.
 Captain C. T. Matthews, from T.F.R., to be Captain, with precedence from April 1st, 1915.
 Private L. Lloyd, from R.A.M.C., to be Lieutenant.

VOLUNTEER FORCE.

Lancashire Volunteer Regiment, 4th Battalion.—Medical Officer and temporary Lieutenant J. J. M. Dewar to be temporary Captain.
7th Battalion.—H. B. Bates to be Medical Officer and temporary Lieutenant.
County of London Volunteer Regiment, 2nd Battalion.—A. R. Oakley, late Captain R.A.M.C., to be Medical Officer and temporary Captain.
Monmouthshire Volunteer Regiment, 1st Battalion.—G. A. H. Martin to be Medical Officer and temporary Lieutenant.
Northumberland Medical Volunteer Corps.—J. Harrison and M. Bruce to be temporary Majors; D. Revie to be temporary Captain.
Dorsetshire Medical Corps.—T. D. Manning to be temporary Captain.
Kent Medical Corps.—J. H. Yolland to be temporary Lieut.-Colonel.
Gloucestershire Volunteer Regiment, 2nd Battalion.—Medical Officer and temporary Lieutenant C. Biddle to be temporary Captain.
Gloucestershire Medical Volunteer Corps.—E. A. Evans (late Captain R.A.M.C.) to be temporary Captain.
Hertford Medical Volunteer Corps.—P. G. H. Bayon to be temporary Captain.
Buckinghamshire Volunteer Regiment—1st Battalion.—H. Barrett to be Medical Officer and temporary Lieutenant.
Middlesex Volunteer Regiment—1st Battalion.—Medical Officer and temporary Captain H. Tipping relinquishes his commission on being appointed to a commission in the R.A.M.C.
North Riding Volunteer 23rd Battalion.—J. C. B. Williams to be Medical Officer and temporary Lieutenant.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—Second House-Surgeon. Salary, £250 per annum.
BRISTOL ROYAL INFIRMARY.—(1) House-Physician; (2) House-Surgeon. Salary, £120 per annum.
BURY INFIRMARY.—Junior House-Surgeon. Salary, £200 per annum.
COSFORD UNION, Hadleigh.—Medical Officer and Public Vaccinator of the Boxford Relief District. Salary, 450 per annum.
DERBY: DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer (Lady). Salary, £200 per annum.
DERBYSHIRE ROYAL INFIRMARY.—Resident Surgical Officer.
DUDLEY: GUEST HOSPITAL.—Vacancy on Honorary Surgical Staff.
GREAT NORTHERN CENTRAL HOSPITAL, Holloway Road, N.—House-Physician. Salary at the rate of £100 per annum.
HEMEL HEMPSTEAD: WEST HERTS HOSPITAL.—Resident Medical Officer.
LIVERPOOL PARISH—Resident Assistant Medical Officer for the Brownlow Hill Poor Law Hospital. Salary, £300 per annum.
MANCHESTER CORPORATION.—(1) Lady Medical Officer with experience in the treatment of Children's Diseases. (2) Temporary Assistant Tuberculosis Officer. Salary, £400 and £450 per annum respectively.
NOTTINGHAM CHILDREN'S HOSPITAL.—House Physician and Anaesthetist (female). Salary, £250 per annum.
NOTTINGHAM: NOTTS EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary, £350 per annum.
NOTTS COUNTY COUNCIL.—Assistant Tuberculosis Officer. Salary, £500 per annum.
OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary, £325 per annum, rising to £400.
PLYMOUTH EDUCATION AUTHORITY.—Assistant School Medical Officer. Salary, £300 per annum, rising to £350.
PLYMOUTH: SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House-Physician (male). Salary, £200 per annum.
PRINCETON ROYAL INFIRMARY.—Resident Medical and Surgical Officer. Salary, £120 per annum.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) Temporary Surgeon in charge of Ear, Nose, and Throat Department. Honorarium, £25 per annum. (2) Clinical Assistant.
ROCHDALE INFIRMARY AND DISPENSARY.—Junior House-Surgeon. Salary, £200 per annum.
ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City Road, L.C.—Resident Medical Officer. Salary, £300 per annum.
ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Second House-Surgeon. Salary, £75 per annum and war bonus.
UNIVERSITY OF LONDON.—External Examiner in (1) Obstetric Medicine, (2) Pathology, (3) Pharmacy.
WESTMINSTER HOSPITAL, S.W.—Physician.
WESTMORELAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Second Assistant Medical Officer. Salary, £200 to £250 per annum.

WHITECHAPEL DISPENSARY FOR THE PREVENTION OF CONSUMPTION.—Temporary Medical Officer. Salary, £500 per annum.

WILTS EDUCATION COMMITTEE, Trowbridge.—Dental Surgeon. Salary, £250 per annum.

WOOLWICH BOROUGH.—Woman Assistant Medical Officer of Health. Salary, £500 per annum.

CERTIFYING FACTORY SURGEONS.—The Chief Inspector of Factories announces the following vacant appointments: Biggleswade (Bedford), Farnborough (Hants).

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BURGESS, W. L., M.D. Edin., Medical Officer of Health for Dundee, vice C. Templeman, M.D. Edin., deceased.
ROBINSON, M. E., M.B., B.S. Melb., Resident Medical Officer to the Middlesex Hospital.
WATT, J. Leslie, M.B., Medical Officer of Health for the Urban District of Tavistock.
DISTRICT MEDICAL OFFICERS.—V. C. H. Dearden, L.R.C.P. and S. Ed., L.R.F.P.S. Glas., of the Sheffield Union. F. J. H. Martin, M.R.C.S., L.R.C.P., of the Belvoir (Out-Relief) Union. H. H. Moyle, M.R.C.S., L.R.C.P., of the Sturminster Union. F. Postlethwaite, M.R.C.S., L.S.A., of the Tavistock Union. A. Sinha, L.R.C.P. and S. Ed., L.R.F.P.S. Glas., of the Sheffield Union. F. H. P. Wills, L.M.S.S.A., of the Maidenhead Union.
ST. THOMAS'S HOSPITAL.—The following appointments have been made:—Casualty Officers and Resident Anaesthetists: F. N. V. Dyer, B.A. Cantab., M.R.C.S., L.R.C.P.; J. G. Lawn, B.A. Cantab., M.R.C.S., L.R.C.P.; E. J. Pakenfess, M.R.C.S., L.R.C.P.; H. I. Marriner. Casualty Assistant: F. R. G. Hief, B.A. Cantab., Resident House-Physicians: F. G. Wood, B.A. Cantab., M.R.C.S., L.R.C.P.; G. H. Sims, M.R.C.S., L.R.C.P.; F. P. Dutton, M.A., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P.; H. B. Russell, M.R.C.S., L.R.C.P., Resident House-Surgeons: P. F. Bishop, B.A. Cantab., M.R.C.S., L.R.C.P.; R. M. Humphreys, B.A., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P.; C. B. Cohen, B.A. Cantab., M.R.C.S., L.R.C.P.; M. E. Jones, M.R.C.S., L.R.C.P., House-Surgeon to Block 8: T. F. M. Dilworth, M.B., B.Ch., B.A.O., N.U.I. Obstetric House-Physicians: H. T. Cubbon, B.A. Cantab., M.R.C.S., L.R.C.P.; J. M. Higginton, B.A. Cantab., M.R.C.S., L.R.C.P., Ophthalmic House-Surgeon: D. McM. Dickson, M.C., M.R.C.S., L.R.C.P., Clinical Assistant (Throat): R. A. Walker.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

BARKER—WALLER.—On November 14th, 1917, at St. Saviour's Church, Nagano, Shin-shu Province, Japan, by the Rev. James Chappell, assisted by the Right Rev. Bishop Hamilton, and previously at the British Consulate-General, Kobe, before R. G. E. Forster, Esq., H.B.M.'s Consul-General, Frederic Barker, M.B., of Kobe, to Jessie Kiku, only daughter of the Rev. J. G. Waller, M.A., and Mrs. Waller, of Nagano.

DIARY FOR THE WEEK.

WEDNESDAY.

HUNTERIAN SOCIETY, 1, Wimpole Street, W.—5 p.m. Annual Oration by Dr. O. K. Williamson: General Arterio-sclerosis.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales General Hospital, Tottenham, N.15.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C., 5 p.m.—Monday: Professor F. G. Parsons: Structure of the English Skull. Wednesday and Friday: Professor E. K. Martin: Projectile Fracture of Limb Bones.

ROYAL SOCIETY OF MEDICINE.—Section of Odontology: Monday, 7.30 p.m., Captain Kelsey Fry and Lieutenant H. M. Johnston, R.A.M.C.: Radiography of Injuries of the Lower Jaw. Dr. Howard Mumme: Tubular Enamels. Tuesday, 5 p.m. General meeting of Fellows. Section of Pathology: Tuesday, 5 p.m., Dr. J. W. Cropper: A Counting Chamber for Enumeration of Protozoa, etc. Dr. J. A. Murray: (1) Autologous Grafting in Malignant and Non-malignant Conditions; (2) Tumour from the Zoological Gardens. Section of History of Medicine: Wednesday, 4.30 p.m., Exhibition of Books, Pictures, etc. 5 p.m., Dr. Charles Singer: English Medicine before the Normans. Dr. R. Hingston Fox: Post-mortem Records, 1813-1821; Matthew Baillie's Work in Morbid Anatomy. Section of Dermatology: Thursday, 5 p.m., Cases. Section of Neurology: Thursday, 8.30 p.m., Clinical Meeting at the London Hospital, Whitechapel, E.; Demonstration by Dr. Head of Cases of Wounds of the Nervous System, to be followed by a general discussion. Section of Study of Disease in Children: Friday, 4.30 p.m., Cases.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
18 Mon.	London: Naval and Military Committee, 2.30 p.m.
19 Tues.	London: Insurance Acts Committee, 11.30 a.m.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, FEBRUARY 23RD, 1918.

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British Medical Association.

CURRENT NOTES.

The Demand for an Increased Insurance Capitation Fee.
On February 19th the Insurance Acts Committee had an interview with the Insurance Commissioners, when Sir Edwin Cornwall, M.P., Chairman of the Joint Committee of Insurance Commissioners, read a communication containing his reply to the demand for an increased capitation fee put forward by the Conference of Local Medical and Panel Committees on October 18th, 1917. The decision contained in this document amounts to a refusal to grant any general increase in the capitation rate for insurance practitioners.

Immediately after the interview the Insurance Acts Committee held a meeting, when it was decided to call a conference of representatives of Local Medical and Panel Committees for some day in the second week of April. In the meantime the Executive Subcommittee has been instructed to prepare a reasoned reply to Sir Edwin Cornwall's communication.

Economy of Medical Man Power in the Army.

The Central Medical War Committee, at its meeting on February 20th, considered the question of the medical man power of the country in relation to the needs of the services and of the civil population. A resolution to the following effect was passed:

That the attention of the Ministry of National Service be drawn to the hardships already inflicted upon the civil community and upon individual members of the civil medical profession in providing medical officers for service with the army; and to the additional hardships which would be inflicted by any further reduction in the numbers of civilian medical practitioners. The Committee therefore requests the Government to consider whether it would not be possible by a revision of the duties of medical officers serving with the Forces to meet further requirements without any additional call on the medical profession available for the civil community.

Medical Services of the Home Forces.

The Chairman of the Central Medical War Committee at the same meeting read a communication addressed to him by instruction of the Field-Marshal Commanding-in-Chief, Home Forces (Viscount French), stating that Temporary Colonel John Atkins, C.M.G., A.M.S., had been appointed Deputy Director of Medical Services, Home Forces, on February 6th, and that one of his duties was the organization for service with Home Forces of those medical men (including Volunteers and Emergency Corps) who are not serving with the regular forces. In order to bring about the most effective co-operation between the representatives of the civil medical profession and the Medical Department of Home Forces, the Field-Marshal desired that Colonel Atkins should attend the meetings of the Central Medical

War Committee. The Chairman expressed his intention of replying to the effect that the Committee will be pleased to regularize Colonel Atkins's position.

PROCEEDINGS OF COUNCIL.

A MEETING of the Council was held at 429, Strand, W.C., on January 23rd, 1918, when there were present:

Dr. J. A. Macdonald, Chairman of Council, in the chair; Sir T. Clifford Allbutt, President; Mr. E. B. Turner, Chairman of Representative Meetings; Dr. G. E. Haslip, Treasurer; Dr. M. G. Biggs, Lieut.-Colonel R. A. Bolam, Dr. H. B. Brackenbury, Dr. H. J. Campbell, Dr. Francis Clark, Major Russell Coombe, Lieut.-Colonel R. H. Elliot, I.M.S., Major E. Rowland Pothergill, Sir James Galloway, K.B.E., C.B., Dr. T. W. H. Garstang, Dr. John Goff, Mr. N. Bishop Harman, Lieut.-Colonel W. T. Hayward, C.M.G., LL.D., Dr. R. Langdon-Down, Major Albert Lucas, Dr. H. C. Mactier, Lieut.-Colonel J. Munro Moir, Dr. E. N. Nason, Major George Parker, Dr. C. E. Robertson, Dr. F. J. Smith, Dr. W. Johnson Smyth, Dr. John Stevens, Dr. W. B. Crawford Treasure, Dr. T. Jenner Verrall, Dr. Claude Wilson, and Dr. O. R. M. Wood.

The following were unavoidably prevented from attending:

Dr. J. Adams, Sir James Barr, Dr. E. J. Domville, Dr. A. Fulton, Major Farquharson, Dr. J. J. Giusani, Dr. James Green, Dr. T. Duncan Greenlees, Fleet Surgeon F. D. Lumley, R.N., Colonel C. H. Milburn, Dr. Noy Scott, and Major C. S. Young.

The CHAIRMAN welcomed Dr. John Goff, of Bothwell, to the vacancy created by the resignation of Major J. Livingstone London, and the Council congratulated Sir James Galloway and Sir James Cantlie on the honours recently conferred upon them.

Lieut.-Colonel HAYWARD intimated that he would shortly be returning to Australia, and desired to thank all those members of the Association with whom he had come into contact during his stay in England for the courtesy with which he had always been received.

The CHAIRMAN, on behalf of the Council, expressed to Lieut.-Colonel Hayward appreciation of the assistance given by him in dealing with the various questions affecting Oversea Branches.

Mr. W. E. Hempson was reappointed for one year Solicitor to the Association.

FINANCE COMMITTEE.

The grant of £50 to the Scottish Medical Service Emergency Committee was approved.

The Treasurer was empowered to make the Scottish Committee a preliminary grant of £100 towards the expenses of the current year.

Instructions were given that an announcement be made in the BRITISH MEDICAL JOURNAL, on the authority of the Council, drawing the attention of members to the fact that from the first issue in March the number of pages of the JOURNAL must be still further reduced by one-third, and particularly to the following points:

(1) That this reduction is not a matter of choice with the Council, but compulsory under the Defence of the Realm Regulations; and

(2) That, as in the case of other rationed articles, there is no guarantee that a sufficient supply of paper or paper-making materials will be available in the country to furnish to each consumer the proportionate minimum quantity permitted under the amended regulations.

The accounts for the quarter ending December 31st, 1917, amounting to £13,761 7s. 9d., were approved, and the Treasurer empowered to pay those remaining unpaid.

JOURNAL COMMITTEE.

It was agreed that, in the interests of the Association and the JOURNAL, it is essential that the weekly publication of the BRITISH MEDICAL JOURNAL be not interfered with. When the supplies of paper available for 1918 are insufficient the mottled grey cover will be abandoned for the time being.

ORGANIZATION COMMITTEE.

It was decided that the grants for 1918 to the Oversea Branches be as in previous years.

It was decided to draw the attention of the Divisions and Branches, Home and Oversea, through the medium of the BRITISH MEDICAL JOURNAL, (1) to the action already taken by the Council and Representative Body as to representation of the medical profession on public bodies; and (2) to the special importance at the present time of adequate medical representation upon Government and municipal bodies, in view of the reconstruction proposals known or likely to be in contemplation throughout the empire.

The Annual Representative Meeting, 1918, will be held in London, commencing on the morning of Thursday, July 25th. The Annual General Meeting will be held on the afternoon of Friday, July 26th.

MEDICO-POLITICAL COMMITTEE.

The Committee reported (a) that since the approval by the Council, at its meeting on October 24th, 1917, of the action of the Committee in circulating to Divisions and Branches, to members of Parliament, and Government departments concerned, the memorandum appended to the last quarterly report urging that the scope of the clauses 18 and 19 of the Education Bill be limited to medical inspection only and not treatment, representatives of the Committee had met the Minister of Education and urged that policy upon him, as a result of which it had been hoped that the wishes of the Association would be met, in the amended form of the bill which was to be introduced in the present session; (b) that the bill had been reintroduced in an amended form as regards some of its clauses but with clauses 18 and 19 unaltered; and (c) that it was now for the Council to consider what further action should be taken in the matter. The Council came to the conclusion that clause 18 of the Education Bill should be deleted, and authorized the Medico-Political Committee to take what action it might deem desirable in support of such decision.

INSURANCE ACTS COMMITTEE.

The Chairman of the Committee drew attention to the possible necessity for the Committee calling a conference of representatives of Local Medical and Panel Committees before the next meeting of the Council, in connexion with the answer of the Government to the request for an increased capitation fee. The Council authorized such a conference, if necessary.

HOSPITALS COMMITTEE.

The Hospitals Committee was authorized to issue the memorandum drawn up by representatives of the London hospitals and the British Hospitals Association, concerning the payment of medical practitioners for the treatment of discharged disabled soldiers and sailors at voluntary hospitals, to the medical staffs of voluntary hospitals throughout the country, recommending its acceptance, together with a covering letter drawing attention to certain points.

CENTRAL MEDICAL WAR COMMITTEE.

It was decided to make representations to the Minister of National Service stating that the Council considers it to

be of great importance from the National Service point of view that the report of the committee appointed by the War Office in the previous autumn to inquire into the use of medical officers in the army should be published without delay.

MINISTRY OF HEALTH COMMITTEE.

The Council considered and approved the amended scheme for a Ministry of Health and directed that, in accordance with Minute 114 of the Annual Representative Meeting, 1917, it be at once submitted to the Government, accompanied by a letter emphasizing certain points to which the Council attached special importance. The scheme and the correspondence will be reported later to the Divisions and Representative Body.

Candidates for Election to the Association.

Sixty-two candidates were elected Members of the British Medical Association.

Association Notices.

ELECTION OF MEMBERS OF COUNCIL, 1918-19, BY BRANCHES NOT IN THE UNITED KINGDOM.

THE following nominations have been received from the undermentioned grouped Branches (By-law 49):

Lieut.-Colonel H. SIMPSON NEWLAND, M.B., F.R.C.S., D.S.O. (Queen Mary's Hospital, Sidcup), for the South Australian, Tasmanian, Victorian, Western Australian grouped Branches.

Lieut.-Colonel ROBERT H. ELLIOT, M.D., F.R.C.S., J.M.S. retd. (54, Welbeck Street, London, W.), for the Assam, Baluchistan, Bombay, Burma, Ceylon, Hyderabad and Central Provinces, Punjab, and South Indian and Madras grouped Branches.

Lieut.-Colonel EDWARD NEWBURY THORNTON, M.R.C.S., L.R.C.P. (S. African Hospital, Richmond, Surrey), for the Border (S. Africa), Cape of Good Hope (Eastern and Western), East Africa and Uganda, Egyptian, Gibraltar, Griqualand West, Malta and Mediterranean, Natal Coastal, Natal Inland, Orange Free State, Pretoria, Rhodesian, and Witwatersrand grouped Branches.

No other nominations having been received, the said Lieut.-Colonel Newland, Lieut.-Colonel Elliot, and Lieut.-Colonel Thornton are hereby duly elected as Members of the 1918-19 Council.

By order of the Council,

GUY ELLISTON,
Financial Secretary and Business Manager.

February 23rd, 1918.

Meetings of Branches and Divisions.

EAST YORK AND NORTH LINCOLN BRANCH: NORTH LINCOLN DIVISION.

THE following officers have been elected for the ensuing year:

Chairman: Dr. Grierson. Vice-Chairmen: Dr. Felton and Dr. Wallace. Secretary: Dr. Williamson. Representatives on Branch Council: Drs. Grierson and Swindells. Representative on Hospital Committee: Dr. G. O. McKane. Representative in Representative Meeting: Dr. Rotherham; Deputy, Dr. Swindells.

INDIAN MEDICAL SERVICE.

ITS PRESENT POSITION AND THE REFORMS NECESSARY.

As there seems to be some misapprehension in the matter, it seems desirable to point out that the recent action of the British Medical Association with regard to the present position and future prospects of the Indian Medical Service is comprised in the following documents:

1. The statement submitted to the Secretary of State for India at his request on the present position and future prospects of the Indian Medical Service, dated October 30th, 1913. It is a long and reasoned statement, which has now been before the profession at home and in India for four years.
2. A memorandum on that part of the report of the Royal Commission on the Public Services in India which deals with the Indian Medical Service, forming Appendix XI to the Supplementary Report of the Council of the British Medical Association for 1917; published in the SUPPLEMENT to the JOURNAL of July 7th, p. 8-9.
3. The memorandum on the present position of the Indian Medical Service and the reforms necessary: a condensed statement and recapitulation forwarded to the Secretary of State in anticipation of the deputation which is to meet him on his return from India.

We have received a letter from Temporary Lieutenant A. Krishna Menon, I.M.S., in the course of which he writes:

The Association's suggestions ignore the demand put forward by the Moderates among Indian public men for at least simultaneous examinations in India and England for recruitment to the public services, and, though unwittingly, casts an aspersion on one section of teachers of medical subjects—namely, teachers of midwifery and gynaecology, among whom India has had the services of some first-rate men. One cannot say that there is any difference in results as far as teaching is concerned of these or other subjects; and if there is, as the Association assures us, it is not due to any difference in the capacity of the teachers nor the ineptitude of the Indian student—for the Association thinks that a course in a British school of medicine will set them all right—nor for lack of clinical material in the women and children's hospitals attached to the various medical colleges. I hold that even better results than what are obtained can be secured by increasing the number of medical colleges in India, so that teachers will be better able to devote individual attention to their students. The essential difference, so far as teaching of midwifery and gynaecology and of other subjects goes, is that there always are more than one clinical teacher for the other subjects, whereas in midwifery and gynaecology this is very seldom obtained.

Still further improvement may be effected by the institution of a special educational service for medicine, engineering, etc. The pay should be high enough to attract the best men in their subjects from all over the world, and certainly where qualifications are equal, Indians and members of the Indian Medical Service ought to be given preference. This will also ensure continuity of tenure in teaching individual subjects, which is not sufficiently recognized now.

The same remarks apply to the specialist branches like bacteriology, ophthalmology, etc.

If these suggestions are given effect to, the question of increase of pay and emoluments to members of Indian Medical Service need not arise, for there will be a sufficiently large number of properly qualified Indians to select candidates from for the Indian Medical Service with the present rates of pay. And, after all, that is what is to be aimed at—namely, to train the Indians and enable them to serve their country, as far as they can, to supplement it and give them the lead wherever necessary.

The Association does not seem to have paid adequate thought to the practicability of giving the necessary facilities for training in British medical schools and hospitals to even a small fraction of the large number of medical men that is needed to cater for the population of India, nor to the religious and financial difficulties of all except a very small number of Indians to prosecute or supplement their studies in Europe. Will it not be more sensible to give them the required facilities for education in their own country than to transport them long distances for the same? Of course, it will be an excellent thing to encourage and afford facilities for post-collegiate studies to Indians in Europe or America as far as possible. But that should not be done at the risk of leaving Indian institutions inefficient.

WAR EMERGENCY FUND OF THE ROYAL MEDICAL BENEVOLENT FUND.

THE following further subscriptions have been received from Divisions of the British Medical Association in response to the recent appeal, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL:

	£	s.	d.
Torquay Division, per Dr. G. Young Eales, Hon. Sec.	...	2	2
Dudley Division, per Dr. L. A. Taylor, Hon. Sec.	...	56	11
Leeds Division, per Dr. J. Allan, Hon. Sec.	...	1	11

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Surgeon M. J. Aitken to the *Foreright*. Temporary Surgeons: G. H. C. SIG Griffiths, to Haslar Hospital; J. A. McVae, to Ascension Hospital; C. W. Bowen, to the *Seagull*; P. V. Wynn-Warwick, to Chatham Hospital; T. C. Brentnall, to Plymouth Hospital. To be temporary Surgeon: H. C. Apperly.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer G. F. S. Parker to the *Defender*. To be Surgeon Probationers: G. C. W. Curson, R. E. Ford, G. R. Woodhead, H. E. Emmett, J. E. Fishburn.

ARMY MEDICAL SERVICE.

Colonels to be Surgeon-Generals: J. J. Gerrard, C.B., F. R. Newland, C.M.G., J. J. Russell, C.B.

To be temporary Colonels: Lieut.-Colonels J. S. Gallie, D.S.O., whilst employed as Deputy Director of Medical Services, Lines of Communication; J. A. Hartigan, D.S.O., and H. G. Martin, whilst employed as Assistant Directors of Medical Services of a Division; and J. Sherren.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel H. S. Koch, D.S.O., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Temporary Lieut.-Colonel H. W. Bruce, from the Southwark Military Hospital, to be temporary Major on reposting.

Majors relinquish the acting rank of Lieut. Colonel on reposting: J. H. Brunskill, D.S.O., G. H. J. Brown, D.S.O., B. H. V. Dunbar, D.S.O.

Major A. E. S. Irvine, D.S.O., retains the acting rank of Lieut.-Colonel whilst in command of a medical unit.

To be acting Lieut.-Colonels whilst in command of a medical unit: Majors J. C. G. Carmichael, F. M. Parry, C. G. Browne, D.S.O., Captains E. D. Caddell, M.C., F. A. MacCammon, M.C., C. Helm, M.C., F. Casement, D.S.O., J. G. Gill, M.C.

The undermentioned retain the acting rank of Lieut.-Colonel while commanding a medical unit: Major E. B. Knox, temporary Captain R. E. Drake-Brockman.

Major E. L. Moss, M.C., retains the acting rank of Lieut.-Colonel whilst specially employed.

To be temporary Lieut.-Colonels: Major J. F. Martin, C.M.G. (whilst employed as Assistant Director of Medical Services), temporary Majors S. C. Elgee (whilst employed at the Manor—County of London—War Hospital), H. French; temporary Captain R. J. Rowlette.

Major P. J. Marett to be acting Lieut.-Colonel whilst in command of a medical unit, September 9th, 1917 (substituted for notification in the *London Gazette* of December 6th, 1917).

Temporary Major (Captain R.A.M.C.T.F.) R. A. Fleming relinquishes his temporary commission.

Temporary honorary Major G. Dreyer to be temporary honorary Lieut.-Colonel.

The undermentioned are granted temporary rank:—As Lieut.-Colonel: G. J. Johnston. As Major: Sir C. A. K. Ball, Bt., L. Kidd. As Captain: A. E. Boyd.

Temporary Captains to be temporary Majors: R. T. Smith, G. F. B. Simpson.

Temporary honorary Captain E. H. Hicks to be temporary honorary Major whilst serving with British Red Cross Society in France.

Temporary honorary Captain M. W. Flack to be temporary honorary Major.

The notification in the *London Gazette* of January 16th regarding temporary Captain J. P. O'Connor is cancelled.

Temporary Captains relinquish their commissions on appointment under the Ministry of National Service: T. W. Shaw, W. R. Knightley, A. B. Jones.

Officers relinquish their commissions: Temporary Captains W. J. Weaver (December 15th, 1917; substituted for notification in the *London Gazette*, January 8th, 1918), W. G. S. Neely, J. F. Adamson, W. G. Ridway, M. McNiff (on account of ill health caused by wounds), E. B. Israel, C. H. Treadgold, D. M. MacMannus, J. L. R. Philip (on transfer to I.M.S.), Temporary honorary Captain J. R. Taylor. Temporary Lieutenants T. B. Smith, G. Chalmers, D. H. Groom. Temporary honorary Lieutenants C. K. Valade, J. F. Harvey, R. G. Carothers, L. T. Kewer, J. H. Dorman, W. L. Hanson, J. R. Tippins.

To be temporary Captains: W. Farrer Thompson (whilst employed at County of Middlesex War Hospital, R. M. Broute. Temporary Lieutenants R. Semple, J. Campbell, C. A. Hughes, P. K. Muspratt, J. Wyper, A. M. Roberts.

Lieutenant T. J. McDonald relinquishes his commission on account of ill health and is granted the honorary rank of Lieutenant, January 6th, 1918 (substituted for notification in the *London Gazette* of January 5th, 1918).

L. W. Oliver, late temporary Lieutenant, is granted the honorary rank of Lieutenant.

Temporary honorary Lieutenant H. P. Thompson, of St. John Ambulance Brigade Hospital, to be temporary honorary Captain.

Officers relinquish their commissions on account of ill health contracted on active service:—Temporary Captains: F. W. Martin, F. L. Keith; temporary Lieutenant E. A. Edington.

Temporary Lieutenants C. M. Ormsby and A. W. Hall relinquish their commissions on account of ill health.

Lieutenants (temporary Captains) to be Captains: E. Davies, R. E. Barnesley, M.C., T. J. Kelly, M.C., R. J. Clausen, M.C., C. McN. McCormack, M.C., G. D. Jameson, D. W. Pailthorpe, St. J. D. Buxton, E. F. W. Grellier, S. Arnott, T. L. Fraser, L. G. Bourdillon, D.S.O., M.C., (Acting Lieut.-Colonel) R. A. Preston, M.C., A. B. Preston, J. Sainsbury, G. D. Robertson, H. D. F. Brand, R. Ellis, M.C., F. G. A. Smyth, J. P. Little, C. J. O'Reilly, M.C., W. Foot, M.C., F. C. K. Austie, D. C. Monro.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenant E. Chapelle relinquishes his commission on account of ill health.

The following from the contingents O.T.C. of the universities indicated to be Lieutenants: W. A. Fraser (St. Andrews), I. Liberman (Leeds), W. O. Holst, M. O. Simpson, and J. F. Twort (London), W. M. Kerr and W. H. Wallace (Glasgow), A. H. Morris (Bristol), C. F. J. Carruthers (Manchester).

To be Lieutenants: D. F. Panton, T. G. James, Second Lieutenant (honorary Lieutenant) W. G. F. Owen-Morris from T.F.R., Second Lieutenant S. Kiddough from Unattached List T.F.

GENERAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Majors to be Lieut.-Colonels: G. S. Maosfield and Brevet Lieut.-Colonels C. E. P. Fowler and H. A. Berryman. Captain A. F. Heaton to be Major.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Temporary Major C. F. C. Hazard from Canadian Light Horse to be temporary Major (substituted for notification in the *London Gazette* of December 14th, 1917, incorrectly describing name as Hazard).

To be temporary Majors: Temporary Captains W. L. Shannon, F. G. Logie, J. C. Wickham, A. T. Henderson, A. H. Pirie, C. A. McDiarmid, R. B. Robertson, C. F. Boyer, L. M. Rice, J. H. McPhedran. Temporary Captains (acting Majors) J. W. Hutchinson, H. C. Burgess, W. H. Lowry.

Temporary Captains to be acting Majors: R. J. Gardiner, G. W. Hall, H. W. McGill, M. C. W. H. Scott, M.C., A. B. Chapman, M.C.

Temporary Captain E. J. Leary resigns his commission. To be temporary Captains: S. E. Beech, G. B. Wiswell, temporary Major A. Stirling from New Brunswick Regiment temporary Lieutenants D. R. Finlayson, D. S. McCurdy.

Temporary Lieutenant K. McK. Shorey to be temporary Captain, November 22nd, 1917 (substituted for notification in *London Gazette* of January 18th, 1918, incorrectly describing name as Shoreley).

SOUTH AFRICAN MEDICAL CORPS

Captain F. P. G. de Smidt relinquishes his commission on account of ill health.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

Lieut.-Colonel W. R. Matthews, D.S.O., and Major (temporary Lieut.-Colonel) D. Rorie, D.S.O., Field Ambulance, to be Assistant Directors of Medical Services, and to be temporary Colonel while so employed.

Lieutenant-Colonel C. T. Green, to be Assistant Director of Medical Services, and is granted the temporary rank of Colonel whilst so employed, January 15th, 1915 (substituted for notification in the *London Gazette* of January 14th, 1915).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J. S. White is transferred to the permanent personnel, December 26th, 1917.

Major W. F. McAllister-Hewlings, from Deputy Assistant Director of Medical Services, to be Major.

Major J. D. Connie and Captain H. A. B. Whitelocke are seconded. Captain (Brevet Major) D. W. Boswell to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Captain (acting Lieutenant-Colonel) A. Leggat, D.S.O., relinquishes his active rank on ceasing to command a field ambulance.

Captain F. C. Bentz resigns his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain.

Captain S. J. Clegg is seconded whilst holding an appointment as Deputy Assistant Director of Medical Services.

Captains C. W. Sharpley and C. N. Chadborn are restored to the establishment.

Captain C. L. Isaac to be Major.

Captains G. E. Trotter and W. D. Frazer resign their commissions on account of ill health, and are granted the honorary rank of Captain.

Temporary Second Lieutenant T. Edwards, from Labour Corps, to be Lieutenant.

TERRITORIAL FORCE RESERVE.

Colonel C. E. Harrison, C.M.G., C.V.O., from A.M.S., to be Colonel, December 26th, 1917 (substituted for notification in the *London Gazette* of December 25th, 1917).

Lieut.-Colonel J. Young, M.D., from a field ambulance, to be Lieut.-Colonel.

To be Majors: Majors J. C. S. Burditt and F. A. Hadley, from a field ambulance, and A. M. Gossage, from a general hospital. To be Captains: Captains H. D. Levick, from a clearing station; A. G. Osborn, from attached R.A.M.C.; H. J. Preheli and C. Killick, from a field ambulance; Captain J. M. McQueen from R.A.M.C.

VOLUNTEER FORCE.

Cheshire Volunteer Regiment—3rd Battalion.—M. Young to be Medical Officer and temporary Lieutenant, March 29th, 1917 (substituted for notice in the *London Gazette*, May 15th, 1917).

Lincolnshire Medical Volunteer Corps.—J. Williamson (late Lieutenant 3rd Battalion, Lincolnshire V.R.), to be temporary Lieutenant.

Lincolnshire Volunteer Regiment.—H. T. Benson to be Medical Officer and temporary Lieutenant.

Mid-Vessex Motor Volunteer Corps—Western Group.—R. W. Starkie to be Medical Officer and temporary Lieutenant.

West Riding Medical Volunteer Corps.—Medical Officer and temporary Captain A. G. Reid (from 15th Battalion West Riding V.R.), to be temporary Major. W. H. Helm to be temporary Captain.

West Riding Volunteer Regiment—5th Battalion.—J. Barclay to be Medical Officer and temporary Lieutenant.

VACANCIES.

NOTICES REGARDING APPOINTMENTS.—Attention is called to a Notice (see Index to Advertisements—Important Notice re Appointments) appearing in our advertisement columns, giving particulars of vacancies as to which inquiries should be made before application.

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—Second House-Surgeon. Salary, £250 per annum.

BIRMINGHAM AND MIDLAND HOSPITAL FOR WOMEN.—House-Surgeon (woman). Salary at the rate of £100 per annum.

BIRMINGHAM CITY.—Junior Assistant Medical Officer for the Yardley Road Sanatorium and Municipal Antituberculosis Centre. Salary, £500 per annum.

BRISTOL ROYAL INFIRMARY.—(1) House-Physician. (2) House-Surgeon. Salary, £120 per annum.

BURY INFIRMARY.—Junior House-Surgeon. Salary, £200 per annum.

CARDIFF: KING EDWARD VII HOSPITAL.—Final Year Student Dresser. Salary, 52 guineas per annum.

CORNWALL COUNTY COUNCIL.—Assistant Tuberculosis Officer. Salary, £400 per annum.

DERBY: DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer (day). Salary, £270 per annum.

DUDLEY: GUEST HOSPITAL.—Vacancy on Honorary Surgical Staff.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident Assistant House-Surgeon.

LIVERPOOL: SAMARITAN HOSPITAL FOR WOMEN.—Assistant Honorary Surgeon.

MANCHESTER CORPORATION.—(1) Lady Medical Officer with experience in the treatment of Children's Diseases. (2) Temporary Assistant Tuberculosis Officer. Salary, £400 and £450 per annum respectively.

MANCHESTER ROYAL INFIRMARY.—Honorary Radiologist and Electro-Therapist.

MEPROPOLITAN ASYLUMS BOARD.—Assistant Medical Officer (female) at the Children's Infirmary, Cleveland Street, W. Salary, £300 per annum.

NOTTINGHAM CHILDREN'S HOSPITAL.—House-Physician and Anaesthetist (female). Salary, £250 per annum.

NOTTINGHAM EDUCATION COMMITTEE.—Temporary Assistant Medical Officer. Salary, £350 per annum.

NOTTINGHAM GENERAL HOSPITAL.—House-Physician (female). Salary at the rate of £250 per annum.

NOTTS COUNTY COUNCIL.—Assistant Tuberculosis Officer. Salary, £500 per annum.

PORTPATRICK PARISH.—Medical Officer and Public Vaccinator. Salary, £50 per annum and vaccination fees.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer. Salary, £120 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone Road, N.W.—Assistant Resident Medical Officer. Salary as Assistant £60 per annum and £80 as Senior.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—Clinical Assistant.

READING: ROYAL BERKSHIRE HOSPITAL.—Senior Resident Medical Officer. Salary, £350 per annum.

ROCHESTER: ST. BARTHOLOMEW'S HOSPITAL.—Resident Clinical Assistant. Salary, £110 per annum.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City Road, E.C.—Resident Medical Officer. Salary, £300 per annum.

ROYAL LONDON OPHTHALMIC HOSPITAL, City Road, E.C.—Second House-Surgeon. Salary, £75 per annum and war bonus.

ST. ANTHONY'S HOSPITAL, North Cheam, Surrey.—Resident Doctor.

SALFORD COUNTY BOROUGH.—Lady Assistant Medical Officer for Child Welfare. Salary, £350 per annum.

SALFORD ROYAL HOSPITAL.—House-Surgeon (male). Salary, £200 per annum.

WOOLWICH BOROUGH.—Woman Assistant Medical Officer of Health. Salary, £500 per annum.

WORCESTER-HIRE COUNTY COUNCIL EDUCATION COMMITTEE.—Temporary School Medical Officer. Salary, £300 per annum.

To ensure notice in this column—which is compiled from our advertisement columns, where full particulars will be found—it is necessary that advertisements should be received in this office not later than the first post on Wednesday morning. Persons interested should refer also to the Index to Advertisements which follows the Table of Contents in the JOURNAL.

APPOINTMENTS.

BENNETT, F. J., M.R.C.S., L.D.S., Honorary Dental Surgeon to the King George Hospital, Stamford Street, Blackfriars.

GRIFFITH, J. R., M.R.C.S., Argued, District Medical Officer and Public Vaccinator to the Bodwell Union, Mon.

CERTIFYING FACTORY SURGEONS.—S. Jackson, M.B., Ch.B. Edin., for the Penarth District, co. Glamorgan. J. A. Swindale, M.D. Durh., for the Ramsgate District, co. Kent. J. L. Watt, M.B., Ch.M. Aberd., for the Tavistock District, co. Devon.

DISTRICT AND WORKHOUSE MEDICAL OFFICERS.—A. C. O. Brown, L.M.S.S.A., of the Cricklade and Wootton Bassett Union. J. P. Hill, M.D., of the Stow Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

FORSYTH.—On November 27th, at Peak Hospital, Hong Kong, the wife of Charles Forsyth, M.D., F.R.C.S. Edin., of a son.

MACKELLAR.—At Manor Place, Dewsbury, on February 15th, the wife of J. Matheson MacKellar, M.B., Ch.B., a daughter.

TURNER.—On February 14th, at 13, Harley Street, the wife of Colonel Aldren Turner, C.B., M.D., of a son.

DEATHS.

COATES.—On January 16th, at Vancouver, Dr. Frederick William Coates, the eldest son of the late Mr. Martin Coates of Salisbury, aged 73.

MILL.—On February 11th, George Robertson Mill, M.D. Edin., Staff Surgeon R.N.V.R., aged 37 years, the loved husband of Ada Mary Mill, Tallavale, Park Road North, Birkehead.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON. 11, Chandos Street, W.1. 8.30 p.m.—Sir James Cantlie, K.B.E., F.R.C.S.: Principles and Practice of Ambulance Work.

ROYAL COLLEGE OF PHYSICIANS. Tall Mall East, S.W., Tuesday and Thursday, 5 p.m.—Milroy Lectures, by Dr. H. R. Kenwood, C.M.G.: Teaching and Training in Hygiene and Public Health—Some Criticisms and Suggestions.

ROYAL SOCIETY OF MEDICINE.—Section of Laryngology: Friday, 4 p.m., Cases.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales General Hospital, Tottenham, N.15.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
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FEBRUARY.

28 Thur.	London: Central Pool Subcommittee, 2 p.m.
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SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 2ND, 1918.

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British Medical Association.

CURRENT NOTES.

The Demand for an Increased Insurance Capitation Fee.

THE Insurance Acts Committee is now engaged in preparing a reasoned statement upon the reply given by the Insurance Commissioners on February 19th to the demand for an increased capitation fee. Local Medical and Panel Committees may expect to receive this statement within the next fortnight. As briefly announced in this column last week, a special conference of Local Medical and Panel Committees will be held in the second week of April to consider the position created by the Commissioners' reply. At the last conference in October, 1917, it was proposed that machinery should be set up for the calling of a further conference at short notice, and in this connexion the Insurance Acts Committee will recommend to the next annual conference that the representatives elected to act at any annual conference shall continue to hold office until the commencement of the succeeding annual conference unless any committee should in the interval notify a change. Although this recommendation cannot come into formal operation until the next annual conference in October, the Insurance Acts Committee has decided to act upon it in connexion with the forthcoming special conference in April.

The Emergency Settlement for 1916.

THE Chairman of the National Health Insurance Commission (England) addressed on February 15th a letter to the Insurance Acts Committee stating that, as the result of the calculations just completed, the exact amount of the central medical pool for England and Wales, which was due under the regulations in respect of 1916 and would have been distributed if there had been no emergency settlement, was found to be greater by about 7 per cent. than the amount distributed in accordance with the terms of that settlement. This difference, by the terms arranged, would normally be carried forward for distribution among doctors as part of the 1917 settlement; but, seeing the largeness of the amount, the Commissioners thought it right to bring the matter to the notice of the Insurance Acts Committee, as representing the Conference of Local Medical and Panel Committees, in order to ascertain whether an alternative procedure seemed called for. The Commissioners recall that the object of the emergency settlement was to settle doctors' accounts at a much earlier date than under war conditions was possible within the strict terms of the regulations. They recognize, however, that the decision against reopening the settlement with individual doctors rested on their expectation that the difference between the amounts arrived at by the one process of calculation and the other would be relatively quite small. In view of the substantial difference now disclosed by the final calculations for 1916, they do not consider that they would be justified in insisting upon this condition of the settlement if it should be the general desire among insurance practitioners that the settlement for 1916 should be reopened, so that the sum in question should be distributed among the practitioners who were on the panel for that year, instead of being carried forward to 1917. If such a desire were expressed the Commissioners would approach the Treasury with a view to a corrective settlement for 1916; although some time—possibly three

or four months—would be needed for carrying out the various operations necessitated by that course. If, on the other hand, insurance practitioners generally were content to let the arrangement stand for carrying forward the sum to the 1917 pool, the Commissioners would arrange for immediate payment to all practitioners on the panel for 1917 of the additional 7 per cent. Sir Robert Morant adds that the unexpectedly large difference between the two calculations is due to the operation of war conditions in a manner which could not have been foreseen; and that the Welsh Commissioners concur in his letter.

THE Insurance Acts Committee, on the occasion of the interview with Sir Edwin Cornwall, on February 19th, with regard to the demand for an increased capitation fee, discussed this matter with the Insurance Commissioners. After consideration of the letter, and of the explanations furnished by the Commissioners, the Committee has recommended that the original bargain as regards the emergency settlement should be adhered to. The Committee took into account the fact that hardships might exceptionally arise owing to the carrying forward of the 7 per cent. to the 1917 account; as, for example, in the case of a doctor who was on the panel for 1916, and who, owing to death or disablement, is not on the 1917 panel. If any Panel Committee should desire to make some voluntary arrangement for meeting such cases in which real hardship arises, the Insurance Acts Committee will be glad to help in placing the circumstances before the Insurance Commissioners, who have offered to give what assistance lies within their power. Such assistance must be regarded as voluntary since the obligations of the Commissioners are fulfilled when they carry forward the surplus to the 1917 pool. They will, however, so far as possible, in these exceptional cases furnish information as to the amount which would have been payable had there been no emergency settlement.

THE ORGANIZATION OF THE PROFESSION AND RURAL PANEL PRACTITIONERS.

SIR,—When Dr. Cox addressed the meeting at Preston on November 29th, 1917, I was surprised his speech was not challenged by any rural practitioner who should happen to be present, and I therefore welcomed the forceful letter of Dr. Baigent, of Northallerton, asking Dr. Cox a few pertinent questions, which are of vital importance to those practising in rural areas—questions which I notice have so far remained unanswered.

From sorry personal experience I can vouch for the correctness of the points so well brought out in this letter; all working expenses being vastly increased.

This has caused me within the last few days to send a telegram to the clerk of the Insurance Committee, telling him it is impossible to carry on in one outlying district which I foolishly undertook to oblige his committee. In doing this work, which is of a dwindling nature, I have seriously worn and depreciated two motor cars that it is practically impossible to get repaired. The fact is doctors are leaving the rural areas; the movement has already begun, and will not be easily arrested.

It is largely due to the unequal working of the Insurance Act, and it is therefore up to the Commissioners to at once right this wrong of their creating, before the cry "Back to the land" is applied to the doctor as well as the agricultural labourer.

Another point has not been clearly brought out. Before the working of the Act it was contended that there would be fewer visits in the country than in the town, and on this contention the flat capitation rate was based. No such mistake could have been made by anybody understanding country practice, because it stands to reason a sick man in a town might go to the doctor's surgery, whereas it could hardly be expected of him if the doctor was miles away. This has been proved to be the case, and the old idea proved a fallacy. In a very able and well written pamphlet, "Medical Benefit in Scotland," by W. M. Marshall, Clerk to the Lanark Insurance Committee, this point is well brought out and proved. Under Section 4, "The Country Doctor," he says:

When we contrast the actual services rendered by the country doctor as compared with his urban colleague, we find that in the case of the first it stands at 4.07 (visits and consultations combined) for each person on his list, as compared with 4.37 for each person on the list of the urban doctor.

But the average visits paid infinitely the greater (three consumers) works out at 2.85 for every person on the list of the country doctor, and only 1.71 in the case of the urban doctor.

I write in the hope of stimulating other rural men. Dr. Baigent knows our wants; he has given us a good lead; let us be up and doing, otherwise we shall get no consideration when the increased capitation fee is under discussion. All our panel patients are having higher wages, whilst we have had our working expenses increased far more than they have, and are receiving the same remuneration.

As I write I am informed that the charges for hire of motor cars are to be 1s. a mile travelled, and 4s. an hour for detention. I have many insured persons twelve miles away by road, then a mile or two more to walk. Consider the liabilities and possible expenses attached!

We are not organized on a business footing, and have not recovered from the shock caused by the "rot" of the closing days of 1912. The Divisions should have quarterly meetings at the various centres. An epitome of the points discussed should be sent to all the members in the area, and direct questions put on a form for the individual general practitioner to answer. Each area should appoint a lawyer to be present at all the meetings, and to carry out all the secretarial work, etc. If this were done we isolated individuals would be better able to understand what is expected of us, and should have an organized outlet for our views and grievances.—I am, etc.,

Perth, Feb. 20th.

JOHN L. KINN.

Dr. WILLIAM BAIGENT, in the course of a reply to Dr. Murray's letter printed in the *Supplement* of February 16th, writes:

"What I suggest is that the lot of the country doctor should be considered, and the injustice in his case, when proved, should be remedied before anything is added to the present capitation fee, or the general question of the amount of increase of the capitation grant is decided upon. . . . I think Dr. Murray will agree it is no use moving in this matter after the new capitation fee is arranged. The payment for the work done in the country is not adequate and never has been so under this Act. This is the whole question, and it is useless quibbling whether it is capitation fee, mileage allowance, or drug fund which is at fault. The three combined do not compensate for work done in the country, and often do not pay out-of-pocket expenses; neither does it matter which fund is increased so long as it is adequate and the work made remunerative."

Dr. Baigent wishes to emphasize his point that in no case does he advocate any deduction from anything already granted to the town practitioner. He concludes his letter thus: "If it should unfortunately prove, which I do not for the moment believe, that the rural doctor has not got the full support of the town doctor, it will be the strongest argument in favour of a separate organization for dealing solely with the affairs of the rural practitioner."

Pending publication of the Insurance Commissioners' reply to the demand for an increased capitation fee, and the statement of the Insurance Acts Committee thereon, we do not propose to print further letters on this subject.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Temporary Surgeons: J. A. Duffield, to the *Thunderer*; S. Hutchinson, to the *Scimitar*; J. G. Giffith, to the *Lord Nelson*; H. Wilks, to the *Arrogant*; P. A. Cockayne and W. Collins, to Haslar Hospital. To be Temporary Surgeons: W. A. Jolliffe, H. Mullett, A. L. Spencer-Payne.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon-Pilot Officer C. C. Elliott to the *Hornet*.

ARMY MEDICAL SERVICE.

Surgeon-Generals ranking as Lieutenant-Generals and Major-Generals.

Notifications appeared in the *Supplement to the London Gazette*, February 27th, carrying out the new arrangement as to the titles of Surgeon-Generals, stated by Mr. Macpherson in his speech on the Army Estimates (see p. 268).

To be temporary Colonels: Temporary Lieut.-Colonels A. S. Woodward, from R.A.M.C., and Sir R. Ross, K.C.B., I.R.S. (Lieut.-Colonel R.A.M.C. 1st Lt., Major ret. I.M.S.).

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel R. F. Wingate, D.S.O., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Temporary Major E. P. Cathcart, M.D., to be temporary Lieut.-Colonel without increased emoluments whilst specially employed.

Major (Temporary Lieut.-Colonel) G. S. Jackson, Northumberland Fusiliers T.F., to be temporary Lieut.-Colonel.

Major (acting Lieut.-Colonel) N. L. Dunkerton relinquishes his acting rank on re-employment.

Major H. A. Fransbury, D.S.O., to be acting Lieut.-Colonel whilst in command of a medical unit.

H. J. Naisson, late temporary Major, is granted the honorary rank of Major.

Major P. R. Thomas, Royal Scots (T.F.), to be temporary Major, July 15th, 1927 (as intimated for notification in the *London Gazette* of August 8th, 1917).

Temporary Captains to be temporary Majors without increased emoluments whilst specially employed: S. W. Williams, I. M. J. O'Farrell.

Lieutenants (temporary Captains) to be Captains: G. A. E. Argyle, S. S. Cross, E. W. Galloway.

Temporary Lieutenants to be temporary Captains: P. Wallace, M. G. Grove (whilst employed at the Lord Derby War Hospital), P. O. Spensley, C. L. Jones-Phillipson, G. A. Mayor, C. Speers, J. S. Bellas, P. A. Adams, P. W. L. Camps, R. L. Rea, W. I. H. Ives, T. H. Campbell, J. W. Carey, J. H. Swan, E. G. Y. Thom, J. G. Elder, A. D. Turnbull, C. W. Windor, G. Heathcote, A. McK. Nixon, G. P. Earle, M. Hooper, W. H. Cam, R. J. A. Davis.

TIX CHANGE.

MEDICAL OFFICER (Lady) attached to a Edinburgh war Hospital is anxious to exchange with fellow officer in Ireland (Dublin or Cork preferred).—Address, No. 800, BRITISH MEDICAL JOURNAL Office, No. 422 Strand, W.C.2.

APPOINTMENTS.

BUNTON, Dr. H. V. M.D., M.R.C.P. Lond., Consulting Anatomist to the Royal Dental Hospital.

KNOX, Dr. N. M.B., C.M., F.R.C.P.S., Medical Referee under the Workmen's Compensation Act, 1906, for the Sherifdom of Lanark, vice Sir David McVail, deceased.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGE.

BERRY, HELEN.—At St. Mary's, Marylebone, on February 25th, by the Rev. J. W. Roberts, Surgeon J. P. Ferré, R.N., eldest son of Dr. and Mrs. Berry, Kebley, to Missa, elder daughter of Mr. and Mrs. H. E. Horsey, Dorset Square, London.

DEATHS.

SCOTT.—In a nursing home in London on February 19th, after an operation for appendicitis, Kenneth Mackenzie Scott, M.D., F.R.C.S. Edin., M.B. C.S. Eng., of 7, Manchester Square, W., only son of Thomas Graham Scott, of Edinburgh.

STRATON.—On February 22nd, at West Lodge, Wilton, Charles Herbert Stratton, F.R.C.S. Edin., in his 78th year.

DIARY FOR THE WEEK.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Tuesday and Thursday, 5 p.m., Goulstonian Lectures by Dr. A. P. Ponson, Diabetes Mellitus and the significance of Acidosis in Disease.

ROYAL SOCIETY OF MEDICINE.—Section of Epidemiology and State Medicine: Friday, 5.30 p.m., Dr. M. Greenwood and Miss Cecily Thompson: An Epidemiological Study of the Food Problem.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

MARCH.

5 Thurs. London: Parliamentary Subcommittee, 4 p.m.
7 Thurs. London: Insurance Acts Executive Subcommittee.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 9TH, 1918.

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British Medical Association.

CURRENT NOTES.

Association of Panel Committees.

ON the initiative of the London Panel Committee, an Association of Local Medical and Panel Committees was formed in July last, and a provisional committee was appointed to prepare a scheme and to endeavour to secure the adhesion of all Panel Committees. This proposal was criticized in detail in a document (M. 6) issued by the Insurance Acts Committee to the conference of Local Medical and Panel Committees on October 18th, 1917. As is well known, the conference expressed its renewed confidence in the Insurance Acts Committee of the British Medical Association as the central negotiating body, and deprecated the setting up of new organizations as tending seriously to weaken the forces of the profession. Last month, however, the Association of Panel Committees issued an "explanatory memorandum" on the need for an organization of Panel Committees. In reply, the Insurance Acts Committee has recently issued a circular (M. 22), pointing out that the memorandum is a practical instance of the separatist movement strongly deprecated by the last conference of Local Medical and Panel Committees, and is an attempt to induce committees to break away from the policy freely determined upon in conference. The circular goes on to say that the character, purpose, policy, and actions of the British Medical Association and its Insurance Acts Committee are completely misrepresented in the memorandum. Moreover, the British Medical Association is predominantly representative of insurance practitioners, and all the powers and functions of the new association set out in its memorandum are already exercised by the Insurance Acts Committee. It is suggested that Panel Committees, even if not opposed on general grounds to the formation of new organizations, should scrutinize very closely the financial arrangements proposed for the Association of Panel Committees. Considerations of professional policy, however, give the strongest reason for withholding support from a body solely concerned with sectional interests, since in any fight to maintain the interests of insurance practitioners as such, the whole profession must be united in their support. On such grounds the Insurance Acts Committee invites Panel Committees and insurance practitioners neither to accept the explanatory memorandum as a statement of facts nor to acquiesce in it as a suggestion of policy.

The Scottish Committee on a Ministry of Health.

At a meeting of the Scottish Committee of the British Medical Association, held in Edinburgh on January 26th, detailed consideration was given to the scheme for a Ministry of Health for England and Wales prepared by the Ministry of Health Committee. With regard to central organization, it was resolved that a separate Ministry of Health should be established for Scotland with a Scottish Minister whose sole duty would be to attend to the interests of the health of Scotland. With regard to local administration, it was resolved that the authority to be set up in Scotland should be constituted in a manner analogous to that to be set up under the Education (Scotland) Bill. The Committee attached great importance to the principle that the areas should be such as would require whole-time administrative officers for both clinical and preventive purposes. Subject to the

above modifications and other minor adjustments, the Committee approved the remainder of the scheme, and resolved to submit it as amended to the Council of the Association as the scheme approved for Scotland. It was also decided to submit the views of the Committee to the Secretary of State for Scotland, with a view to the attendance of a deputation thereon.

Association Notices.

CHANGE OF AREA.

Malta Branch.

THE following change has been made in accordance with the Articles and By-laws, and takes effect from the date of publication of this notice:

That the name of the Malta and Mediterranean Branch be altered to "Malta Branch," and that the area of the Branch consist of the Island of Malta and its Dependencies.

INSURANCE.

THE NATIONAL HEALTH INSURANCE ACT, 1918.

THE Insurance Commissioners have issued a memorandum (238, price 2d.) giving a short summary of the main provisions of the National Health Insurance Act, 1918, which will be of special value to approved societies and insurance committees. The Act does not greatly affect panel practitioners, but the following provisions are of direct interest to them:

It is provided that where after inquiry the Commissioners remove a doctor or a chemist from the panel of an area, they may, if they think fit, also remove his name from any other panel list in which it may be included, and may declare that such disqualification shall continue until such time as they otherwise direct.

The Commissioners are also empowered to issue regulations defining the manner and conditions under which medical certificates are to be granted by panel practitioners. This enables the present medical certification scheme to be incorporated in the Medical Benefit Regulations.

The Act also removes the ambiguity as to the maximum amount of administration income available to Panel and Pharmaceutical Committees; it is now made clear that this is a sum divisible between the two committees not exceeding one penny in all in respect of each year.

Provision is also made for the payment out of that income of the travelling expenses, including subsistence, of members in attending meetings of such committees or of any subcommittees thereof.

The Act does not generally come into operation until July 1st, but it is announced that the Commissioners intend as early as possible to publish a revised edition of all the Acts and regulations that will be in force from July 1st. Complete instructions will be issued for the guidance of societies and Insurance Committees in administering the new Act as well as revised model rules to help societies to make amendments in their rules rendered necessary by the new Act.

INQUIRY INTO CENTRAL POOL.

THE following further contributions have been received from Panel Committees towards the cost of the inquiry undertaken by the Insurance Acts Committee into the constitution of the Central Pool:

	£	s.	d.
Wolverhampton Panel Committee	15	15	0
Westmorland Panel Committee	5	0	0
Renfrewshire Panel Committee	1	1	0

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon S. H. Facey to the *Monarch*; Staff Surgeon R. F. MacMahon to the *St. George*; J. Hadwen, to the *Lancaster*. Surgeon T. J. O'Riordan to R.M. Division, Plymouth. Temporary Surgeons H. E. Thorn to Chatham Hospital; L. B. Hartley to the *Hannibal*; J. E. Purves to the *Gloucester*; C. McDonald to the *Gibraltar*; J. P. Fleming to the *Leviathan*; W. G. Wyllie to Dungavel Auxiliary Hospital; T. C. Blackwell to the *Queen Elizabeth*; K. E. Attenborough to the *Pembroke*, additional, for Chatham Hospital; J. R. Brennan to the *Vivid*, additional for Plymouth Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers S. G. Harrison to the *Teazer*; H. E. Emmett to the *Sheldrake*; G. R. Woodhead to the *Acorn*; A. Bearlock to the *Archer*; J. Yates to the *Jackal*; A. G. Mathieson to the *Redpole*; A. E. Blackley to the *Lyra*. To be Surgeon Probationers: F. L. Smith, W. G. D. H. Urwick, R. Anderton, F. R. Hall.

ARMY MEDICAL SERVICE.

Major-General T. H. J. C. Goodwin, C.M.G., D.S.O., from Deputy Director-General to be Director-General (temporary), and to be temporary Lieut.-General, vice Lieut.-General Sir Alfred Keogh, G.C.B., M.D., F.R.C.P., ret. pay, March 1st.

Colonel G. B. Stanistreet, O.M.G., from an Assistant Director-General to be Deputy Director-General (temporary), and to be temporary Major-General, March 1st.

Colonel J. R. McMunn, C.M.G., to be Assistant Director-General (temporary), vice Colonel G. B. Stanistreet, March 1st.

Major Sir E. Worthington, C.M.G., M.V.O., R.A.M.C., from a Deputy Assistant Director-General to be an Assistant Director-General, and to be temporary Lieutenant-Colonel, March 1st.

Major P. G. Easton, D.S.O., R.A.M.C., to be a Deputy Assistant Director-General vice Major Sir E. Worthington, C.M.G., March 1st.

Major A. B. Smallman, D.S.O., R.A.M.C., to be a Deputy Assistant Director-General vice Major G. A. D. Harvey, who has vacated March 1st.

Colonel E. G. Browne, C.B., to be temporary Surgeon-General.

Lieut.-Colonel D. D. Shanahan, D.S.O., from R.A.M.C., to be Colonel. The following relinquish the temporary rank of Colonel on reposting: Lieut.-Colonel F. J. Brakeuridge, C.M.G., Brevet Colonel F. Smith, C.B., C.M.G., D.S.O.

Lieut.-Colonel F. S. Penny, C.M.G., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

ROYAL ARMY MEDICAL CORPS.

To be temporary Lieut.-Colonels: R. L. Joynt, P. C. E. Tribe. Temporary honorary Lieut.-Colonel Sir E. Stewart, K.B.E., relinquishes his commission on ceasing to serve with the British Red Cross Society in France.

Temporary Major J. J. Abraham to be acting Lieut.-Colonel whilst employed as Assistant Director of Medical Services, Head Quarters, Lines of Communications; September 5th, 1917.

Temporary honorary Major R. G. Rows to be temporary honorary Lieut.-Colonel whilst employed at the Moss-Side Military Hospital.

Temporary Captain G. W. Fitz-Henry to be temporary Major (without increased emoluments) whilst specially employed.

Captain V. C. Honeybourne to be temporary Major whilst in command of a field ambulance, December 13th, 1915 (substituted for notification in the *London Gazette* of April 18th, 1916).

Captain A. C. Vidal, D.S.O., to be Major.

S. McC. Boyd to be temporary honorary Captain whilst serving with the British Red Cross Society in France.

A. C. Turner, I. Alluan, D. S. Steele-Perkins, and G. J. Jones, late temporary Captains, are granted the honorary rank of Captain.

Officers relinquish their commissions: Temporary Majors W. C. G. Ashdowne (on ceasing to be employed at the County of Middlesex War Hospital), P. A. Peall. Temporary Captains: W. A. R. Mitchell, P. B. Brown, W. G. Heasman (on account of ill health), A. W. G. Murray, P. B. Harrison, P. W. Brigstocke, C. R. Stewart, R. E. Sedgwick, P. A. Reckless, M. H. Laslett, D. Heron, W. Speedy, F. J. Hunt, H. W. Kaye, P. S. Dixon, F. W. Craig, W. G. Porter, E. G. B. Starkie, R. Younger (and is granted the honorary rank of Captain), G. T. L. Murphy, E. P. Evans, P. McDougall, G. A. Renwick, B. B. Ham (on appointment under the Ministry of National Service), R. H. C. Lyons (and is granted the honorary rank of Captain), G. E. Dodson, J. H. Paterson (on account of ill health), A. B. Moffatt. Temporary Lieutenants: F. E. Larkins, J. H. Nichol, H. Goodman (on account of ill health), R. G. Cunningham, J. D. Gray, J. D. Walker, R. A. Hosegood, A. B. MacCarthy, W. Hibbert, C. B. Simpson, P. W. Ashmore, J. Reid, W. Hartland, T. W. Arnison, J. C. Henderson, M. Crowley, G. Cockroft.

Lieutenants (temporary Captains) to be Captains: J. C. A. Dowse, M. C., C. O. Shackleton, F. P. Freeman.

To be temporary Captains: B. M. Beunett, F. Barues, P. J. O'Reilly, M. C., F. L. Collie, V. E. Sorapure, J. W. Harvey, H. J. Burke, C. Butler.

Temporary Lieutenants A. Dewar, E. A. Bernard, J. N. G. W. McMorris, N. Garrard.

To be temporary Lieutenants: T. M. O'Donnell, H. Topham, W. W. Pearce, G. Marshall, A. B. Rosher, F. O. Stedman, R. H. Paramore, H. S. Liater, G. Stanger, A. N. Fell, E. W. Whiting, J. H. Whiteside, H. L. Taylor, F. Robinson, A. J. Watt, A. Ashkenny, E. Magovouy, A. H. Firth, A. Welby, G. R. Wilson, G. A. Tiechurst, N. Lavers, H. Holt, G. R. Bickersstaff.

The notification in the *London Gazette* of February 11th, 1918, regarding temporary honorary Lieutenant J. F. Harvey is cancelled.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain G. R. Luce to be temporary Major whilst specially employed.

Captain W. J. S. Ingram relinquishes his commission on appointment to the I.M.S.

Lieutenants to be Captains: H. Franklin, D. Clyde, H. D. Gardner, P. B. Hickson, R. T. Lewis, C. V. Brainbridge, J. R. Banks, P. R. Riggall, G. E. L. Simons, G. Day, R. Moser, H. StH. Vertue, M. C., C. J. Penny, R. R. Traill, O. Williams, L. C. Blackmore, R. W. Lush, E. Parker, E. O. Goldsmith, W. Agar, F. N. Sidebotham, J. F. C. Irvine, G. W. Heckels, J. B. E. de Robillard, F. Portas, V. R. Smith, F. C. A. Firth, J. S. White, W. S. Brown, G. M. Kendall, L. Grey, C. Y. Rolerta, T. B. Bailey, D. J. Ratterham, C. W. Armstrong, M. Morrison, R. Newton, T. E. Micklem, L. S. Gathergood, L. Cunningham, R. Woodsale.

The notification in the *London Gazette* of January 31st, 1918, regarding Lieutenant O. C. L. Hughes is cancelled.

To be Lieutenants: H. Roger from Aberdeen University Contingent O.T.C., C. F. Rainer, A. Blackstock, L. C. Goument, W. E. LeG. Clark, A. W. Wells, T. Davies, and J. G. McCaon from University of London Contingent O.T.C., E. B. Ash and W. P. Nelson from Birmingham University Contingent O.T.C., R. H. Chadwick from Leeds University Contingent O.T.C., J. W. C. Fairweather, A. Bullied, G. W. Coombes, D. V. Halstead.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

Major (acting Lieut.-Colonel) H. Richardson to be Assistant Director of Medical Services, and is granted the temporary rank of Colonel whilst so employed, May 2nd, 1917 (substituted for notification which appeared in the *London Gazette* of July 16th, 1917).

ROYAL ARMY MEDICAL CORPS.

Major (acting Lieut.-Colonel) T. A. Barron relinquishes his acting rank on ceasing to command a field ambulance.

To be acting Lieut.-Colonels: Captain J. Miller (whilst commanding a field ambulance); Captain (Brevet Major) R. O. Duo (whilst commanding a casualty clearing station).

Major (acting Lieut.-Colonel) R. W. Brimacombe retains his acting rank whilst commanding a stationary hospital.

Major H. Walker and Captains R. A. Fleming and W. J. S. Bythell are restored to the establishment.

Captain (acting Lieut.-Colonel) A. C. Mallace relinquishes his acting rank on ceasing to command a field ambulance.

Captain R. Sanderson is seconded for duty with a general hospital.

Captain A. Leggat, D.S.O., is seconded whilst holding an appointment as Deputy Assistant Director of Medical Services.

Captain (temporary Major) J. McC. Johnston relinquishes his minor rank on an alteration in posting and is restored to the establishment.

Captain E. B. Argles is restored to the establishment on vacating the appointment of Deputy Assistant Director of Medical Services.

Captain H. A. T. Fairbank, D.S.O., is seconded whilst holding a temporary commission in the R.A.M.C.

Captain P. J. McGinn relinquishes his commission on account of ill health, and is granted the honorary rank of Captain.

Lieutenants to be Captains: W. J. Read, R. O. Knowles.

Private G. T. P. Tatham from O.T.C. to be Lieutenant.

APPOINTMENTS.

CAIRNS, D. L., M.D., Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 12, and to be attached more particularly to Huddersfield, Saddleworth, and Holmthurst County Courts, vice P. Macgregor, deceased.

DISTRICT MEDICAL OFFICERS.—R. H. W. Fisher, M.R.C.S., L.R.C.P., Lond., D.P.H., of the Garstang Union, J. Galloway, M.R.D.M.H., of the Gateshead Union, E. G. D. Menzies, M.B., Ch.B., Edin., of the Wearside Union, B. S. Sanders, L.R.C.P. and S. Edin., of the Barnstaple Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

MORLEY.—On March 2nd, at 24, Heaton Road, Withington, Manchester, to the wife of John Morley, Ch.M., F.R.C.S., Captain R.A.M.C.(T.), a son.

OWEN.—On the 16th February, 1918, at the Surgery, Abercrombie, Aberdare, Glam., the wife of Ambrose W. Owen, M.D., B.S.Lond., late Captain R.A.M.C.(I.E.F.), of a daughter.

TROTTER.—At 81, Nithsdale Road, Pollokshields, Glasgow, on 3rd inst., Dr. Margaret J. Trotter (née Brown), wife of Dr. G. Clark Trotter, Paisley, a daughter.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—8.30 p.m., Mr. H. Graeme Anderson: Aviation and Medicine and the Selection of Candidates for the Air Service.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W.1, 5.30 p.m.—Adjourned Discussion: Treatment of Malaria.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W., 5 p.m. Tuesday.—Third Goulstonian Lecture by Dr. E. B. Pouton: Diabetes Mellitus and the Significance of Acidosis in Disease.

Thursday.—Lumleian Lecture by Dr. G. F. Still: Coeliac Disease.

ROYAL SOCIETY OF MEDICINE.—Section of Odontology: Monday, 7.30 p.m., Mr. C. H. Bubb and Mr. Percival P. Cole: Ununited Fractures of the Mandible. Section of Neurology: Tuesday, 8.30 p.m., Dr. A. F. Hurst: Cinematographic Demonstration of War Neuroses, to be followed by a Discussion on Treatment.

Section of Balneology and Climatology: Thursday, 5.30 p.m., Dr. Robert Kirkland: Cheltenham, its Waters and Climate. At 7.15 the members will dine together at Pagan's Restaurant, Great Portland Street, W. Section of Electro-Therapeutics: Friday, 8.30 p.m., Adjourned Discussion on the Treatment of Injuries of Peripheral Nerves. Members of the Sections of Neurology, Surgery, and Subsection of Orthopaedics are invited to be present and join in the discussion.

POST-GRADUATE COURSES AND LECTURES.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales General Hospital, Tottenham N.15.

DIARY OF THE ASSOCIATION.

Date. Meetings to be held.

MARCH.

12 Tues. London: Central Ethical Standing Subcommittee, 2.30 p.m.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 16TH, 1918.

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British Medical Association.

CURRENT NOTES.

The Demand for an Increased Capitation Fee.

IN the reply given by the Insurance Commissioners on February 19th to the demand for an increased capitation fee for insurance practitioners, Sir Edwin Cornwall stated that that part of the case for increased remuneration which was based on the increased cost of living "must be examined not as specially affecting insurance administration, but as relating to similar applications from other sections of the community, and therefore to be decided in accordance with the general policy of the Government in dealing with applications of the kind." Upon this point the Insurance Acts Committee recently approached the Chancellor of the Exchequer, requesting an authoritative explanation of the Government's policy, for the information of the forthcoming special conference of Local Medical and Panel Committees on April 11th. Mr. Bonar Law consented to receive a deputation at the Treasury on Friday, March 15th, to discuss this matter.

A Ministry of Health.

ON March 13th, in the House of Commons, Mr. Bonar Law stated that although he could not then make any statement as to the intention of the Government to proceed with a bill this session for the establishment of a Ministry of Health, it was hoped that agreement would be arrived at as to the setting up of such a Ministry. On the same day Dr. Addison, Minister of Reconstruction, received members of the Ministry of Health Committee of the British Medical Association, and discussed with them the proposals contained in a draft bill of which he is in charge.

Travelling Expenses of Members of Panel Committees.

UNDER the provisions of Section 41 (2) of the National Health Insurance Act, 1918, it is now possible for payment to be made, out of the statutory levy, of the travelling expenses (including subsistence) of members of Panel Committees attending meetings of such committees or any subcommittees thereof.

INSURANCE.

NATIONAL INSURANCE, 1914-17.

ENGLAND.

(Concluded from page 21.)

THE extra work imposed on Insurance Committees in dealing with enlistments and discharges from the forces and the entry into insurance of new workers, mainly women, is described, and it appears that, owing to the extent to which the number of enlistments has exceeded the number of new entrants, the committees have suffered a considerable loss of income at a time when salaries of staffs have had to be raised while payments were being made to members of the staffs absent on military service, and a special Treasury grant of £25,000 has been made to meet these losses. Notwithstanding numerous additions,

the strength of the panels has declined owing to resignations and deaths due to the war. On January 1st, 1915, the strength of the panels was 15,955, which was reduced on January 1st, 1917, to 15,293, these figures including the doctors on more than one panel, but excluding duplicates within each area. In the same period there has also been a reduction in the number of chemists' shops from 10,304 to 9,983. A statement is given showing the distribution of the General Medical Benefit Fund among the various Insurance Committees, and the totals for England are as follows:

Final settlement for period ending Jan., 1914 ...	£4,481,312
Emergency " " " " Dec., 1914 ...	4,247,229
" " " " Dec., 1915 ...	4,042,168
" " " " Dec., 1916 ...	3,844,936

THE total thus distributed during the four years amounts to £16,615,646. It is observed that the emergency settlement with doctors for 1915 was £10,562 in excess of the proper amount for a final settlement. This was taken into account in the following year, but the proper amount for a final settlement for 1916 has not yet been ascertained. It appears that up to the end of 1916 there had been twenty-two inquiries about doctors, resulting in the removal of fifteen doctors from the panel and fines in two other cases, and seven inquiries about chemists, resulting in the removal of four from the panel, with a fine in one other case. In addition, there had been forty cases of appeal by doctors against surcharges for excessive prescribing, and eight appeals against decisions of Insurance Committees under Art. 45 (16) of the regulations of 1913. Up to the end of 1916 the Commission has withheld grants in thirty cases to doctors and chemists for various breaches of their agreements, the sums withheld varying from £5 to upwards of £400.

IN regard to sanatorium benefit, in August, 1917, the number of approved tuberculosis dispensaries was 370, and the beds in approved residential institutions 11,700. At the end of September, 1917, comprehensive agreements between Insurance Committees and local authorities for residential and dispensary treatment of tuberculosis had been made in thirty-two of the forty-nine counties (excluding London) and in fifty-five of the seventy-eight county boroughs. In the remaining areas there were only temporary arrangements for beds in any approved institution, but in eight areas there were no provisions for dispensary treatment. The special arrangements for London are dealt with fully.

THERE are a number of appendices, to some of which references have been made already, but one dealing with the cost of drugs and appliances for the insured deserves further notice. It appears that, taking England as a whole, there has been a gradual reduction in both the average cost of prescriptions and the average cost per insured person. Figures are given for each area, but, taking the total averages, in 1914 the cost per prescription was 8.2d., in 1916 it had fallen to 6.1d., and the average cost per insured person had fallen from 2s. 2d. to 1s. 10d. In 1916 in twenty-eight of the total 126 areas the cost per insured person was still over 2s., the highest being 2s. 10d. On the other hand, in eighteen areas the cost per insured person was below 1s. 6d.; some areas have made as little as 1s. 1d. to 1s. 2d. suffice.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Temporary Surgeons: A. G. Williams and A. R. Doyle to Haslar Hospital; E. J. Tongue to the *Edmont*; R. G. Tottenham to the *Wildfire* for Sheerness Barracks and Yard, vice Ross; J. C. Sinclair to the *Hannibal*.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: H. Reid, W. E. H. Banks, P. L. Richardson, E. E. D. Gray, I. G. Williams, W. H. Summerskill, L. R. A. Wells.

ARMY MEDICAL SERVICE.

To be temporary Colonels: Temporary honorary Colonel J. F. O'Carroll, Lieut.-Colonel W. E. Hume, R.A.M.C.(T.F.), Captain J. A. Nixon, R.A.M.C.(T.F.).

ROYAL ARMY MEDICAL CORPS.

To be temporary Lieut.-Colonels: Captain E. F. Buzzard, R.A.M.C.(T.F.), whilst serving at the Tooting Military Hospital; Major C. H. Fagge (Brevet Lieut.-Colonel, R.A.M.C.(T.F.)), whilst serving with the Hampshire Military Hospital; C. G. Douglas, M.C.

Majors F. E. Rowan-Robinson, G. A. Kempthorne, D.S.O., and R. G. Merdith relinquish the acting rank of Lieut.-Colonel on reposting.

Major G. W. G. Hughes, D.S.O., retains the acting rank of Lieut.-Colonel whilst in command of a casualty clearing station.

Captains to be acting Lieut.-Colonels whilst in command of field ambulances, August 15th, 1915: G. H. Stevenson, P. S. Tomlinson, B. Johnson (substituted for notification in the *London Gazette* of October 13th, 1916).

To be acting Lieut.-Colonels whilst in command of a medical unit: Major W. C. Croly, Captain L. F. K. Wav.

Temporary Major C. J. Caddick and temporary Captains P. H. Gillies and J. J. Dunne relinquish their commissions on taking up duty under the Ministry of National Service.

Captain W. Robertson, R.A.M.C.(T.F.), to be temporary Major whilst in charge of Robroydon Hospital, Glasgow.

Captain F. A. Hepworth, R.A.M.C.(T.F.), to be temporary Major whilst serving with the County of Middlesex War Hospital.

Temporary Captain F. F. Muecke to be temporary Major (without increased emoluments).

Temporary Captain W. F. G. Scott to take rank and precedence as temporary Captain in the Corps and in the army as if his appointment to that rank bore date April 27th, 1917.

Granted honorary rank of Captain: A. A. Hindson and M. McNiff, late temporary Captains.

Temporary Lieutenants relinquish their commissions on appointment under the Ministry of Pensions: H. E. Davison, C. R. A. Thacker, H. A. Whitcombe.

Officers relinquish their commissions: Temporary Major G. H. Clark, temporary honorary Major H. Fritchard (on ceasing to be employed with No. 1 British Red Cross Hospital), Captains O. K. Hartridge and H. P. Cuthbert (and are granted the honorary rank of Captain), temporary Captains G. W. Armstrong and R. V. Steele (on account of ill health contracted on active service), A. D. Morris, P. G. M. Simpson, J. S. Taylor, J. E. Manlove, S. Jackson, G. E. Dodson, T. J. Taunton, L. A. Drake, E. A. Pearson, J. McMurran (on account of ill health contracted on active service and is granted the honorary rank of Captain), temporary Lieutenants A. Kirkhope, A. R. H. Harrison, P. M. Tolmie, C. L. Meyers, P. Quinn, E. E. Owens, E. C. Burnett, J. Blakeley, G. Gordon, F. E. Mathews, T. Archdeacon, H. B. Watson, M. C. Irwin, J. C. Pearce, C. J. G. Bonrhill.

Temporary Lieutenants to be temporary Captains: M. C. Gardner, S. J. McC. Bradshaw, W. E. Barrett, A. K. S. Wyborn, J. M. N. S. Bickerton, J. L. H. Paterson, D. Mitchell, J. Cameron, M. J. Ryan, P. O. W. Browne, G. P. Jones, H. W. Catto, J. Freeman, G. H. Joseph, J. E. Ratcliffe, D. C. Ogilvie, W. F. Box, N. S. Sherrard, H. Archer, J. R. Dick, H. E. Batten, J. L. D. Lewis, M. Liddell, R. McCaffrey, C. G. Lees, J. J. Reidy, H. B. Emerson, R. M. Liddell, R. McCaffrey, J. C. Jones, C. J. Marshall, R. S. Drew, D. F. Brown, H. N. Wright, J. F. Allen, V. J. Bonavia, E. M. Brown, H. H. Bywater, F. Humphreys, A. H. H. Barclay, P. W. L. Andrew, J. P. Grainger, L. C. Rorke, J. Holland, C. H. Bannerman, N. B. Stewart, J. T. Titterton, P. L. Hope, A. R. H. Geyer, W. L. Nicholson, R. C. Hutchinson, E. G. Bark, C. H. Medlock, A. E. A. Carver, R. Montgomery, J. C. Mead.

Second Lieutenant F. J. Power, from Unattached List T.F. to be temporary Lieutenant (substituted for the notification in the *London Gazette* of December 7th, 1917).

C. H. G. Gostwyck, late temporary Lieutenant, is granted the honorary rank of Lieutenant.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Brevet Major J. N. McLaughlin relinquishes his commission on account of ill health contracted on active service, and is granted the honorary rank of Major.

Captains J. H. Ward and W. McK. H. McCullagh, D.S.O., M.C., to be acting Lieut.-Colonels whilst in command of a medical unit.

To be Lieutenants: J. R. Cox and M. W. Giffen, from University of London Contingent, O.T.C.; A. E. M. Fuoss.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Medical Commissioner: Surgeon-General G. C. Jones, C.M.G., C.A.M.C. relinquishes his appointment.

Assistant Directors of Medical Services: Temporary Colonels H. A. Chisholm, D.S.O., and E. C. Hart, C.M.G.

Temporary Captain W. J. MacKenzie, C.A.M.C., relinquishes his appointment as Deputy Assistant Director of Medical Services.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major (acting Lieut.-Colonel) A. Croll relinquishes the acting rank of Lieut.-Colonel on ceasing to be specially employed.

Temporary Lieutenants to be temporary Captains: E. M. Blair, E. Craig, A. W. Brodie, H. P. Swancesky, T. E. Pevez, A. S. Lamb, L. M. Matthews, C. H. P. G. Benning, F. N. K. Falls, B. Cabanna, H. L. Warshawsky, A. P. Murtagh, W. F. McIsaac, J. D. Moore.

SOUTH AFRICAN MEDICAL CORPS.

Temporary Major (acting Lieut.-Colonel) R. N. Pringle, D.S.O., relinquishes the acting rank of Lieut.-Colonel on ceasing to command a unit.

Temporary Major C. M. Murray to be acting Lieut.-Colonel whilst commanding a unit.

P. A. Smuts to be temporary Lieutenant.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

Lieut.-Colonel (temporary Colonel) W. M. Roccoft, C.M.G., relinquishes his commission on account of ill health, and is granted the honorary rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

Major A. B. S. Stewart to be Lieut.-Colonel.

To be acting Lieut.-Colonels whilst commanding a field ambulance: Major G. W. Miller, D.S.O., Captain V. F. Munro, M.C.

Captain H. Pinto-Leite is restored to the establishment on vacating appointment as Deputy Assistant Director of Medical Services.

Captain G. A. Auden is seconded whilst holding an appointment as Deputy Assistant Director of Medical Services.

Captain W. Robertson is seconded whilst holding a temporary commission in the R.A.M.C.

Captain J. S. Manford, M.B., resigns his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain.

Captains P. J. McGinn and J. Davidson relinquish their commissions on account of ill health, and are granted the honorary rank of Captain.

Lieutenant J. D. Davidson to be Captain.

TERRITORIAL FORCE RESERVE.

Major E. Gray from R.A.M.C. to be Major.

Captain E. J. C. Groves resigns his commission on account of ill health, and is granted the honorary rank of Captain.

To be Captains: Captains J. P. Elias and G. L. Eastes, from a Sanitary Company, and G. L. Travis and J. McGregor, from R.A.M.C.

The announcement regarding Captain L. C. V. Hardwicke, which appeared in the *London Gazette* of November 14th, 1917, is cancelled.

VOLUNTEER FORCE.

Cumberland Volunteer Regiment.—Medical Officer and temporary Captain J. H. Dickson resigns his commission.

Devonshire Medical Volunteer Corps.—R. H. Grimby to be temporary Major. G. H. Jobson and J. R. Hatfield to be temporary Captains.

Durham Medical Volunteer Corps.—D. McF. Millar to be temporary Major. A. Dougall to be temporary Captain.

Essex Motor Volunteer Corps.—Captain H. R. Brown (late R.A.M.C.) to be temporary Lieutenant.

Gloucestershire Volunteer Regiment, 3rd Battalion.—Medical Officer and temporary Lieutenant T. John to be temporary Captain.

City of Glasgow Medical Volunteer Corps.—Captain J. Lindsay (late R.A.M.C.) to be temporary Major. Lieutenant S. J. Moore (late R.A.M.C.) to be temporary Captain.

Lancashire Volunteer Regiment, 1/11th Battalion.—Medical Officer and temporary Lieutenant J. M. Ferguson to be temporary Captain.

County of London Volunteer Regiment, 14th Battalion.—F. J. Fielder to be Medical Officer and temporary Lieutenant.

Kent Medical Volunteer Corps.—Captain G. R. F. Stilwell (late R.A.M.C.) to be Adjutant and temporary Captain.

Montgomeryshire Volunteer Regiment.—W. R. Williams to be Medical Officer with the temporary rank of Captain.

Northumberland Medical Volunteer Corps.—A. Payne to be temporary Lieutenant.

Somersetshire Volunteer Regiment, 3rd Battalion.—Medical Officer and temporary Captain A. D. Willcocks resigns his commission on account of ill health.

Survey Volunteer Regiment.—C. H. McComas to be Medical Officer and temporary Lieutenant.

West Riding Volunteer Regiment, 19th Battalion.—T. A. Caley to be Medical Officer and temporary Lieutenant.

APPOINTMENTS.

HOMER, C., L.R.C.P. and S. Edin., L.R.F.P.S.Glas., certifying Factory Surgeon for the Shilton District, co. Warwick.

SMITH, H. Elkington, M.D., Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 9 and to be attached more particularly to the Stockport, Ashton-under-Lyne, and Stalybridge and Hyde County Courts.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

CLAY.—On March 6th, at the Manor House, Fovant, Wilts, the wife of Richard C. C. Clay, M.R.C.S., L.R.C.P., of a daughter.

DIARY FOR THE WEEK.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.—Tuesday and Thursday, 5 p.m., Lumsden Lectures by Dr. G. F. Still: Cholera Disease.

ROYAL SOCIETY OF MEDICINE.—Special General Meeting of Fellows, Tuesday, 5 p.m. Section of History of Medicine: Wednesday, 4.30 p.m., exhibition of books, pictures, etc.; 5 p.m., Dr. Charles Singer: Military Surgery from the Invention of Gunpowder to the 17th Century. Section of Dermatology: Thursday, 5 p.m., Cases. Section of Study of Disease in Children: Friday, 4.30 p.m., Cases; Discussion on the Visceral Features of Purpura, to be opened by Sir William Osler.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
MARCH.	
20 Wed.	London: Central Medical War Committee, 11 a.m.
APRIL.	
11 Thur.	CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 23RD, 1918.

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British Medical Association.

CURRENT NOTES.

Conference of Local Medical and Panel Committees.

A SPECIAL conference of representatives of Local Medical and Panel Committees will be held under the auspices of the British Medical Association at the Connaught Rooms, Great Queen Street, London, on Thursday, April 11th, at 10 a.m. The main purpose of the conference is to consider the position with regard to the demand for an increased capitation fee and the unfavourable reply of the Chairman of the National Health Insurance Joint Committee thereto. At the request of the Insurance Acts Committee the Commissioners are issuing to every insurance practitioner a document containing the correspondence on this subject, together with Sir Edwin Cornwall's reply on the whole matter. The Insurance Acts Committee has issued to every insurance practitioner a copy of the statement which the Committee has prepared in reply. In this way the whole of the case is now in the hands not only of Local Medical and Panel Committees but of their constituents throughout the country. The conference will also consider the action taken by the Insurance Acts Committee since October last in respect of the demand for an increased mileage allowance, and of the organization of the profession with a view to collective bargaining, and it is expected that a report will be received from the president of the Institute of Actuaries on his investigation into the constitution of the central pool.

Inquiries, Discreet and Indiscreet.

The Standing Ethical Subcommittee of the Association on March 12th considered paragraph 4 of a circular issued by the Local Government Board on February 22nd, which directs attention to the importance of Wassermann tests for patients who have had miscarriages, and of examinations of material from cases of stillbirth. The circular goes on to say:

It is also desirable that when these cases are notified the Medical Officer of Health should make discreet inquiries into the circumstances, in consultation with the District Medical Officer of Health if the notification is received by him. The inquiries should be made through the medical practitioner if one was in attendance at the time of birth.

The Subcommittee was of opinion that medical practitioners in attendance on such cases are debarred by considerations of professional secrecy from disclosing to the Medical Officer of Health or any other person information which they have acquired in the course of their professional attendance, and that it would be wrong, both legally and ethically, to furnish the information which the Local Government Board has suggested Medical Officers of Health should endeavour to obtain.

Travelling Expenses of Members of Panel Committees.

In the SUPPLEMENT of March 9th it was noted that provision is made in the National Health Insurance Act, 1918, for the payment out of the statutory levy of the travelling expenses (including subsistence) of members of Panel Committees attending meetings of such committees, or any subcommittees thereof. In repeating this information in a current note in last week's SUPPLEMENT, it should have been stated again that the Act does not come into general operation until July 1st, 1918, at the earliest.

Central Surgeries.

The Central Medical War Committee, on March 20th, considered a report on the results of an inquiry into existing central surgery systems in various parts of the country. It was found that central surgeries had been set up as an emergency measure in six localities. The Local Medical War Committee in each case was asked to reply to a set of questions designed to furnish a common basis for comparing the essential points in each scheme in respect of (1) origin and scope, (2) organization, (3) financial arrangements, and (4) results of experience. Most of the schemes deal with panel patients only, but in two areas private patients are included. A central consulting room, with the necessary accommodation and clerical staff, is the normal arrangement. Attendance at the surgery is by rota, and varies according to the number of doctors doing the work and the amount of work required. Dispensing and midwifery are not normally undertaken. Free choice of doctor exists so far as is practicable, but continuity of treatment presents difficulties. The financial arrangements vary much, but generally speaking, after deductions for absentees and for working expenses, the receipts are divided among the attending doctors in proportion to the work done. The verdict of experience as to economy of time is favourable. Where private patients as well as panel patients are dealt with a far higher proportion of the latter make use of the central rooms, and it appears that as an expedient for keeping private practices intact the scheme fails, but, on the whole, satisfaction seems to have been general so far as panel practice is concerned. Generally speaking, the measure of success is the measure of co-operation between patients, local authorities, and doctors. This is easier to obtain in panel than in private practice, although questions of class distinction do not seem to have been raised in any of the six areas. The report was mainly discussed from the point of view of economy in medical man power. It was agreed that pre-existing local harmony was essential for the success of any such scheme.

War Emergency Fund of the Royal Medical Benevolent Fund.

The following further subscriptions have been received from Divisions of the Association, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL.

	£	s.	d.
Warrington Division, per Dr. T. A. Murray, Hon. Sec. ...	16	16	0
Rendall Division, per Dr. D. Riddell, Hon. Sec. ...	30	0	0
Torquay Division, per Dr. G. Young Eales, Hon. Sec. ...	7	17	0
Leeds Division, per Dr. James Allan, Hon. Sec. (two instalments)	28	7	0
Southport Division, per Dr. Robert Harris, Hon. Sec. (two instalments)	44	2	0
Newcastle-on-Tyne Division, per Dr. A. Hudson, Hon. Sec. (two instalments)	148	1	0

Meetings of Branches and Divisions.

LANCASHIRE AND CHESHIRE BRANCH: ASHTON-UNDER-LYNE DIVISION.

At the annual meeting held on February 22nd the following office-bearers were appointed:

Chairman: R. Bleasdale. *Secretary:* M. Mamourian. *Representative:* S. Crawshaw. *Committee:* The Chairman, the Secretary, and Drs. Bowman, Morison, Cameron, Elkington Smith, and McGill.

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Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty:—
Temporary Surgeons: J. M. Harrison to the *Hindustan*; S. C. Shaw to the *Amethyst*.

ARMY MEDICAL SERVICE.

Surgeon-General R. Porter, C.B., is placed on retired pay (substituted for notification in the *London Gazette* of February 1st, 1918).

Colonel E. G. Browne, C.B., C.M.G., to be temporary Major-General (substituted for notification in the *London Gazette* of February 28th, 1918).

Lieut.-Colonels from R.A.M.C. to be Colonels: T. H. M. Clarke, C.M.G., D.S.O., (temporary Colonel) S. L. Cummins, C.M.G., (temporary Colonel) J. Poe, D.S.O.

ROYAL ARMY MEDICAL CORPS.

Majors to be Lieut.-Colonels: J. T. Johnson, D.S.O., (temporary Lieut.-Colonel) W. R. P. Goodwin, D.S.O., (acting Lieut.-Colonel) W. L. Steele, (acting Lieut.-Colonel) W. Riech, C.M.G.

Major E. T. Potts, D.S.O., to be temporary Lieut.-Colonel whilst employed as Assistant Director of Medical Services of an Army, November 4th, 1917 (substituted for notification in the *London Gazette* of December 14th, 1917).

Major H. H. J. Fawcett, D.S.O., retains the acting rank of Lieut.-Colonel whilst in command of a casualty clearing station.

To be acting Lieut.-Colonels whilst in command of medical units: Majors C. Bramhall, J. M. M. Crawford, and Captain R. M. Davies.

Officers relinquish their commissions:—Temporary Captains: R. M. Fraser, W. G. Jones, A. H. Parkinson, H. W. Wilson, J. G. Leslie, E. Rommel, C. G. Todd (on account of ill health contracted on active service), W. J. Hogg (on taking up duty under Ministry of National Service); temporary Lieutenant F. R. Smyth.

Late temporary Captains granted the honorary rank of Captain: W. G. Porter, E. C. E. Van-Eyck.

W. F. Thompson to be temporary Captain whilst employed at County of Middlesex War Hospital, December 1st, 1917 (substituted for notification in the *London Gazette* of February 12th, 1918).

INDIAN MEDICAL SERVICE.

Majors to be Lieut.-Colonels, July 27th, 1917: T. H. Delany, J. W. F. Rait, E. J. O'Meara, G. Tate, R. F. Baird, A. T. Gage, G. McPherson, S. Hunt, A. G. Sargent, de V. Condon, H. A. J. Gidney, W. Lethbridge.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

To be Lieutenants: G. E. MacAlevey, I. H. Zortman, C. S. Parker, and H. E. Rhodes, from University of London Contingent, O.T.C.; R. B. Britton, from Bristol University Contingent, O.T.C.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Assistant Director of Medical Services: Temporary Colonel R. M. Simpson, C.A.M.C., vice temporary Colonel H. M. Jacques, D.S.O., C.A.M.C.

CANADIAN ARMY MEDICAL CORPS.

Temporary Majors to be temporary Lieut.-Colonels: (Acting Lieut.-Colonel) A. S. I. Donaldson; P. G. Brown.

Temporary Major C. F. L. Hazzard, from Canadian Light Horse, to be temporary Major (substituted for *London Gazette* notification of 1 December 14th, 1917, incorrectly describing name as C. F. C. Hazzard).

Temporary Captain (acting Major) T. H. Bell, M.C., to be temporary Major.

Temporary Major A. Sterling, from New Brunswick Regiment, to be temporary Captain, January 21st, 1918 (substituted for notification in the *London Gazette* of February 7th, incorrectly describing name as A. Stirling).

Temporary Captain W. Mason is dismissed the service by sentence of a general court-martial, January 24th, 1918.

Temporary Captain A. B. Chapman, M.C., to be temporary Major, December 6th, 1917 (substituted for notification in the *London Gazette* of February 12th, 1917, incorrectly describing promotion as acting Major and specifying date as December 22nd, 1917).

Temporary Captain B. E. Kelly to be temporary Major, December 6th, 1917 (substituted for *London Gazette* notification of January 28th, 1918, incorrectly describing promotion as acting Major, and specifying date as December 26th, 1917).

Temporary Captain W. T. Ewing to be acting Major.

To be temporary Majors: Temporary Captains R. J. Gardner, W. H. Scott, M.C., G. W. Hall, H. W. McGill, and (acting Major) R. St. J. MacDonald.

Temporary Captain W. B. MacDermott ceases to be seconded.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonels (temporary Colonels) A. R. Tweedie and D. Smart relinquish their temporary rank on vacating appointment as Assistant Directors of Medical Services, and are restored to the establishment.

Lieut.-Colonel (temporary Colonel) H. G. Falkner relinquishes his temporary rank on vacating appointment as Assistant Director of Medical Services.

Major (temporary Lieut.-Colonel) E. C. Montgomery-Smith, D.S.O., is seconded whilst holding an appointment as Assistant Director of Medical Services, and to be temporary Colonel whilst so employed.

Majors (acting Lieut.-Colonels) R. Stirling and H. E. Corbin relinquish their acting rank on ceasing to command a casualty clearing station and a field ambulance respectively.

Major R. T. Hughes and Captain H. F. Wilkin to be acting Lieut.-Colonels whilst commanding a casualty clearing station and a field ambulance respectively.

Major J. A. Masters is retired under the provisions of para. 116 T.F. Regulations, and is granted permission to retain his rank and to wear the prescribed uniform.

Captain (acting Lieut.-Colonel) O. L. Appl too reverts to the acting rank of Major with pay and allowances of a Captain, June 6th, 1917 (substituted for notification in the *London Gazette* of August 3rd, 1917).

Captain (temporary Major) A. Mowat relinquishes his temporary rank on an alteration in posting.

Captain P. G. Phillips relinquishes his commission on account of ill health, and is granted the honorary rank of Captain, December 7th, 1917 (substituted for notification which appeared in the *London Gazette* of December 6th, 1917).

Captain J. A. Nixon to remain seconded whilst holding a temporary commission in the A.M.S.

Captain G. B. Robinson to be Major.

Captains S. F. St. J. Steadman and J. M. McQueen are seconded. The announcement regarding Captain J. M. McQueen which appeared in the *London Gazette* of February 8th, 1918, is cancelled.

TERRITORIAL FORCE RESERVE.

To be Captain: Captain J. Aitken, from R.A.M.C.

VOLUNTEER FORCE.

County of London Volunteer Regiment, 15th Battalion.—J. Norton to be Medical Officer and temporary Lieutenant.

Rutland Volunteer Regiment, 1st Battalion.—J. S. P. Dickey to be Medical Officer and temporary Lieutenant.

East Yorkshire Medical Volunteer Corps.—J. Whiteside to be temporary Lieutenant.

East Yorkshire Regiment, 1st Battalion.—H. Wales to be Medical Officer and temporary Lieutenant.

Surrey Medical Volunteer Corps.—Medical Officer and temporary Captain W. Gripper, from 9th Battalion Surrey Volunteer Regiment, to be temporary Captain.

Northumberland Volunteer Regiment, 4th Battalion.—J. G. Miller (late Captain R.A.M.C., T.F.) to be Medical Officer and temporary Captain.

EXCHANGE.

M.O. to battalion in France wishes exchange with M.O. or Officer in hospital in Lincoln or Lincolnshire, or S. Yorks.—Address No. 1100, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.2

APPOINTMENTS.

DICK, A., M.B., Ch.B., Glas., Medical Officer of Health for Birstall, vice R. A. Forsyth, M.D., deceased.

MCCARTHY, E., L.R.C.P. and S.I., Assistant Medical Superintendent to the Waterford District Asylum.

MORRIS, C. E., M.R.C.S., L.R.C.P., Medical Officer of Health, Holywell Urban District Council.

REDFELL, Miss Violet I., M.R.C.S., L.R.C.P., Assistant Resident Medical Officer to Queen Charlotte's Living-in Hospital.

BIRTHS, MARRIAGES, AND DEATHS.

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BIRTH.

DICKSON.—On March 18th, 1918 at 23, Alexandra Road, Gloucester the wife of W. Arnold Dickson, M.D., F.R.C.S., Edinburgh, a daughter.

MARRIAGES.

GENGE-ANDREWS-FINCHAM.—On February 23rd, by licence, George E. Genge-Andrews, M.B., B.S., to Lesby, younger daughter of W. Fincham, Esq., of the Beeches, Chelmsford.

OPIE-COLLETT-MASON.—On January 26th, at the Citadel Garrison Chapel, Cairo, Egypt, by the Rev. Baghot de la Bere, T.C.F., Ph.D., Adams Opie, Captain Royal Army Medical Corps, elder son of Ernest Opie, J.P., and the late Mrs. Opie of Willand, Culmpton, Devon, to Margaret Marion Collett, eldest daughter of James C. Collett-Mason, J.P., and Mrs. Collett-Mason of Newport Hall, Eardisley, Herefordshire.

QUICK-HELLINS.—On March 16th, at Holy Trinity, Beckenham, by the Rev. W. Yorke Batley, M.C., Captain Hamilton E. Quick, M.B., B.S., F.R.C.S., R.A.M.C.(T.), son of Mr. and Mrs. C. H. Quick, of Swansea, to Adelaide Ruth, second daughter of H. H. Hellins, M.Inst.C.E., and of Mrs. Hellins of Sydenham.

DEATHS.

DAVIDSON.—On March 17th, at 113 Brigstock Road, Thornton Heath, from pneumonia, James Gellie Davidson, M.B., Ch.B., age 39.

LEWIS.—On March 10th, at 255, Anlaby Road, Hull, after a short illness, Sybil Louie Lewis, L.R.C.P. and S.Edin., L.F.P.S.Glas.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1.—8.30 p.m., Colonel G. E. Gask, A.M.S., D.S.O.: Surgery of Penetrating Wounds of the Thorax.

ROYAL SOCIETY OF MEDICINE.—Section of Medicine: Tuesday, 5 p.m., Demonstration by Sir Bertrand Dawson, G.C.V.O.: Cultures of *Spirochaeta icterohaemorrhagiae* and slides.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

MARCH.

26 Tues. London: Propaganda Subcommittee, 2.30 p.m.

APRIL.

3 Wed. London: Medico-Political Committee.
11 Thur. CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m.

SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MARCH 30TH, 1918.

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Meetings of Branches and Divisions.

GLASGOW AND WEST OF SCOTLAND BRANCH: GLASGOW
EASTERN DIVISION.

At the annual meeting on February 22nd the following office-bearers were appointed:

Chairman: Dr. Syson. *Vice-Chairman:* Dr. J. M. Glaister.
Interim Honorary Secretary and Treasurer and Representative to Representative Meetings: Dr. J. Wishart Kerr. *Deputy Representative:* Dr. Syson. *Representatives on Branch Council:* The Chairman, Representative and Secretary.

It was resolved to ask Sir Auckland Geddes for information as to appointments on the National Service Boards in the city, and to suggest that the older members of the profession should have preference.

General satisfaction was expressed at the action of the Association which had resulted in raising the standard of professional charges. The Secretary was instructed to reissue the cards with regard to giving early notice of professional visits, accompanied by a circular letter asking members of the profession to adhere to the time laid down.

A meeting of the Division was held on March 12th, when Dr. J. S. Syson presided. The SECRETARY read a letter from Dr. Norman Walker, Commissioner of the Medical Service for Scotland, in reply to a communication authorized by the Division, on the subject of the National Service Boards. Dr. Walker's letter was not considered a sufficient answer, and Dr. THOMAS RUSSELL moved that the Division Secretary be instructed to write again, pointing out that men of military age are employed on the National Service Boards, that their places should be taken by men of non-military age, and further, if more men are required to man the Boards, a further appeal should be made generally to the profession. Dr. GLAISTER seconded and the motion was unanimously carried. The subject of fees for notifications of infectious diseases was again brought up. After discussion, it was agreed that the matter should be brought up at the next Branch Council meeting by the representatives of the Division.

At an ordinary meeting of the South-Eastern of Ireland Branch at Kilkenny, on March 6th, when Dr. James occupied the chair, a resolution was unanimously adopted, on the motion of Dr. Grace, seconded by Dr. Stephenson, conveying to the relatives of the late Dr. Laffan, Cashel, deep sympathy in the great loss they had sustained.

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1918.

The Annual Representative Meeting of the Association, 1918, will be held in London on Thursday, July 25th, 1918, and following day(s) as may be required.

Notices of Motion.

Notices of Motion from Divisions and Branches for the consideration of the Annual Representative Meeting, proposing to make any addition to or any amendment, alteration, or repeal of any Regulation or By-law, or to make any new Regulation or By-law, or proposing material alteration of the policy of the Association in matters relating to the honour and interests of the medical profession or of the Association (Article 30,

By-law 40), must be published in the **BRITISH MEDICAL JOURNAL** not later than the issue of May 25th, and for this purpose should be received by me not later than May 16th, 1918.

By order,

ALFRED COX,

Medical Secretary.

January 28th, 1918.

INSURANCE.

NATIONAL INSURANCE, 1914-17. SCOTLAND.

THE section of the Report on the Administration of National Health Insurance, 1914-1917, which deals with Scotland, states that at the commencement of the war the number of insured persons in Scotland was 1,542,284, of whom 1,520,000 were members of approved societies. The Commissioners express the opinion that the panel practice in Scotland had as early as July, 1914, "reached a fairly high standard as compared with the best traditions of private practice." The difficulty in the larger towns in maintaining a satisfactory medical service owing to the number of doctors called to the forces had been met in some cases by the provision of medical bureaux or consulting rooms where the panel doctors attended on a rota; this is said to effect a great saving of their time and energy. The system was started in Dundee, and at a later date Aberdeen and Edinburgh followed suit, but less success has attended the system in Glasgow. The total number of panel doctors at the beginning of the war was 1,754; it had shrunk to 1,229 in 1917, and this, it is stated, left only just about sufficient to meet average requirements with only a very narrow margin for emergencies. To provide medical benefit for a large munition works in the south of Scotland, special arrangements were made in conjunction with the Minister of Munitions on a more comprehensive scale than the National Insurance alone provides, and assistance was also given by the Board of Trade in providing medical attendance for lumbermen.

As in the case of England the expenditure of approved societies for sickness and maternity benefits has progressively decreased since 1914, while disablement benefit has increased over five-fold. The value of the maternity hospitals in Scotland has been recognized by approved societies; all these hospitals have agreed to charge not more than 10s. for intern and 7s. 6d. for extern cases. Without affecting a woman's right to free choice of doctor or midwife, societies representing over 400,000 members have decided to enter into agreements with some maternity hospital.

The total receipts of the Insurance Fund for Scotland for 1916 were £5,604,534, including a balance from 1915 of £3,130,649, Exchequer grants £441,302, and sale of insurance stamps £1,820,958. The payments include £991,977 to societies for benefits and administration, and £636,078 to Insurance Committees for medical and sanatorium benefits and administration; the sum of £3,892,292 was handed over to the National Debt Commissioners for temporary investment. The payments made out of the mileage grant in 1916 amounted to £17,312 for the Lowlands, mileage for the Highlands being now dealt with by the Highlands and Islands Medical Service Board from a grant of £10,000.

The inflation of the index registers was a source of great difficulty, and as it became clear that societies and

Insurance Committees were unable to deal properly with the matter, the Commission undertook the task, but is finding that even with the assistance of a clearing house system the effects of war conditions make proper revision of the registers extremely difficult. It appears from a table showing the number of surgery attendances and visits per 100 insured persons in every area that, taking the country as a whole, surgery attendances averaged 186 and visits 119 per 100 insured persons in 1915, both being lower than in 1914. In the burghs the surgery attendances averaged 210 and visits 86, while in the counties the surgery attendances averaged 153 and visits 166. Thus the county practitioners not only gave a greater total number of consultations but the visits, which take up much more time, exceeded the surgery attendances. The total cost of drugs and appliances decreased from £102,516 in 1914 to £80,451 in 1916. This decrease, in spite of the rise in prices, is attributed to the reports of the checking bureaux calling attention to irregularities and excessive prescribing. The average cost per prescription in 1916 was 9.95d. as compared with 9.74d. in 1915.

As regards sanatorium benefit, the total number of beds available for tuberculosis in approved institutions was 2,507 in 1917, which is equivalent to one bed for 1,800 of population; there are 23 tuberculosis dispensaries. The number of insured persons and dependants that received treatment in 1916 was 3,193. The total income of the Insurance Committees for medical and sanatorium benefits and administration for 1915 was £682,521, as compared with £789,276 in 1914.

LOCAL MEDICAL AND PANEL COMMITTEES.

Bedfordshire.—At a meeting on January 29th it was agreed that panel doctors in the area are entitled to the special mileage grant for the following reasons: (1) the scattered population of the area and inaccessibility of many outlying and isolated cottages, and (2) the large number of patients living over three miles from the doctor's residence. It was considered that the simplest and fairest form of remuneration would be an addition to the capitation fee for all patients living over three miles from a doctor's house.

Derbyshire.—At a meeting on February 21st it was agreed that the extra mileage grant should be distributed by way of an increase proportionate to the amount of the ordinary grant, and that mileage for discharged sailors and soldiers should be included. It was resolved that the pamphlet from the London Panel Committee on the Association of Panel Committees should "lie on the table."

West Riding of Yorkshire.—At a meeting on February 1st the opinion was expressed that the mileage grant should be extended to cover the whole of the West Riding in all cases in which a patient lived more than three miles from the nearest panel doctor. It was decided to sign form M.19 issued by the British Medical Association, agreeing to abide by the Insurance Acts Committee in the scheme for collective bargaining.

Renfrewshire.—At a meeting of the Panel Committee on February 20th the sum of £1 ls. was subscribed towards the cost of the actuarial inquiry into the composition of the Central Medical Benefit Pool as an expression of confidence in the British Medical Association and appreciation of the labours of that body on behalf of panel practitioners. A letter from the London Panel Committee in favour of setting up a new medical council, to be consulted in connexion with service under the Insurance Acts or any other form of national medical service, was allowed to lie on the table.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty:—Temporary Surgeons: R. W. Brand to the *Crescent*, additional; H. C. Mano to Malta Hospital; J. Matheson to Portland Hospital.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers: B. M. Tankin to the *Hydra*; F. J. M. Larkine to the *Renard*. To be Surgeon Probationers: G. E. W. Felce, B. T. Richarda, E. Savage, J. P. T. Milla, L. M. Jennings, F. R. Oliver, G. S. Need, H. Holtby, E. S. Etheridge, B. M. G. Thomas, P. Conacand, F. C. Cazens.

ARMY MEDICAL SERVICE.

Major F. D. Boyd, C.M.G., R.A.M.C. (T.F.), to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

To be acting Lieut.-Colonels whilst in command of a medical unit: Major J. A. Turnbull, D.S.O., Captains A. N. R. McNeill, W. H. S. Burney.

Captain J. B. A. Wignmore, M.B., relinquishes the acting rank of Lieut.-Colonel and reverts to the acting rank of Major with pay and allowances of his substantive rank.

Captain W. B. Puxton, D.S.O., M.C., retains the acting rank of Lieut.-Colonel whilst in command of a convalescent dépôt.

The undermentioned having ceased to be employed with No. 83 (Dublin) General Hospital relinquish their temporary commissions: Lieut.-Colonel H. O. Drury; Major J. Lumsden; Captains J. W. Killen, C. M. Benson, S. H. Law.

Temporary Captains J. C. Pouoden and M. Bridgman to be temporary Majors (without increased emoluments) whilst specially employed.

Captain A. W. Byrne is placed on retired pay on account of ill health.

W. C. G. Ashdown to be temporary honorary Major.

H. W. Kaye, late temporary Captain, is granted the honorary rank of Captain.

Temporary Lieutenants to be temporary Captains: G. A. Wron, H. G. G. Jeffreys, E. H. K. Altonunao.

Officers relinquish their commissions: Temporary Major H. C. Barclay (and is granted the honorary rank of Major). Temporary Captains: O. E. Boyce, E. J. M. Watson, A. C. Tait, G. Mnir, H. T. Douglas, A. Pimm, H. McMillan, Donaldson (on account of ill health contracted on active service, and is granted the honorary rank of Captain). Temporary Lieutenants: W. B. M. Martin, K. O. Edwards.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

A. G. W. Compton, M.C., late Captain, is granted the honorary rank of Captain.

To be Lieutenants: W. L. Dandridge and A. S. Westmorland, from University of London Contingent O.T.O.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major G. Royce to be temporary Lieut.-Colonel.

Temporary Captain J. A. MacMillan to be temporary Major.

Temporary Major J. G. Hunt ceases to be seconded for duty with the Anglo-Russian Red Cross Hospital, Petrograd, Russia, without pay and allowances.

Temporary Major V. E. Henderson, from Central Ontario Regiment, to be temporary Captain.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel J. F. Dobson, from permanent personnel, to be Lieut.-Colonel, whose services will be available on mobilization.

Major (temporary Lieut.-Colonel) E. C. Montgomery-Smith, D.S.O., to be Lieut.-Colonel, November 1st, 1917.

To be acting Lieut.-Colonels whilst commanding a field ambulance: Captains (temporary Majors) H. S. Beadles and J. R. Pooler, Captain W. Brown.

Captain (acting Lieut.-Colonel) L. West relinquishes his acting rank on ceasing to command a field ambulance.

Captain F. A. Hepworth remains seconded whilst holding a temporary commission in the R.A.M.C.

Captain C. Rogers, M.C., relinquishes his commission on account of ill health and is granted the honorary rank of Captain.

Captain B. Stracey relinquishes his commission on account of ill health and is granted the honorary rank of Captain.

Lieutenant H. L. Farmer to be Captain.

TERRITORIAL FORCE RESERVE.

Major J. R. Benson from a field ambulance to be Major.

VOLUNTEER FORCE.

County of London Volunteer Regiment, 21st Battalion.—J. L. I. Moore to be Medical Officer and temporary Lieutenant.

Northern Counties Highland Volunteer Regiment, 11st Battalion.—Medical Officer and temporary Captain D. Manfadyen resigns his commission.

APPOINTMENTS.

DORSON, W. T., M.R.C.S., L.R.C.P., District Medical Officer of the Uxbridge Union.

PATERSON, C. E., M.D. Edin., Certifying Factory Surgeon for the Farnborough No. 1 District, co. Hants.

WEBB, R. E. S., M.R.C.S., L.R.C.P., First Assistant Medical Officer, Portsmouth Parish Infirmary, etc.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

STUART.—On March 23rd, at Leamore, Walsall, to Violet (Mollie), the wife of A. Murray Stuart, F.R.C.S. Edin.—a son.

MARRIAGES.

PEREZ-GRIFFIN.—On March 13th, at Walton-on-Thames, by the Rev. W. K. Buschell, Victor Perez, M.B., B.S. Lond., to Lilian Griffin, late Q.A.I.M.N.S.R.

TANNER-HUMPHRIES.—On March 14th, at St. Margaret's, Plumstead, by the Rev. A. Thomson, W. E. Tanner, M.S., F.R.C.S., temporary Captain R.A.M.C., to Marie Louise, daughter of Mr. and Mrs. Edwin Humphries, Plumstead Common.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
APRIL.	
2 Tues.	London: Medical Officers of Health Subcommittee, 3 p.m. London: Public Health Committee, 3.30 p.m.
3 Wed.	London: Medical-Political Committee, 2.0 p.m.
6 Sat.	Insurance Acts Subcommittee (Scotland), North British Station Hotel, Edinburgh, 2.30 p.m.
11 Thur.	CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m.
14 Wed.	London: Finance Committee, 2.30 p.m.
27 Wed.	London: Council Meeting.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 6TH, 1918.

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INSURANCE.

NATIONAL INSURANCE, 1914-17.

WALES.

A GREAT part of the report of the English Commission applies also to Wales, but there are certain distinctive features which deserve notice.

The provision of immediate treatment for tuberculous sailors and soldiers on their discharge from the forces is in some respects simplified in Wales by the agreements that have been entered into between the Insurance Committees and the Welsh National Memorial Association, which has arranged for interim treatment pending more permanent treatment under schemes of Insurance Committees.

The membership of approved societies at the beginning of the war was 712,458. The total income of the Welsh Insurance Fund for 1916 was £1,243,079 which included £843,291 from sale of stamps and £280,559 Exchequer grants, while the payments include £537,192 to societies for benefits and administration, £300,102 to Insurance Committees for medical and sanatorium benefits and administration and £210,000 handed over to the National Debt Commission for temporary investment. The amount distributed from the General Medical Benefit Fund for 1916 was £243,757 as compared with £288,068 in 1913, the amount having decreased every year. The panel doctors on January 1st, 1917, numbered 1,099 against 1,222 on January 1st, 1915; about 164 panel doctors were serving with the forces. In the same period the number of chemists supplying drugs fell from 691 to 652. There were 15 approved systems or institutions providing medical attendance to the insured with a total membership of 28,310, the two largest being the Ebbw Vale Workmen's Medical Society with 9,611 members, and the Tredegar Medical Aid Society, with 5,997 members. A special table is given showing the increase in deaths from tuberculosis in Wales and Monmouthshire. In 1913 there were 2,402 deaths from pulmonary tubercle and 788 from other forms of tuberculosis, while in 1916 the figures were 2,812 and 803 respectively; it is suggested that the increase is due partly to the stress and strain of war conditions and partly to the greater prevalence of influenza, pneumonia, and bronchitis in the later years.

INVESTIGATION OF EXCESSIVE PRESCRIBING.

THE English Insurance Commissioners have issued a Memorandum I.C./237 on the procedure of Panel Committees in connexion with the investigation of cases of excessive prescribing. It reminds Panel Committees that a mere examination of the statistics provided by the Pricing Bureaux does not discharge the duty of the committees, and that a surcharge based on figures alone cannot be justified. The function of the statistics is to enable committees to select cases which appear specially to require investigation; in such cases they must only be regarded as furnishing *prima facie* evidence of extravagance. Panel Committees should not confine their attention to cases which from the statistics appear to require investigation, but should make what are termed "dipping" examinations as a check upon the scripts of doctors whose average cost is not exceptionally high. Committees are also reminded that they are required to investigate "from time to time," and that they should not wait until statistics for the whole year are available.

STATISTICS OF MEDICAL BENEFIT.

SIR,—Now that we have completed five years under the National Health Insurance Act, it may be of interest to some of your readers if I send you some statistics of the working of the Act in my practice comprising over 1,000 insured members in a town district.

	1913.	1914.	1915.	1916.	1917.	Average 6 Years.
Number of index cards ...	1029	1167	1080	1110	1120	1101
Number who received attention	625	701	656	657	595	627
Total number of attendances and visits	5189	5550	4674	4675	4532	4940
Ratio of visits to attendances	$\frac{1}{10}$	$\frac{1}{10.5}$	$\frac{1}{9.75}$	$\frac{1}{9.64}$	$\frac{1}{11.6}$	$\frac{1}{10.29}$
Average number of attendances per patient	8.6	8.34	7.12	7.11	7.6	7.75
Average number of attendances per day		16	16.76	13.5	12.5	14.69
Remuneration per year ...	£386	£341	£364	£354	£352	£359
Remuneration per attendance	s. d. 1 5 $\frac{1}{2}$	s. d. 1 2 $\frac{1}{2}$	s. d. 1 6 $\frac{1}{2}$	s. d. 1 6	s. d. 1 6 $\frac{1}{2}$	s. d. 1 5

The number of certificates given was over 2,000 each year. If one-tenth of the attendances is put down as visits at 2s. 6d. each, the remainder works out at 1s. 4d. per attendance at the surgery.

I keep the index register as accurate as possible, but the payment is, on the average, £26 a year less than 7s. a head, which means, I suppose, that my list is "inflated" to the extent of seventy-five persons every year.

The attendances at the surgery have been decidedly less since the introduction of the pharmacopoeia for Kent, the use of which undoubtedly saves the time and worry of both doctor and chemist, and incidentally the drug bill.—I am, etc.,

CHARLES FIRTH, M.D.Lond., F.R.C.S.Eng.

Gravesend, March 29th.

A contribution of £10 10s. has been received by the Insurance Acts Committee from the Devonshire Panel Committee towards the costs of the Central Pool Inquiry.

LOCAL MEDICAL AND PANEL COMMITTEES.

Birmingham.—At a meeting of the Panel Committee on March 6th the memorandum issued by the Association of Panel Committees was considered. It was decided that no advantage would be gained by joining such an association. It was decided to appeal to all practitioners on the Birmingham Panel to support the War Emergency Fund of the Royal Medical Benevolent Fund.

East Sussex.—At a meeting on February 12th it was decided to advise practitioners in East Sussex, in view of the extra cost of living and working expenses, to make a general increase of 25 per cent. in their charges. In regard to the extra mileage grant, it was decided that the basis of payment ought to be for each patient two miles or more from the doctor's residence an extra annual payment of 3s. per head on a capitation basis, and a proportionate increase where payment is made on an attendance basis. A communication on the aims of the Association of Panel Committees was directed to lie on the table.

Staffordshire.—At a meeting on January 29th it was resolved to make a contribution of 50 guineas towards the expenses of the Central Pool Inquiry as a mark of appreciation of the work of the Insurance Acts Committee. It was resolved to ask the Commissioners for extra mileage for all practitioners who have insured persons residing more than three miles from the nearest doctor, at the rate of 1s. per annum per mile or part thereof over three miles.

BRITISH MEDICAL JOURNAL.

LONDON; SATURDAY, APRIL 13TH, 1912.

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British Medical Association.

CURRENT NOTES.

Promotion and Pay of Territorial and Special Reserve Medical Officers.

The Naval and Military Committee of the British Medical Association at its last meeting considered the second report of the Departmental Committee on Promotion of Officers in the Special Reserve, New Armies, and Territorial Forces, which dealt with the promotion and pay of officers of the R.A.M.C. Special Reserve and Territorial Forces. The recommendations of the Departmental Committee were printed in the JOURNAL of February 2nd, p. 164. The recommendation not accepted by the Government was that "officers of the R.A.M.C. Territorial Force and Special Reserve who joined before the war should be put on a level with temporarily commissioned contract officers as regards pay, allowances, and gratuities where they would gain thereby." The Naval and Military Committee resolved to recommend to the Council of the Association that, in view of the Government having negatived the first recommendation of the Departmental Committee, steps be taken to urge the Government to equalize the present discrepancy between the remuneration of the junior officers of the R.A.M.C. (T.F.) and that of temporary commissioned officers by increasing the gratuity to which junior officers of the R.A.M.C. (T.F.) are entitled upon demobilization by such amount as may be necessary to make the total remuneration received by such officers for the period of their mobilized service equal to the total remuneration received by a temporary officer of the R.A.M.C. for a similar period of service. The Naval and Military Committee has also prepared a memorandum examining in detail the second report of the Departmental Committee. It is noted that this report, though bearing the date September 1st, 1917, was not published until January 30th, 1918.

The Labour Party and a State Medical Service.

Representatives of the Association met the Executive Committee of the Labour Party on April 19th and discussed the question of a state medical service. It was ascertained that the Labour Party was not pledged to any definite scheme, but was anxious to discover the best means for securing that the highest medical skill should be available to the poorest members of the community under any development of the medical services of the country brought about under a Ministry of Health. The members of the Executive Committee expressed themselves as anxious to secure a strong medical advisory committee, which they believed would be of the greatest assistance in ascertaining the best system for securing the object they had in view. They had not yet set up such a committee, but they proposed to do so, and would welcome representatives nominated by the British Medical Association so long as such representatives were at least not out of sympathy with the views of the Labour Party.

Soldiers on Furlough Suffering from Venereal Disease.

A private medical practitioner who attended for venereal disease a soldier on furlough (not within reach of a military hospital) on submitting his account therefor on Army Form O. 1667 to the local military medical authority was

informed that, in view of the nature of the disease, the patient himself should be held responsible for payment. As the result of representations by the British Medical Association the War Office, after thanking the Association for bringing the case to its notice, intimated that the refusal to pay the account in question was due to error, and that instructions had been given for its settlement.

War Emergency Fund of the Royal Medical Benevolent Fund.

The following further subscriptions have been received from Divisions of the British Medical Association in response to the recent appeal, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL.

South Essex Division, per Dr. J. F. Walker, Hon. Sec. 2 s 4	
(Three instalments)	152 17 0
Nottingham Division and Medical-Chirurgical Society jointly, per Drs. A. Polson and H. E. Tawes, Hon. Secs.	250 0 0
Dudley Division, per Dr. L. A. Taylor, Hon. Sec.	4 4 0

Cost of Central Pool Inquiry.

The following amounts have been received towards the cost of the inquiry into the Central Pool undertaken by the Insurance Acts Committee:

Oxford Local Medical and Panel Committee	2 s 4
Stoke of Peterborough Local Medical and Panel Committee	3 3 0
Warwickshire Local Medical and Panel Committee	1 1 0
	5 8 0

Association Notices.

MEETING OF COUNCIL.

The next Meeting of Council will be held on Wednesday, April 24th, in the Council Room, 422, Strand, London, W.C.2.—By order,

GUY ELLISTON,

April 11th, 1912. Financial Secretary and Business Manager.

INSURANCE.

INSURANCE COMMITTEES.

County of London.—At the meeting of the London Insurance Committee on April 4th it was stated that on April 1st the number of soldiers receiving sanatorium benefit in the Committee's institutions was 190, and the number on the waiting list 199, not including advanced cases. The number of male civilians in institutions was 206, and on the waiting list 157, and the number of women in institutions was 65, and on the waiting list 74. The chairman of the Sanatorium Benefit Subcommittee expressed himself as not very hopeful of any immediate result of the negotiations which are proceeding with the London County Council with regard to the framing of a comprehensive scheme for the prevention and treatment of tuberculosis.

The Insurance Commissioners having expressed the opinion that for the quarter ending June 30th the Committee would be well advised not to pay for the present the rate of advance which obtained during the year 1917—namely, £50 per 1,000 of the count of the index register—the Committee agreed that the advance should be made in two instalments, the first to be calculated at the rate of 2d. per insured person included in the practitioners' lists, and the amount of the second instalment to be left open.

LOCAL MEDICAL AND PANEL COMMITTEES.

Glasgow Burgh.—At a meeting on March 4th it was resolved to make strong representations that a general practitioner who is deemed qualified to administer salvarsan ought to be remunerated for such administration. It was decided to press for an earlier settlement of practitioners' accounts, or alternatively

for a larger payment on account each quarter or in the course of a year. No action was taken with regard to a circular from the Association of Panel Committees.

Renfrew County.—The Panel Committee has been informed that the Commissioners, while allowing the inclusion of a clause in the local agreement for the current year imposing a compulsory levy to meet the administrative expenses of the Panel and Local Medical Committees, decline to sanction such clause for the future. The Committee has approved the 1917 emergency drug list for the year 1918, and has decided to continue the present arrangements for dispensing drugs in rural areas.

Shropshire.—The following resolution has been passed:

That, whilst welcoming the concession that the new mileage grant for war conditions should apply to all practitioners practising in a rural area, the Shropshire Panel Committee being of opinion that, as the said grant was purely for the purpose of meeting increased cost in travelling owing to war conditions, consider that it should apply to distances beyond three miles, and that in respect of each person on a doctor's list a capitation fee of 1s. per mile be paid for every complete mile beyond three miles.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeon S. Conner to the *Gibraltar*. Staff Surgeon H. C. Devas to the *Argonaut*, additional. Temporary Surgeons W. L. Glegg to the *Pindar*; L. Mandel to the *Europa*; H. B. Bullen to the *Active*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon C. S. McK. Murison to Keyham College.

ARMY MEDICAL SERVICE.

Major-Generals placed on retired pay: F. J. Jencken, C.B., H. G. Hathaway, C.B.

Lieut.-Colonel A. J. MacDougall to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division.

Temporary Lieut.-Colonel A. G. Phear to be temporary Colonel.

Surgeon-Lieut.-Colonel Sir Peter J. Freyer, K.C.B., I.M.S.(ret.), to be temporary honorary Colonel.

ROYAL ARMY MEDICAL CORPS.

Temporary Lieut.-Colonel (Major and Brevet Lieut.-Colonel, R.A.M.C.T.F.) C. H. Fagge relinquishes his temporary commission on reposting.

Temporary Major (Captain, R.A.M.C.T.F.) A. W. Falconer, D.S.O., to be temporary Lieut.-Colonel.

To be acting Lieut.-Colonels whilst in command of a medical unit: Majors G. W. Heron, D.S.O. (June 11th, 1917), G. A. K. H. Reed (from November 13th to December 16th, 1917), C. W. O'Brien (January 8th, 1918), A. L. Ostray (January 10th, 1918); Captains C. McQueen, M.C. (from 1 December 7th to 17th and from December 24th to 26th, 1917), A. Irvine-Fortescue (February 28th, 1918); temporary Captains R. C. Phelps (December 14th, 1917), K. W. MacKenzie, M.C. (February 21st, 1918).

S. R. Scott to be temporary Major.

Temporary Captain G. H. Ward-Humphreys to be temporary Major whilst specially employed.

Temporary Captain J. B. Howell to be temporary Major (without increased emoluments) whilst specially employed.

R. V. Steele and F. W. Martin, late temporary Captains, are granted the honorary rank of Captain.

Captain A. L. Urquhart to be acting Major whilst in command of a medical unit.

Temporary Captain Francis M. Byrne is dismissed the service by sentence of a general court-martial, March 16th.

Temporary Lieutenants to be temporary Captains: D. N. Anton, P. McL. Shiels, R. D. Passey, A. F. Campbell, H. Cardin, F. D. Crew, E. W. Goble, R. G. Hill, L. R. G. de Glanville, K. G. Colquhoun, J. S. Byrne, A. W. C. Bennett, O. H. Bulloch.

Officers relinquish their commissions: Temporary Captains R. J. P. McCulloch, A. B. Simpson, A. McL. Picher (granted the honorary rank of Captain), W. C. W. Glenn, J. R. MacCulloch (on account of ill health and is granted the honorary rank of Captain), C. A. R. Nitch, T. J. Burton, H. J. Cooper, C. F. Dillon-Kelly, L. C. Dillon-Kelly, G. D. Compston, C. H. MacLean (on account of ill health contracted on active service and is granted the honorary rank of Captain), E. H. Wood, H. Wachter.

Temporary Lieutenants: M. Munro, T. M. T. Dishington, A. C. S. Waters, A. J. Macleod, A. W. Hare, H. W. James (on account of ill health and is granted the honorary rank of Lieutenant), W. A. Clement, J. M. Dickson, G. T. Watson, E. Whalley, R. J. Lytle, W. Venis, J. Good, A. G. Harvey, J. P. Ryan, R. M. Danks, J. N. Beadles, G. Nelson (on account of ill health contracted on active service and is granted the honorary rank of Lieutenant). Temporary honorary Lieutenants J. D. Milne, A. O. Raymond, B. Farrior.

Lieutenants (temporary Captains) to be Captains: G. D. Harding, A. M. McCutcheon, J. A. Andrews, M.C., R. C. Robertson, M.C., H. H. McHolland, A. C. Jebb, J. A. W. Edden, E. B. Marsh, A. L. Aymer, J. H. Pendered, M.C., A. N. Minns, D.S.O., M.C., W. W. McNaught, J. P. Litt, H. A. Harbison, M.C., W. G. Shakespear.

Temporary Lieutenant I. L. MacInnes to take rank and precedence in the corps and in the army as if his appointment to that rank bore date January 10th, 1918.

A. W. Hall, late temporary Lieutenant, is granted the honorary rank of Lieutenant.

RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Major J. Clarke relinquishes the acting rank of Lieut.-Colonel on reposting.

Captain W. C. Borrie and Lieutenant H. L. Mooney relinquish their commissions on account of ill health.

The notification in the *London Gazette* of March 12th, 1918, regarding Lieutenant G. V. Davies is cancelled.

To be Lieutenants: T. L. Crawhall, from Durham University Contingent O.T.C.; O. D. Pullan, from Leeds University Contingent O.T.C.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major (Brevet Lieut.-Colonel) C. H. Fagge is restored to the establishment.

Major (temporary Lieut.-Colonel) A. C. Goodwin relinquishes his temporary rank on ceasing to command a field ambulance.

Major D. Todd to be acting Lieut.-Colonel whilst commanding a general hospital.

Major G. Hall, C.M.G., to be acting Lieut.-Colonel whilst in command of a general hospital, and is seconded whilst so employed.

Major F. D. Boyd, C.M.G., is seconded.

Major A. H. Hogarth, from T.F.R., to be Major with precedence as from July 30th, 1916.

Captain (Brevet Major) C. N. Draycott and Captains C. S. Brown and J. D. L. Currie relinquish their commissions on account of ill health and are granted the honorary rank of Captain.

Captain H. G. L. Haynes to be acting Lieut.-Colonel whilst commanding a field ambulance.

Captains to be acting Majors whilst commanding sections of field ambulances: W. Bowater, D.S.O., K. A. P. R. Murray, A. E. P. McConnell, M.C., C. E. K. Herewith, H. J. D. Smythe.

Captain (temporary Major) P. Howie relinquishes his temporary rank on an alteration in posting.

Captain J. M. Whyte is seconded for duty with a general hospital.

Captain J. R. Mitchell relinquishes his commission on account of ill health and is granted the honorary rank of Captain.

TERRITORIAL FORCE RESERVE.

Major (temporary Lieut.-Colonel) J. Nightingale from R.A.M.C. to be Major.

To be Captains: Captains P. W. Young from a general hospital, J. A. Watt from a field ambulance, T. J. Mackie from R.A.M.C.

VOLUNTEER FORCE.

Essex Volunteer Regiment, 1st Battalion.—Medical Officer and temporary Lieutenant W. Benton resigns his commission.

Lincolnshire Medical Volunteer Corps.—R. A. Glegg (late Lieutenant, Lincolnshire Regiment), to be temporary Lieutenant.

Lancashire Motor Volunteer Corps.—W. J. R. Dunn to be Medical Officer and temporary Captain.

Lancashire Volunteer Regiment, 6th Battalion.—J. R. H. Duboué to be Medical Officer and temporary Lieutenant.

West Riding Motor Volunteer Corps.—P. Rattray, H. W. Whiteley, and C. L. Pattison (late Lieutenant R.A.M.C.) to be Medical Officers and temporary Captains to Nos. 1, 2, and 5 groups respectively; E. A. White to be Medical Officer and temporary Lieutenant to No. 3 group.

EXCHANGE.

M.O. attached to a hospital in London area wishes to exchange with M.O. in Edinburgh neighbourhood.—Address, No. 1350, *British Medical Journal* Office, No. 429, Strand, W.C.2.

APPOINTMENTS.

DISTRICT MEDICAL OFFICERS.—G. Forden, M.R.C.S., L.S.A., of the Bridgewater Union. T. W. Powell, M.R.C.S., L.R.C.P.Lond., D.P.H., of the Newcastle-in-Emlyn Union.

CERTIFYING FACTORY SURGEONS.—A. L. Grant, M.B., Ch.B. Edin., for the Burghhead District, co. Elgin. J. O. Jones, L.R.C.P. and S. Edin., L.R.F.P.S. Glasg., for the Holywell District, co. Flint.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

DEATHS.

CROMBIE.—On March 30th, James Crombie, M.B., B.Sc., J.P., of Highden, Sidcup, Kent, aged 61.

JAMES.—On the 6th inst. at 71, S. Mark's Road, North Kensington, suddenly, Moses Prosser James, M.D., late Lecturer on Materia Medica of the London Hospital and Physician to the Throat Hospital, Golden Square, W., aged 82 years. R.I.P.

MOYNHAN.—On April 8th, at Carr Manor, Meanwood, Leeds, Eva Ellen Moynihan, daughter of the late Captain Moynihan, V.C., 8th (King's) Regiment.

PHILP.—Killed in action on March 26th, Captain O. H. G. Philp, M.B. Cantab., R.A.M.C., attached Manchester Regiment (late of Cantuque House, Hereford), most dearly loved husband of Margaret Philp, aged 32.

DIARY FOR THE WEEK.

WEDNESDAY.

HUNTERIAN SOCIETY. 1, Wimpole Street, W.—5.15 p.m., Discussion on Nervous Breakdown, to be opened by Dr. Edwin Ash.

ROYAL SOCIETY OF MEDICINE.—Monday, 5 p.m., Discussion on the Future of the Medical Profession under a Ministry of National Health, to be opened by Dr. J. F. Gordon Dill. Section of Therapeutics and Pharmacology: Tuesday, 4.30 p.m., Dr. A. J. Whiting: Comparative Value of Digitalis Group of Remedies in Whiting: Fibrillation. Section of Pathology: 8.30 p.m., Dr. E. H. Kettle: Tumours arising from Endothelium. Dr. J. Murray: Autogenous Grafting. Section of Dermatology: Thursday, 4.30 p.m., Cases. Section of Otolaryngology: Friday, 4 p.m., Cases and Specimens. 5 p.m., Mr. Richard Lake: Aural Bacteriæmia.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	APRIL.
17 Wed.	London: Finance Committee, 2.30 p.m.
24 Wed.	London: Council Meeting.

LONDON: SATURDAY, APRIL 20TH, 1918.

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SPECIAL CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES.

London, Thursday, April 11th, 1918.

A SPECIAL CONFERENCE of representatives of Local Medical and Panel Committees, called by the British Medical Association to consider principally the action to be taken with regard to the demand for an increased capitation fee, was held on April 11th, at the Connaught Rooms, London. Dr. J. A. MACDONALD, LL.D., Chairman of Council, presided, and 168 insurance areas of Great Britain were represented.

The CHAIRMAN, in opening the proceedings, said that the matters for consideration, so far as concerned the immediate policy to be adopted with regard to increased remuneration, might be presented in the form of three questions: (1) Whether they should agree to continue the treatment of insured persons without an increase of capitation fee; (2) whether, having agreed to the first, they should press the Government for an allowance towards the increased cost of carrying on insurance practice, especially as regards travelling, as suggested by Sir Edwin Cornwall; and (3) whether they should press also for some increase in the grant to those members of the profession whose professional income was below £500 a year.

Action Taken by Insurance Acts Committee.

The action taken by the Insurance Acts Committee in respect to the demand for an increased capitation fee was first reported, and after some debate the report was approved. Dr. H. B. BRACKENBURY, Chairman of the Committee, said that the members of the deputation who had waited on Mr. Bonar Law had been greatly impressed by his reception of them. The Chancellor had spoken with frankness and sincerity, and not as the head of a department who desired to say smooth things in order to rid himself of a departmental difficulty; that being the case they were much moved by his appeal to them. The Committee had met the previous night and considered the agenda and all the information as to the feeling in the country, and although putting down no resolution for submission to the Conference, had framed certain suggestions as a general idea of the policy which, in its opinion, should be pursued. These were:

1. That it would be quite impossible to carry out successfully a refusal to renew contracts for 1919.
2. That it would be right to take the line that, while maintaining the equity of their claims, in view of the national circumstances, and the Government's appeal, they should not press the general claim at the moment.
3. That nevertheless an endeavour should be made to obtain an extra allowance owing to the increased cost of travelling, over and above the present mileage grant, and to arrive at an equitable formula for the distribution of such extra allowance.
4. That arrangements should be entered into which would allow individual practitioners whose net professional income was not more than £500 a year to apply for a percentage increase of their remuneration for insurance work.

5. That it was desirable at once to reconsider the methods of distribution of available funds as between area and area and between practitioner and practitioner, and thereafter to reconsider also the general financial arrangements and terms of service with a view to their settlement on an improved basis at the earliest convenient time.

These were not recommendations to the Conference, but the Committee considered, in the light of the information available, that these general lines were the most politic to adopt under the present circumstances. Whether or not it was desirable in the abstract to refuse to renew contracts for 1919, it would be impossible to carry through such a thing successfully; at the same time, while waiving the general claim, they could consistently press for the concessions indicated, which everybody admitted to be legitimate.

Four or five representatives criticized the action of the Committee, chiefly for what they described as the month's delay before the demand of the last Conference was presented. Dr. Brackenbury pointed out that the Conference was held on October 18th; time had to be allowed to summon the Committee, whose members were widely scattered over the kingdom, but the letter was sent to the Insurance Commissioners by November 5th, and after a proper consideration of its case, which was necessary if it was to be presented effectively, the Committee met the Commissioners on November 15th. He did not think this could be described as dilatory.

The Demand for an Increased Capitation Fee.

A large number of motions were on the agenda paper, several of them in a similar sense, regarding the policy to be pursued in connexion with the demand for an increased capitation fee. It was agreed to take first the motion which presented the clearest issue. This was by Salford in the following terms:

That panel practitioners be urged not to renew without modification their present contracts from January, 1919, and that all possible steps be taken immediately to make such action unanimous.

Dr. C. R. O. GARRARD, in moving the above, said that the last Conference unanimously resolved to ask for an increased capitation fee of 10s., yet no representative at that time could have been so sanguine as to imagine that the terms would be granted without a struggle. His committee thought that the demand ought to be persisted in, and that in view of the depleted ranks of the profession in civil practice at the present time they had a great tactical advantage, which would disappear when practitioners returned in large numbers from the army. It was not merely that the payment was inadequate, but that the agreement itself was inequitable, and bound one side only. A resolution of this kind would not embarrass the Government more now than it would have done last October;

indeed, he contended that it need not embarrass the Government at any time, because the Government had taken power under the Act to suspend medical benefit. If the Conference yielded on this point, it would mean an accession of power to the Panel Medico-Political Union, which would probably then become strong enough to take action on its own account. Most likely in the result they would be beaten, and in that case the shackles would be riveted on the profession for a generation; but if, on the other hand, the Union was sufficiently supported to gain its point, the British Medical Association as a factor in medical politics would disappear.

A motion by the London Committee was taken as an amendment to this, and read:

That while still maintaining the justice of the demand for an increased capitation fee, and protesting against the tenor of Sir Edwin Cornwall's reply on February 19th, the Conference, in view of the difficult position of national affairs, and having no desire to embarrass the Government at the present time, considers that it is its patriotic duty not to press the general claim at the moment.

Dr. H. J. CARDALE said that the London Committee did not for one moment think that the justice of the demand had been diminished, and it wished to protest in the strongest way against the reply given by Sir Edwin Cornwall to the deputation; the reply was unworthy of a Minister of the Crown. Yet he would ask the Conference to proceed no further with any definite action, owing to the grave cloud which overshadowed the nation. The Representative of Salford appeared not to appreciate the alteration in this respect which had taken place since last October. Apart from their evident duty as a profession, what would be the effect upon the public of calling a "strike"—for that was the name which would be given to it—next January, whereby an enormous dislocation would be caused in the medical treatment of fourteen millions of people?

Some discussion followed, in the course of which Dr. Cardale's appeal was seconded by Major J. ORTON (Coventry and Warwickshire), who urged that to defer action *sine die* was the only course to adopt, although they in no way went back on the justice of their claim. Among those who spoke against the amendment were one or two Lancashire representatives, who said that Lancashire was unanimous, or practically so, in adhering to the demand. Dr. E. H. M. STANCOMB (Southampton) also opposed the amendment, saying that he and those who thought with him did not call for a strike or a withdrawal of service, but only asked practitioners to contemplate the non-renewal of their service unless some modification was forthcoming. Nobody was satisfied with the present agreement, and on this matter public opinion, even as represented by Insurance Committees and friendly societies, would be on the side of the doctors. Dr. BRACKENBURY, in supporting the amendment, said that Lancashire might or might not be unanimous; he doubted its complete unanimity; but the largest Panel Committee in the country was unanimous on the other side, and so were several other of the larger committees, including Middlesex and Essex. It was idle to declare that the suspension of medical benefit would not embarrass the Government. It would be necessary to call together every Insurance Committee and to arrange with every friendly society how it should carry on, and it would thrust an immense amount of work on Government departments. Dr. J. BENNETT (Warrington) said that Lancashire was not unanimous, and he had been sent to oppose the tenor of the Salford motion, though it was recognized by his committee that they must not damp down their activities.

The London amendment was then put to the meeting and carried by a very large majority, and was subsequently adopted as the substantive resolution, with seven dissentients.

Additional Travelling Allowance.

The Conference then turned to the question of an additional travelling allowance, and the CHAIRMAN, to facilitate discussion and crystallize several motions of similar effect, moved:

That the Insurance Acts Committee be instructed to press for an additional grant to meet increased practice expenses, especially travelling expenses, as described in paragraph 18 of Sir Edwin Cornwall's letter of February 19th, 1918.

Dr. BRACKENBURY said that if the Conference requested the Insurance Acts Committee to try and get, over and

above the original and the extra mileage grant, a further amount set apart to be distributed to the profession, then the Committee would endeavour to arrive at a formula which would result in as equitable a distribution as possible. He doubted whether a large conference could discuss the particular method or formula to be adopted. Clearly, if this line were to be pursued, it must benefit the rural more than the urban practitioner. In reply to questions, he said he could not hold out much hope of the Government considering anything but travelling expenses.

Several rural representatives spoke on the motion, pointing out the heavy additional burden of expense to the practitioner in country districts. Dr. J. P. WILLIAMS-FREEMAN (Hampshire) said that practitioners should be prepared to furnish the actual number of miles they travelled in a year and the actual number of visits they paid, and the first figure divided by the second would give the average distance travelled per visit, and this would form a basis of allocation. Dr. E. LEWYS-LLOYD (Merionethshire) maintained that the kind of roads travelled on ought to be taken into consideration as well as the distance. Dr. J. BENNETT (Warrington) said that his was a semi-rural and a semi-industrial practice, and he found that he could visit three patients in the industrial district for one patient in the rural district. Other speakers thought that no mileage allowance would meet all cases, and that the only proper basis was an increase of the capitation fee. Ultimately, however, the motion was adopted *nemine contradicente*, together with an addendum proposed by Dr. STANCOMB: "And that practitioners concerned should be urged forthwith to furnish details upon which an equitable formula shall be based."

Grants in the Case of Professional Incomes below £500 a Year.

On this further question the CHAIRMAN again submitted a simple resolution, which covered a number of motions on the agenda:

That the Insurance Acts Committee be instructed to press for a grant, in respect of the increased cost of living due to the war, for insurance practitioners whose net professional income from all sources is within the limits observed by the Government in dealing with civil servants, as described in Paragraph 20 of Sir Edwin Cornwall's letter.

In reply to questions, he said that the limit below which it was proposed that the grants should be available was £500 a year. The procedure would not entail any public declaration from the practitioner as to his income. It would only be necessary for him to obtain a certificate from his surveyor of taxes to the effect that his taxable professional income was below the limit stated, and forward it to the Commissioners. He would then receive, if the concession were obtained, a certain percentage increase on his capitation grant; in some cases the increase of civil servants' incomes had been 10 per cent. The basis they were advised to put forward was the net professional income from all sources, and expressly excluded non-professional income.

The two lady representatives at the Conference, Dr. JESSIE THOM (Dundee) and Dr. MABEL RAMSAY (Plymouth) associated themselves against the proposal, the former expressing the view that an *ad misericordiam* appeal would weaken the position of practitioners when it came later on to making an application for a general increase in the capitation grant. Other representatives thought that it should only be carried out if an appreciable number of practitioners desired it; that if only a small proportion applied for the extra grant this would be used against the profession generally when they came to demand an all-round increase; that payment should be made from the Commissioners direct, and not through the Insurance Committees, otherwise the privacy of the arrangement could not be maintained; and, as to the general principle, that all extra payments should be made on the merits of the case, and not as a dole to the poorer members of the profession. The proposal was supported on behalf of rural practitioners by Dr. WILLIAMS-FREEMAN (Hampshire), who said that his committee felt unable to take the responsibility of preventing the poorer practitioners from sending in their claims. A considerable number of village doctors could not make a net income of more than £500 a year for the simple reason that the patients did not exist. This was no matter of charity, and he was sure the junior members of the Civil Service did not consider themselves demeaned

by accepting a 10 per cent. bonus. Dr. BRACKENBURY said that if the course suggested in the resolution was decided on, it would be for the Insurance Acts Committee to make the general arrangements, but he hoped that that Committee would not have to deal with individual applications. While settling with the authorities what percentage was to be paid, it might be possible for the Committee to define a class of practitioners all of whom should be considered eligible for the grant; if not, it would be a case of each individual making his own application. The ordinary administrative method of payment would undoubtedly be through the Insurance Committees, but this was highly objectionable on all grounds, and an endeavour would be made to keep it a private transaction between the central Government department and the individual or class concerned. The CHAIRMAN added that there was a slight danger that if very few applied for this grant it would give a false impression to the Government; but if the resolution was carried, it would have to be made perfectly clear that there was a very strong objection on the part of many practitioners to making this appeal for what might be considered a dole, instead of a general increase in which all should share.

The motion was then put to the meeting and carried by a large majority.

Reconsideration of General Financial Contract.

Dr. BRACKENBURY then proposed (in lieu of a motion by Birkenhead, which was withdrawn in favour of this new motion):

That it is desirable at once to reconsider the methods of distribution of available funds as between area and area and between practitioner and practitioner, and thereafter to reconsider also the general financial arrangements and terms of service with a view to their settlement on an improved basis at the earliest convenient time.

He said that a full inquiry into the methods of distribution was an essential preliminary to the consideration of the general financial arrangements and terms of service.

Dr. WILLIAMS-FREEMAN wanted words added at the end of the motion which would make it necessary for the Committee to report progress and submit proposals at the next Conference. He said that to country practitioners the revision of terms of service was an urgent matter, and ought to be the subject of a special report. Since October a report of the Scottish Commissioners on the conditions of practice in Scotland had been forthcoming, and this showed that for every 100 insured persons 324 attendances were made in the counties and 310 in the burghs, and that the proportion of visits in the total of attendances was more than 50 per cent. in the counties and only 28.6 per cent. in the towns. He brought forward a number of other calculations reflecting the differences between town and country doctors, and said that rural practitioners would not wait indefinitely to have their grievances redressed, and the Insurance Acts Committee should report progress at the next Conference and receive instructions.

Dr. BRACKENBURY said that it was not necessary that the Committee should be specifically directed by the Conference to perform its elementary duty to report on the next occasion what it had done in this matter; and to direct it further to submit proposals, whether it was in a position to do so or not, was unreasonable. The investigation into the central pool, which had taken six months, was a simple matter compared with the whole question of distribution of funds, and thereafter of terms of service. The inquiry would occupy many months, and might not be sufficiently mature for proposals by the next Conference.

The motion was carried without the suggested addendum.

Collective Bargaining.

The action taken by the Committee to organize the profession, as instructed by the last Conference, then came under review, and Dr. BRACKENBURY pointed out that the scheme of collective bargaining had now been approved in a general form by the Conference of 1916, and in a more particularized form by the Conference of 1917. The first thing the Committee did after the last Conference was to discover how far it could rely upon the adherence of individual Panel Committees to the scheme. Some of the replies received had shown a misapprehension of what was intended. Certain committees had replied, for example,

that they could not favour any strike for the duration of the war; but that had nothing whatever to do with the question. There was no necessity to qualify a general adhesion by any such proviso. The scheme meant that the Committee on its part would report to the Panel Committees as often as possible, but it wanted to be assured that in any negotiations leading up to a possible fight at any time hereafter it was really backed up by the Panel Committees and the insurance practitioners in their areas. He hoped that the Panel Committees which had not exactly realized what was meant would see to it that at their next meeting they gave the assurances which were necessary.

Dr. F. COKE (Kent) thought that the requirement of 80 per cent. resignations was ridiculous, and rendered the scheme impracticable. Dr. STANCOMB said that the insertion of 80 per cent. was the deliberate act of the last Conference, and therefore it was not for them to criticize the Committee for embodying that figure in the statement; but the effective proportion of Panel Committees or individual practitioners varied with time and circumstances. He also asked for some guidance as to the financial basis upon which the proposed scheme would be carried through. In reply to these and other questions, Dr. BRACKENBURY said that the questions recently put to Panel Committees had nothing specifically to do with the present policy of asking for an increase in the capitation fee. The scheme of collective bargaining was accepted by the Conference against a small but powerful and insistent minority, and of course it was assumed that the representatives in the minority had their Panel Committees behind them in the attitude they adopted; but what the Committee wanted to know was whether, in view of the overwhelming vote of the Conference in accepting the collective bargaining scheme, this minority of Panel Committees would under the circumstances acquiesce in the position of the majority. He protested that there was nothing in the nature of a blank cheque in the scheme at all. It was an essential requirement of the scheme that throughout the negotiations the Panel Committees should be informed as to the course they were taking. He admitted that the scheme of collective bargaining was incomplete, but it involved consultation throughout with the Panel Committees. As to the financial question, it was an essential part of the scheme that the Insurance Acts Committee should raise a defence fund and act as trustees.

The Conference then gave its approval to the action taken by the Committee in this matter.

A Scottish motion was down on the paper affirming that Scottish practitioners would not hold themselves bound unless the 80 per cent. of panel practitioners referred to included 80 per cent. of the Scottish panel practitioners, and, further, that the question of resignation should be remitted to the Scottish subcommittee, who should deal directly with the Scottish Commissioners. The mover, Dr. T. WOOD (Leith), consented to withdraw the motion after Dr. J. R. DREVER (Glasgow), as Chairman of the Insurance Acts Subcommittee (Scotland), had promised that at a forthcoming conference of the Local Medical and Panel Committees of Scotland the matter would be considered, and possibly a *modus vivendi* arrived at.

The Organization of the Profession.

Dr. H. J. CARDALE (London) moved a resolution affirming the desirability that the British Medical Association should promote the formation of organizations definitely representing the interests of various sections of the profession and endeavour to establish a cordial relationship between itself and such organizations. He said that at the present time the panel profession was far from being properly coordinated, and in all negotiations carried through by the British Medical Association the difficulty had been that there was a large residue of panel practitioners who did not belong to the Association, and whose views were not obtained. He was anxious that the panel profession should be organized not only at the top but from the bottom upwards, and they wanted to obtain such organization not in opposition to the existing body but in cordial alliance with it.

Dr. MABEL RAMSAY (Plymouth) suggested that the British Medical Association itself should organize the panel profession by a system of greater decentralization than obtained at present. The country might be divided up into territorial areas, somewhat similar to the present

Branches and Divisions of the Association, with local secretaries, who in turn should organize their own particular areas and report to the Association. The motion was supported by Dr. LAURISTON SHAW (London), who said that it was impossible to secure collective bargaining on effective lines unless they were aware of the intended action of various sections of the profession, as, for example, the medical men on hospital staffs, and only by such sectional as well as local organization could the various interests be brought together and welded into a common whole. Dr. BRACKENBURY said that the Committee had never proceeded on the principle that everything should be done at the centre; the suggestion that there should be territorial groups came first from the Insurance Acts Committee itself, and, so far as the plan had proceeded up to the present, it was due to the Committee. The resolution which the Conference had passed in October, strongly deprecating the formation of new bodies, was as sound now as it was then. Multiplicity of organizations led to a dissipation of energy. The Committee included fifteen direct representatives of the Panel Committees themselves, hence it was idle to say that insurance practitioners were not represented, or that their views had not been obtained.

Dr. Cardale's motion was lost by a considerable majority, as was a further motion, by Dr. MODLIN (Sunderland) that six direct representatives of the Panel Medico-Political Union should be co-opted upon the Committee.

Increased Mileage Grant.

A further report by the Insurance Acts Committee was then submitted, on the action taken by the Committee in the matter of increased mileage allowance. Dr. BRACKENBURY regretted that the result of the Committee's efforts was so far unsatisfactory—as, indeed, was the whole basis of calculation—but in view of the war circumstances possibly no better result could be looked for. A number of rural representatives spoke on this subject, and one or two of them expressed regret that the Committee had accepted the Commissioners' method of distributing the new mileage grant, which method, they held, was contrary to the general interests of rural practitioners. Dr. LEWYS-LLOYD (Merionethshire) said that his county had secured since 1913 from the Welsh Commissioners a mileage grant for every person on the panel who lived three miles or more from the practitioner's residence. The Commissioners first offered his committee £320, as a sufficient sum to liquidate all mileage claims; but regarding this as wholly insufficient, the Committee took the trouble in 1913 to schedule every person living more than three miles from the practitioner, making an accurate measurement of the distance, and submitted this to the Commissioners, with the result that the grant was raised to £590, and was subsequently increased by the extra mileage allowance. Three counties in North Wales had followed this procedure and had succeeded in getting very good mileage grants. His committee wished the Insurance Acts Committee to accept its cordial thanks for their good work.

After a brief discussion on the report by the President of the Institute of Actuaries upon his investigation into the constitution of the central pool, which was approved, the Conference broke up, first passing a cordial vote of thanks to the Chairman of the Conference, the Chairman of the Insurance Acts Committee, and the officials of the Association, for their services in connexion with the Conference.

INQUIRY INTO CENTRAL POOL.

COPIES of the Report (M.29/1917-18) of Mr. S. G. Warner, President of the Institute of Actuaries, upon his investigation into the constitution of the Central Medical Pool will be supplied gratuitously upon application to the Medical Secretary.

Association Notices.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, April 24th, in the Council Room, 429, Strand, London, W.C. 2., at 11 a.m.—By order,

April 18th, 1918.
W. E. WARNE,
Acting Secretary.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeons R. F. Parish to the *Pembroke*, additional, for Milton Mount Sick Quarters; A. I. Sheldon to the *Pembroke*, for R.N. Barracks; O. Rees to the *Wildfire*, additional, for Sheerness Barracks and Yard; A. J. Hewitt to the *Crescent*, additional, for Larbert R.N. Hospital; Staff Surgeon L. Warren, to the *Crescent*, additional for Larbert R.N. Hospital. Temporary Surgeons: F. N. Reynolds to the *Broke*; A. R. Hamilton to the *Pembroke*, additional, for Milton Mount Sick Quarters; R. W. Nesbitt to the *Victory*, for Haslar Hospital; W. P. Vicary to the *Woodwich*; E. E. Llewellyn to the *Monarch*; T. H. R. McKiernan to Plymouth Hospital; J. D. Brown to Haslar Hospital; A. Ritchie to Chatham Hospital.

ARMY MEDICAL SERVICE.

Temporary Lieut.-General Sir G. H. Makins, K.C.M.G., C.B., reverts to the temporary rank of Major-General on ceasing to be specially employed.

Major-General Sir William Babbie, V.C., K.C.M.G., C.B., to be Inspector of Medical Services, and to be temporary Lieut.-General, March 1st (Sir William Babbie's previous tenure of this office was in 1907-1910.)

Major-General Sir Francis H. Treherne, K.C.M.G., and Colonel L. T. M. Nash, C.M.G., are placed on retired pay.

Colonel James Thomson, C.B., to be temporary Major-General.

ROYAL ARMY MEDICAL CORPS.

Temporary Major (Captain R.A.M.C.T.F.) P. N. B. Odgers relinquishes his temporary commission on reposting.

Temporary Captains to be temporary Majors (without increased emoluments) whilst specially employed: W. Kennedy-Taylor, R. Semple.

Late temporary Captains granted honorary rank of Captain: R. P. McDonnell, S. J. Scott.

Temporary Lieutenants to be temporary Captains: A. S. Webber, S. Stockman, R. W. Greatorex, J. M. Glasse.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Colonel (temporary Surgeon-General) G. la F. Foster, C.B., to be temporary Major-General, seniority from February 9th 1917, but to continue to be paid as a Director of Medical Services, Canadian Forces, Assistant Director of Medical Services: Temporary Colonel C. F. Wyde, C.A.M.C., vice temporary Colonel J. A. Roberts, C.B., C.A.M.C.

Deputy Assistant Director of Medical Services: Temporary Captain (acting Major) F. V. Woodbury, C.A.M.C., and to retain his acting rank while so employed.

Temporary Captain (acting Major) M. H. Allen relinquishes his appointment and retains his acting rank while specially employed.

Temporary Lieut.-Colonel J. G. Adams to be temporary Colonel.

CANADIAN ARMY MEDICAL CORPS.

Temporary Lieut.-Colonel R. Raikes is seconded for duty with the Board of Pension Commissioners for Canada (British Branch) without pay and allowances.

Temporary Captain (acting Major) F. E. Bowman is seconded to duty with the War Office.

Temporary Lieut.-Colonel T. B. Fletcher resigns his commission.

Temporary Major H. L. Burris to be temporary Lieut.-Colonel.

Temporary Captains to be temporary Majors: W. C. Laidlaw (acting Major), F. E. Watts, N. C. Sharpe (acting Major), R. G. Armour A. A. MacKays.

R. A. Hughes to be temporary Captain.

Temporary Captain J. D. Chisholm is dismissed the service by sentence of a general court-martial, January 31st, 1918.

EXCHANGE.

Command Depot (South of England) M.O. desires to exchange with R.A.M.C. Officer anywhere in Scottish Command.—Reply to R.A.M.C. c/o Bryce, 54, Lothian Street, Edinburgh.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

TERRY.—On the 12th inst., at 14, Barton Street, Gloucester, the wife of H. Cairns Terry, M.B., Ch.B., of a son.

MARRIAGE.

JONES—JONES.—On April 3rd, at St. Cadran's, Towyn, by Rev. N. Williams, D. W. F. Jones, M.B., temporary Captain R.A.M.C. (late R.M.O. Brompton Chest Hospital), to Megan, eldest daughter of R. Jones, Esq., M.R.C.V.S., and Mrs. Jones, Towyn, North Wales.

DEATHS.

ALTHORP.—On April 8th, 1918, at 99, Munningham Lane, Bradford, Charles Frederick Mannius Althorp, M.B.Lond., aged 57.

DRAKE.—On April 1st, at Cheriton Nursing Home, Swindon, from peritonitis, Ernest Henry Drake, M.R.C.S., L.R.C.P., of Purton, Wilts, aged 50.

MUNRO.—On April 17th, at Kiltarn House, Nantwich, Seymour Hugh Munro, M.D., aged 84 years.

DIARY FOR THE WEEK.

ROYAL SOCIETY OF MEDICINE.—Section of Study of Disease in Children: Friday, 4.30 p.m., Cases.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
APRIL.	
23 Tues. London:	Rural Practitioners Subcommittee, 2.30 p.m.
24 Wed. London:	Council Meeting, 11 a.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, APRIL 27TH, 1918.

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British Medical Association.

CURRENT NOTES.

Meeting of Central Council.

THE quarterly meeting of the Central Council of the Association on April 24th was largely concerned with the consideration of the annual report and financial statement, as to which particulars will be published in later issues.

Election of President.

The Council decided to recommend the Representative Body to re-elect Sir T. Clifford Allbutt, K.C.B., M.D., F.R.S., to be President of the Association for the year 1918-19.

The late Mr. Guy Elliston.

Before proceeding to the ordinary business, the Chairman of Council, Dr. J. A. Macdonald, paid a tribute to the late Mr. Guy Elliston, Financial Secretary and Business Manager, who, he said, though perhaps not very well known to many members of the Association, was held in very high esteem by the officers of the Association who were brought into close contact with him. They had learnt to appreciate his sterling honesty and his devotion to the Association, and to conceive a great liking for him as a man. Major Lucas, Chairman of the Journal Committee, said that for the ten years during which he had been a member of that committee he had worked intimately with Mr. Elliston and had found his judgement unerring. By his death the Association had lost an able servant, whose capacity was really only known to members of the Journal Committee and the officers of the Association. As for himself, he had lost in Mr. Elliston a personal friend who could be relied upon in all difficulties. The Treasurer, Dr. Haslip, added a few words in his own name and in that of Dr. Rayner, the late treasurer, who had worked with Mr. Elliston for nine years. Dr. Rayner desired that his high appreciation of Mr. Elliston's abilities should be expressed, and Dr. Haslip added that only since he had himself been Treasurer had he become fully aware of the value of the officer the Association had lost. A resolution by the Chairman that a letter of sympathy should be addressed to Mr. Elliston's relatives, and that a record of his services should be put on the Minutes of the Council, was carried in silence, all the members standing.

The Stewart Prize.

On a recommendation contained in a report of the Science Committee, signed by Sir T. Clifford Allbutt, its chairman, it was decided that the Stewart Prize for 1918 should be awarded to Lieut.-Colonel Robert McCarrison, I.M.S., for his researches into the physiology and pathology of the thyroid gland and the parathyroid glands, and for the light he has thrown on the epidemiology of goitre. The prize was founded by Dr. Patrick Stewart, physician to the Middlesex Hospital, who was greatly interested throughout his life in epidemiology, and was one of the first to establish the distinction between typhus and typhoid fevers. He died in 1883. The object of the prize, which is administered under regulations adopted in 1880, is to afford recognition of important work already done or of researches instituted and promising good results regarding the origin, spread, and prevention of epidemic

disease, with the view of encouraging continuance of such researches. The prize was first awarded in 1882 to Surgeon-General Vandyke Carter, I.M.S., for his work in connexion with spirillum fever. It has since been awarded every second or third year. Among the recipients have been the late Dr. J. B. Russell of Glasgow, Professor Sims Woodhead, Sir Patrick Manson, Dr. F. W. Mott, Sir W. H. Power, Sir David Bruce, and Colonel W. H. Horrocks. Colonel McCarrison recently brought together the results of his observations and experiments on goitre in a book which was reviewed by Professor Adams in this JOURNAL on September 1st, 1917. The prize has usually taken the form of an illuminated certificate and a cheque for £50.

War Emergency Fund of the Royal Medical Benevolent Fund.

The following further subscriptions have been received from Divisions of the British Medical Association in response to the recent appeal, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL:

Newcastle-on-Tyne Division, per Dr. James Hudson, Hon. Sec.	£ s. d.
Mid-Staffordshire Division, per Dr. T. D. Stuart Shaw, Hon. Sec.	90 4 0
Leeds Division, per Dr. J. Allan, Hon. Sec. (two instalments)	37 9 0
Guildford Division, per Dr. H. F. Parker, Hon. Sec.	10 10 0
	22 7 6

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Staff Surgeon F. J. Gowans to the *Victory*. Temporary Surgeon D. J. Max to the *Harrier*; W. J. Jago to the *Royal Arthur*; R. C. P. Whitcombe to Malta Hospital; D. McM. Dickson, T. M. Payne, C. C. Beney, H. C. Apperley, E. A. Holmes, and C. W. Armstrong to Chatham Hospital; H. Millett, G. H. Sims, F. Caldecott, G. A. S. Shacklock, R. T. F. D. Roberts, and W. Gover to Haslar Hospital; H. T. Cubbon, F. B. Dutton, F. G. Wood, M. E. Jones, J. M. Higginton, W. A. Jolliffe, and D. M. Muir to Plymouth Hospital. To be temporary Surgeons: H. W. A. Hall, C. E. Cobb, W. A. Gray, N. B. de M. Greenstreet.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon E. R. Sircorn to R.M. Division, Plymouth; Surgeon Probationers L. N. O'Neill to the *Beaver*; J. A. Kerr to the *Goshawk*; J. C. Souter to the *Forester*; J. A. Douglas to the *Hind*; D. H. Williams to the *Cockatrice*; H. I. Quinn to the *Teazer*; W. Dayle to the *Lennox*; C. M. Probert to the *Lucifer*. To be Surgeon Probationers: T. M. Jones, A. L. McGregor, R. G. McIntyre, G. L. Meachin, W. C. Wardle, J. Chrennell, A. L. G. Thompson, D. H. Williams, W. L. Grassick.

ARMY MEDICAL SERVICE.

To be temporary Colonels: Lieut.-Colonel E. B. Knox whilst employed as Assistant Director of Medical Services of a Division; John Herbert Parsons.

ROYAL ARMY MEDICAL CORPS.

Major A. C. Osburn, D.S.O., relinquishes the temporary rank of Lieut.-Colonel on reposting.

Temporary Major H. S. Raper is seconded for service under the Ministry of Munitions.

Majors W. Davis and A. W. Sempy relinquish the acting rank of Lieut.-Colonel on reposting.

To be acting Lieut.-Colonels whilst in command of a medical unit: Major R. P. Ellery, Captains T. W. Browne, A. J. A. Menzies, D.S.O., and J. C. Sproule.

Captain H. C. D. Rankin relinquishes the rank of acting Lieut.-Colonel on reposting.

Captain T. W. Browne relinquishes the acting rank of Lieut.-Colonel, and reverts to the acting rank of Major, with pay and allowances of his substantive rank.

P. C. Drew, late temporary Captain, is granted the honorary rank of Captain.

To be acting Majors:—Captains: P. J. Ryan, P. Phillips, M.C., C. H. Deayer, M.C., P. C. Lang, D.S.O. Temporary Captains: A. O. Bryson,

J. E. H. Roberts, R. B. Macfie, E. G. Stanley, H. C. Wilson, C. R. Macdonald, M.C., C. A. Bernard, J. Watson, R. S. Renton, J. W. McKinney, E. L. M. Hackett, H. G. Willis, M.C., C. F. Drew, E. C. Abraham, M.C., J. L. Menzies, M.C., A. R. Esler, J. S. Lewis, M.C., D. McI. Hunter, M.C., W. K. A. Richards, M.C., F. C. Greig, H. B. Graham, D.S.O., C. J. Sullivan, B. F. Bartlett, M.C., B. W. Armstrong, P. J. Lane, M.C., J. H. Hebb, G. E. Spicer, A. Massey, W. J. Macdonald, F. T. Rees, M.C., G. W. Riddell, J. Burke, G. W. Parry, M.C., H. F. Warwick, M.C., J. H. Porter, M.C., W. R. P. McNeight, J. Crawford, M.C., J. W. Linnell, H. W. Powell, C. L. Chalk, M.C., C. C. Forsyth, W. S. Martin, M.C., E. E. Herga, M.C., J. Rodger, W. A. Curry, J. W. Innes, Lieutenants (temporary Captains): R. Ellis, M.C., H. E. A. Boldero, W. K. Campbell, D.S.O., M.C., W. C. Harrill, M.C., R. Stowers, J. A. Andrews, M.C.

Temporary Lieutenant R. L. E. Downer to be temporary Captain.
Temporary honorary Lieutenants to be temporary honorary Captains: R. M. Dodson, F. B. Grinnell.
Temporary Lieutenant Vincent Joseph Cullen is dismissed the service by sentence of a general court-martial, February 11th, 1918.
Officers relinquish their commissions:—Temporary Captains: W. H. Allen (and is granted the honorary rank of Captain), L. E. Hertslet, D. C. Graham (on account of ill health, and is granted the honorary rank of Captain), E. R. Eatock (on account of ill health contracted on active service, and is granted the honorary rank of Captain), C. H. Denham, E. B. Morley, T. A. Jones, D. L. MacKenna (and is granted the honorary rank of Captain), T. J. J. Curran, H. A. Cates, E. C. Macanlay, M.C., R. L. Thornley (and is granted the honorary rank of Captain), P. Ache. Temporary Lieutenants: S. B. Couper, G. F. Visner, J. L. Green (on account of ill health contracted on active service, and is granted the honorary rank of Lieutenant), T. B. Mitchell (on account of ill health, and is granted the honorary rank of Lieutenant), B. F. Hynes, S. Blake, W. L. Tindle, R. Young, L. du Vergé, J. H. Ashworth, temporary honorary Lieutenant C. H. Evans.

ROYAL AIR FORCE.

Major-General R. C. Munday to be Medical Administrator, March 5th.
Lieut.-Colonel C. B. Heald to be Assistant Medical Administrator, April 1st.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captains to be acting Majors: F. Jefferson, W. A. Miller, D.S.O., M.C., I. M. Pirrie, M.C., R. A. Greenwood, J. C. Brash, M.C., G. A. Bridge, J. Rafter, M.C., S. J. Seward, D.S.O., R. H. Hodges, M.C., G. V. Stockdale, D.S.O., J. Purdie, M.C., W. B. Blore, R. P. Ballard, J. D. Proud, M.C., W. Barclay, M.C., W. B. Poschewaita, M.C., W. H. Ferguson, G. P. Kidd, A. A. Smalley, M.C., C. F. Burton, C. J. Rogers, M.C., J. P. Quinn, M.C., J. A. Fridham, M.C., C. E. H. Guter, R. Taylor, M.C., J. Stephenson, M.C., J. H. Bayley, M.C., G. H. C. Moid, F. G. Lescher, M.C., J. Swan, M.C., G. T. Van der Vijver, J. B. Cavenagh, M.C., A. J. Beveridge, M.C., F. J. Gethken, M.C., A. G. S. Wallace, M.C., E. J. Bradley, E. W. Williams, A. W. Russell, M.C., A. R. Hill, M.C.
Captain A. L. Shearwood to be acting Major whilst commanding a section of No. 34 Field Ambulance, January 4th, 1918, and to retain the acting rank of Major whilst commanding a section of No. 33 Field Ambulance.

Captain S. B. King relinquishes his commission on account of ill health.
Lieutenants to be Captains: E. ff. Creed, J. R. John, F. K. Haymon, G. E. Archer, J. B. Leigh, J. W. T. Thomas.

To be Lieutenants: D. J. A. Lewis, Second Lieutenant W. L. M. Gabriel from Unattached List T.F., J. Hope from Manchester University Contingent O.T.C., F. Walton from Leeds University Contingent O.T.C., D. M. Jones, A. Robertson.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

Lieut.-Colonel (temporary Colonel) W. M. Roodcroft, C.M.G., relinquishes his commission on account of ill health, and is granted the honorary rank of Colonel, with permission to wear the prescribed uniform (substituted for announcement which appeared in the *London Gazette* of March 9th).

Colonel C. P. Oliver, C.M.G., to be retired under the provisions of paragraph 116 T.F. Regulations, and is granted permission to retain his rank and wear the prescribed uniform.

ROYAL ARMY MEDICAL CORPS.

Major (temporary Lieut.-Col.) F. S. Hibbens to be Lieut.-Colonel.
Major (temporary Lieut.-Colonel) J. Mackinnon, D.S.O., is seconded whilst holding appointment as Assistant Director of Medical Services, and to be temporary Colonel whilst so employed.

Captain R. Armstrong is seconded whilst holding appointment as Deputy Assistant Director of Medical Services.

Captain (acting Lieut.-Colonel) A. C. Mallace reverts to the acting rank of Major on ceasing to command a field ambulance, January 18th, 1918 (substituted for announcement in the *London Gazette* of February 25th, 1918).

Officers restored to the establishment: Lieut.-Colonel (Brevet Colonel) T. Gowans, Captains M. J. Stewart, D. W. Hardy (on vacating appointment as Deputy Assistant Director of Medical Services), P. R. Wrigley, H. Mason, H. C. Snell, J. Broadley, J. Stokes, and F. V. Milburn.

Captain (temporary Major) H. F. Everett relinquishes his temporary rank on alteration in posting.

Captains seconded for duty with a general hospital: A. A. Pratt, H. B. W. Smith, J. B. Macalpine.

The notification on of the seconding of Captain W. N. King, which appeared in the *London Gazette* of March 25th, is cancelled.

Captain C. F. Coombs to be acting Major whilst commanding a section of a general hospital.

To be acting Majors whilst specially employed: Captains F. C. Chandler, A. M. Mackay, W. J. Purves, C. A. Webster, N. H. H. Haskins, H. E. S. Richards, W. R. Pierce, F. Hauxwell, J. C. Grieve, W. Stobie, R. G. Badenock, J. W. Craven, M.C., H. B. Low, H. N. Goode, A. Anderson, F. Ellis, M.C., E. C. Plummer, I. C. Marshall, C. P. Brentnall, D. H. Scott, C. F. M. Saut, F. A. Roper, T. J. Wright, W. A. Robertson, G. H. H. Mansfield, R. V. Favell, A. L. Yates, H. Henry, D. H. Weir, J. W. Anderson, M.C., O. K. Wright, E. N. Butler, D. G. Rice-Oxley, H. G. L. Haynes, P. T. Rutherford, R. P. Pollard, A. M. Hughes, J. M. Plews, F. Coleman, H. B. Dixon, M.C., M. T. Aecough, M.C., T. S. Elliot, C. B. Johnstone, T. E. A. Carr, H. P. Malcolm, M.C., J. S. Wallace, M.C., J. W. Dale, E. M. Corner, C. P. Lapage, A. C. Hepburn, R. C. Clarke, R. V. C. Ash, N. W. Kidston, F. H. C. Watson, H. H. Robinson, N. M. Fergusson, J. H. Jordan, J. F. Ediniston, J. S. McConnachie, M.B., J. M. Smith, J. H. Hunter, T. C.

Britton, H. Seddon, S. McCausland, M.C., R. D. Moore, M.C., F. Wigelesworth, C. N. Smith, M.C., H. Foxton, M.C., G. E. St. C. Stockwell, W. R. Allen, V.C., M.C., W. Sneddon, W. Scarisbrick, J. H. Lloyd, J. W. Thomson, R. Henry, C. W. P. Baldwin, H. T. Bates, R. G. Dixon, S. Scott, J. Morris, M.C., J. Strathearn.

Captain A. W. B. Loudon to be acting Lieut.-Colonel whilst specially employed.

Captains to be Majors: M. J. Mahony, February 6th, 1915 (substituted for announcement in the *London Gazette* of March 17th, 1915), C. B. Whitehead.

Captain H. J. Walker vacates the appointment of registrar.

Captain W. R. Wood is transferred to the permanent personnel.

Lieutenant E. A. Grogg relinquishes his commission on account of ill health.

VOLUNTEER FORCE.

Cornwall Volunteer Regiment, 1st Battalion.—A. J. Little to be Medical Officer and temporary Captain.

Cumberland Motor Volunteer Corps.—J. R. S. Anderson to be Medical Officer and temporary Captain.

City of Glasgow Volunteer Regiment, 1st Battalion.—J. H. Teacher (late Surgeon-Captain 1st Lanark R.E. Volunteers) to be Medical Officer and temporary Lieutenant.

Hampshire Medical Volunteer Corps.—Temporary Captain A. E. Clark relinquishes his commission.

Kent Medical Volunteer Corps.—Captain W. W. Linington (late R.A.M.C.) to be temporary Major. To be temporary Captains: E. L. N. Pidmore (late Captain 2nd Dorset Volunteer Artillery), S. A. E. Griffiths, F. E. Nichol, W. R. Brunton.

County of London Volunteer Regiment, 13th Battalion.—G. Pollock (late Captain R.A.M.C.) to be Medical Officer and temporary Captain.

Northumberland Medical Volunteer Corps.—C. G. Henderson to be temporary Captain.

Northumberland Motor Volunteer Corps.—H. B. W. Paige to be Medical Officer and temporary Captain.

Nottinghamshire Motor Volunteer Corps.—W. Hunter to be Medical Officer and temporary Lieutenant.

Shropshire Volunteer Regiment, 2nd Battalion.—Colonel F. K. Pigott (late 1st Volunteer Battalion, Shropshire Light Infantry) to be Medical Officer and temporary Captain.

North Riding Volunteer Regiment, 21st Battalion.—J. Murray to be Medical Officer and temporary Lieutenant.

West Riding Medical Volunteer Corps.—Temporary Captain A. L. Bastable resigns his commission on account of ill health.

West Riding Motor Volunteer Corps, No. 4 Group.—Lieutenant J. D. Gray (late R.A.M.C.) to be Medical Officer and temporary Captain.

West Riding Volunteer Regiment, 11th Battalion.—The notice which appeared in the *London Gazette* of November 1st, 1917, relating to Medical Officer and temporary Lieutenant T. O. Scott, is cancelled.
10th Battalion.—G. H. Menzies to be Medical Officer and temporary Lieutenant.

APPOINTMENTS.

BOURNE, A. W., M.B., B.C., F.R.C.S., Assistant Surgeon to the Samaritan Free Hospital for Women.

BUTLER, T. Harrison, M.A., M.D. Oxon., M.R.C.S., L.R.C.P., Visiting Consulting Ophthalmic Surgeon to the Hospital of St. Cross, Rugby.

MACKEIE, Thomas J., M.B., B.S., Professor of Bacteriology, South African Medical College, Cape Town.

WHITEFORD, C. Hamilton, M.R.C.S., L.R.C.P., Medical Referee for County Court Circuit No. 58 (Plymouth and District).

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

MARRIAGES.

GILMOUR—HELMORE.—At the Garrison Church, Kasr en Nil, Cairo, on February 20th, Captain Colin O. B. Gilmour, R.A.M.C., son of Dr. T. F. Gilmour, Port Ellen, Islay, to Florence Mary, daughter of the late George Helmore, Esq., Shortlands, Kent.

JERVIS—ANDREW.—At 10, Bank Ave., Downfield, Dundee, on April 17th, by the Rev. Alexander Anderson, B.D., Mains and Strathmartine Parish Church, John Johnstone Jervis, M.D., D.F.H., Acting Medical Officer of Health, Leeds, to Agnes Wright Andrew, M.A., M.B., Ch.B., only daughter of Mr. and Mrs. James M. Andrew.

DEATHS.

BRANDT.—On April 16th, at 47, Rue Cotta, Nice, George Henry Brandt, M.D., aged 89.

MARTIN.—On April 14th, at the Croft, Treharris, Glam., Edward Graeme Martin, B.A. Cantab., M.R.C.S., L.R.C.P., son of Henry W. Martin, J.P., of Sherwood, Cardiff, dearly loved husband of Mabel H. L. Martin, only daughter of W. W. Leigh, J.P., M.R.C.S., of Glyn Bargoed, Treharris, Glam.

DIARY FOR THE WEEK.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Tuesday and Thursday, 5 p.m., Oliver-Sharpes Lectures by Professor W. M. Bayliss, F.R.S.: Intravenous Injection in Wound Shock.

ROYAL SOCIETY OF MEDICINE.—Section of Surgery: Wednesday, 5.30 p.m., Annual General Meeting. Section of Obstetrics and Gynaecology: Thursday, 5.30 p.m., Annual General Meeting. Dr. Oswald Dinwick: Acute Uterine Inversion. Dr. Herbert Spencer: Cancer of the Uterus complicating Myoma; Abdominal Hysterectomy. Section of Laryngology: Friday, 4 p.m., Annual General Meeting. Cases.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

MAY.

2 Thur. Loudon: Insurance Acts Committee, 2.30 p.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 4TH, 1918.

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MATTERS REFERRED TO DIVISIONS.

British Medical Association.

ANNUAL REPRESENTATIVE MEETING,
LONDON, 1918.

THE Annual Representative Meeting of the Association will be held in London on Thursday, July 25th, and following day(s) as may be necessary.

Important Notice to Members.—Owing to the enforced restrictions in the size of the JOURNAL and its SUPPLEMENT, it will not be possible to publish therein the Annual Report of Council as in previous years. The Council has decided that the best way of meeting the difficulty is to print only the Financial Statement and Estimate (p. 48), and the Recommendations of the Report, forwarding the full Report to all Representatives of Constituencies, and Chairmen, Presidents, and Secretaries of Divisions and Branches. A copy of the full Report will be sent post free to every member who applies for it, and members are reminded that the number of Recommendations is no guide whatever to the number or importance of the matters dealt with in the Report. A list of the more important matters dealt with in the Report will be found on p. 49 of this SUPPLEMENT.

Honorary Secretaries are again reminded that Notices of Motion from Divisions and Branches for the Annual Representative Meeting, proposing to make any addition to or any amendment, alteration, or repeal of any Regulation or By-law, or to make any new Regulation or By-law, or proposing material alteration of the policy of the Association in matters relating to the honour and interests of the medical profession or of the Association (Art. 30, By-law 40), must be received by the Medical Secretary not later than May 16th, 1918. All such Notices of Motion received up to that date will be published in the SUPPLEMENT of May 25th.

(A) PRELIMINARY.

PRESIDENTSHIP, 1918-19.

Recommendation.—That Sir Thomas Clifford Allbutt, K.C.B., LL.D., F.R.S., be re-elected President of the Association for 1918-19.

(Para. 1 of Annual Report of Council.)

(B) FINANCE.

(Extracts from the Financial Statement are printed at p. 48.)

(D) ORGANIZATION.

GROUPING OF BRANCHES FOR ELECTION OF COUNCIL,
1919-20.

(i) Home Branches.

Recommendation A.—That the Home Branches be grouped for election of 24 members of Council, 1919-20, in the same way as for 1918-19.

(For the 1918-19 grouping see BRITISH MEDICAL JOURNAL SUPPLEMENT, May 8th, 1915, p. 201.)

(ii) Oversea Branches.

Recommendation B.—That the Oversea Branches be grouped for election of 7 members of Council, 1919-20, in the same way as for 1918-19.

(For the 1916-17 grouping see BRITISH MEDICAL JOURNAL SUPPLEMENT, May 8th, 1915, p. 202. The 1918-19 grouping was similar, except that the Grenada Branch was included in the Canada and West Indies Group.)

(Para. 47 of Report.)

(I) NATIONAL HEALTH INSURANCE.

CONSTITUTION OF INSURANCE ACTS COMMITTEE.

Recommendation.—That the Annual Representative Meeting, 1918, amend the Schedule to the By-laws as to the constitution (other than membership *ex officio*) of the Insurance Acts Committee to read as follows:

"Otherwise appointed.

Members of the Association appointed as follows:—

6 elected (in the manner prescribed by the Representative Body) by the elected Representatives of the Constituencies formed for the United Kingdom under By-law 33—namely, 4 by all the elected Representatives (acting together) of the Constituencies so formed for England and Wales, and one each by all the elected Representatives (acting together) of the Constituencies so formed for Scotland and for Ireland respectively;

22 elected by the 4 members *ex officio* and the above mentioned 6 elected members of the Committee acting together, such 22 members to be nominated or qualified as under—namely,

18 to be selected so far as possible on a territorial basis from among members nominated by the Local Medical Committees and Panel Committees formed in Great Britain under the Insurance Acts;

1 (being a member of the Staff of a Voluntary Hospital) to be nominated by the Hospitals Committee of the Association;

1 to be nominated by the Medical Women's Federation;

1 to be nominated by the Society of Medical Officers of Health;

1 to be nominated by the Poor Law Medical Officers' Association of England and Wales;

with power for the members appointed as above provided to co-opt as additional members such number (if any) of non-panel practitioners as shall be required to secure that 4 such practitioners shall be members of the Committee."

(Paras. 150-1 of Report.)

(K) HOSPITALS.

PAYMENT OF MEDICAL PRACTITIONERS FOR TREATMENT
OF DISCHARGED DISABLED SOLDIERS AND SAILORS
AT VOLUNTARY HOSPITALS.

Recommendation.—That where it is possible, without detriment to the claims of the civil population, to give hospital treatment, either as in- or out-patients, to discharged soldiers and sailors for whom a public authority is liable, a charge should invariably be made which shall repay the hospital for cost of working and maintenance, and that in addition £2 2s. per case treated, or alternatively a sum equal to 10 per cent. of the amount paid to the institution for working and maintenance expenses, should be put at the disposal of the medical staff.

(Paras. 149-56 of Report.)

By order,

ALFRED COX,

Medical Secretary.

May 1st, 1918.

British Medical Association.

BALANCE SHEET, 31st DECEMBER, 1917.

(Extracts from the Financial Statement contained in the Annual Report of the Council, 1917-18.)

Dr.	LIABILITIES.	1917. £ s. d.	£ s. d.	ASSETS.	1917. £ s. d.
To Subscriptions paid in advance	...	606 18 8		By Subscriptions in arrear	4,581 16 8
„ Advertisements ditto	...	758 0 5	1,364 19 1	„ Advertisements	3,145 9 11
„ Contributions	...	244 17 6		„ Sundry Sales	480 2 0
„ Engraving	...	305 8 5		„ Furniture and Fittings	208 18 10
„ Printing Journal	...	401 8 1		„ Library	1,650 16 7
„ Paper for Journal	...	874 17 3		„ Plant and Type	622 10 10
„ Miscellaneous Printing	...	748 17 10		„ Paper Stock	2,317 8 10
„ Stationery	...	135 15 6		„ Accrued Rent	412 10 0
„ Repairs	...	74 16 3		„ Cash at Office	58 14 4
„ Legal Charges	...	24 15 4		„ INVESTMENTS—	
„ Rates and Taxes, Insurance and Electricity	...	517 11 0		„ Freehold—429, Strand, Agar Street, and Harvey's Buildings	127,516 6 9
„ Plant and Type	...	4 8 9		„ Less amount written off	1,000 0 0
„ Sundries	...	0 15 0			126,516 8 9
„ Library Books	...	38 2 8		„ £3,200 Bank of England Stock @ 202	6,464 0 0
„ Repairs and Hire of Typewriting Machines	...	9 10 2		„ £6,400 Midland Railway Consolidated 2½% Perpetual Guaranteed Preferential Stock @ 47	3,008 0 0
„ Bank Overdraft	...		3,381 3 9		9,472 0 0
„ Exhibition Account Reserve per contra	...		9,075 18 6	„ Exhibition Account—Cash at Bank	55 12 2
			56 19 7	„ „ „ Cash in hand	0 7 5
„ Total Liabilities	...		13,879 0 11		56 19 7
„ Surplus Account—					
Balance on January 1st, 1917	...	132,702 19 9			
Balance of Income over Expenditure for 1917 brought from Revenue or Profit and Loss Account	...	2,841 13 6			
Balance, being total of Excess of Assets over Liabilities	...		135,544 13 3		
			£149,423 14 2		£149,423 14 2

(The above Assets do not include the unexpended Balances of Capitalization Grants held by the various Branches or the Balance held by the Irish Committee.)

REVENUE OR PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDING 31st DECEMBER, 1917.

	1916. £ s. d.	1917. £ s. d.		1916. £ s. d.	1917. £ s. d.
General Association Expenses (Abstract A*)	1,580 2 2	2,133 5 2	Subscriptions	37,248 14 5	35,972 0 7
Central Meetings Expenses (Abstract B)	5,956 18 5	8,504 4 8	Journal Account, Total Receipts (see Abstract G)	21,985 17 8	24,338 13 10
Central Premises Expenses (Abstract C)	2,098 5 5	2,504 0 4	Interest on Investments	403 11 8	394 5 8
Central Printing, Stationery, and Postage Expenses (Abstract D)	1,095 1 9	1,162 2 6	Rent received and accrued	2,250 8 9	2,180 16 4
Central Staff Expenses (Abstract E)	6,566 1 7	6,794 16 11	Returned Scientific Grants	25 0 0	
Library Account (Abstract F)	433 8 0	460 17 10			
Journal Account Expenses (Abstract G)	26,352 10 3	32,206 0 10			
Grant to Irish Committee (Abstract H)	500 0 0	750 0 0			
Grant to Scottish Medical Service Emergency Committee	—	50 0 0			
Capitalization Grants to Branches	2,413 13 4	1,976 14 6			
Subscriptions written off for Deaths	108 14 6	142 18 6			
Arrears written off	1,578 17 11	1,909 1 8			
	£48,683 13 4	£58,594 2 11			
Written off for Depreciation of Premises	1,000 0 0	1,000 0 0			
Library—Written off towards Depreciation	200 0 0	200 0 0			
Plant and Type—Ditto	500 0 0	250 0 0			
Investments—Ditto	592 0 0				
Balance of Income over Expenditure—Carried to Balance Sheet	10,937 19 2	2,841 13 6			
	£61,913 12 6	£62,885 16 5		£61,913 12 6	£62,885 16 5

* For abstracts see Annual Report of Council, printed separately, which will be supplied on application (see above).

Having examined the Balance Sheet, dated 31st December, 1917, and Accounts with the books and vouchers of the Association, except as regards the Irish Committee Account, and having received all the information and explanations we have required, we report that the Balance Sheet is, in our opinion, properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Association according to the best of our information and the explanations given to us and as shown by the books of the Association.

We have verified the Investments of the Association on General Account and on account of the Trust Funds shown and of the Office Staff Superannuation Fund, and we have verified the possession by the Bankers of the Association of the Deeds of the Freehold Property.

G. E. HASLIP, M.D.,
Treasurer.
W. E. WARNE,
Acting Secretary.

PRICE, WATERHOUSE & CO.,
3, Frederick's Place, Old Jewry, London, E.C.,
16th April, 1918.

ESTIMATE OF EXPENDITURE AND RECEIPTS FOR 1918.

Expenditure.	£	Revenue.	£
General Association Expenses	2,600	Subscriptions	36,00
Central Meeting Expenses	8,000	Investments and Rents	2,575
Central Premises Expenses	2,300	Advertisements	19,600
Printing, Stationery, and Postage Expenses	1,400	Sundry Sales of "Journals," etc.	4,574
Irish Committee Expenses	750	Discounts on Paper, etc.	150
Central Staff Expenses	7,000		
Library Expenses	700		
"Journal" Account Expenses	31,300		
Capitalization Grants	2,500		
Arrears of Subscriptions	1,700		
Reduction of Premises Account	1,000		
Depreciation	1,450		
Estimated total expenditure, 1918	£60,700		
Estimated surplus, 1918	2,199		
	£62,899		£62,899

LIST OF THE MORE IMPORTANT MATTERS DEALT WITH IN THE ANNUAL REPORT OF THE COUNCIL, 1917-18.

(A) PRELIMINARY.

Presidentship, 1918-19.—Annual Meeting, 1918.

(B) FINANCE.

Balance sheet, December 31st, 1917; revenue and expenditure.—Apportionment of Subscription.

(C) CENTRAL MEDICAL WAR COMMITTEE.

Relationship with National Service Ministry.—Approaching end of supply of medical men for the Services.—Military Service Act, 1918.—Economy in military medical service.—Position of medical students.—Applications for demobilization.—Gratuities of Territorial officers demobilized on recommendation of Committee.—General demobilization.—Various Medical Boards.—Payment of medical officers of auxiliary hospitals.—Conditions of service of medical officers of Red Cross hospitals.

(D) ORGANIZATION.

Grouping for election of Council, 1919-20.—Grouping for election of Representative Body, 1918-19.—Membership.—Handbook of the Association.—Representation of medical profession in Parliament and on Government and Municipal Bodies.

(E) SCIENCE.

Scientific work of Divisions and Branches.—Increased lending library facilities.—Stewart Prize.

(F) MEDICAL ETHICS.

Position of practitioners examining patients of other practitioners.—Propriety of answering certain inquiries which the Local Government Board has directed should be made.

(H) MEDICO-POLITICAL.

Ministry of Health.—Education Bill.—Infant consultation centres for mothers.—Appointment of medical referees by Ministry of Pensions.—Medical Assessors in compensation actions.—Departmental Committee on the Care of the Blind.—State registration of nurses.—District nursing in London.—Cocaine and Opium Regulations.—Abuse of hypnotic and other drugs.—Medical practitioners and reduction of lighting, etc.—Order.—Reports on women seeking employment on munition work.—Medical certificates of incapacity for work of munition workers.—Lay persons and the practice of medical radiography.—Venereal disease.—Repair of and spare parts for doctors' motor cars.—Supply and price of petrol.—Supply of carbide for motor head lamps.—Medical fees for private practice.—Payment of medical practitioners called in on the advice of midwives.—Proposals for a State-aided Midwifery Service.—Fees for notification of infectious disease.—War Emergency Fund of Royal Medical Benevolent Fund.—Belgian Doctors' and Pharmacists' Relief Fund.—Conditions of dental practice.

(I) NATIONAL HEALTH INSURANCE.

Constitution of Insurance Acts Committee.—Reports to Conferences and to Representative Body, as to action taken.—Annual and Special Conferences of Representatives of Local Medical and Panel Committees, October, 1917, and April, 1918.—Local Conferences of Local Medical and Panel Committees.—Scottish Subcommittee.—Invitation to Association to appoint a member of the Council of the Faculty of Insurance.—Future of Insurance practice.—Non-Panel Committee.—Ministry of Health.—Results of National Health Insurance Acts.

(J) PUBLIC HEALTH AND POOR LAW.

Question of permanent appointment of medical officers of health.—Uniform form for notification of infectious disease.—Irish Poor Law medical officers and membership of Irish County Councils.—Co-operation between the Association, Poor Law medical officers, and medical officers of health.

(K) HOSPITALS.

Payment of medical practitioners for treatment of discharged disabled soldiers and sailors at voluntary hospitals.—Staffing of venereal clinics.—Fees for medical attendance on paying patients at hospitals.

(L) NAVAL AND MILITARY.

Promotion and pay of officers of R.A.M.C. Territorial Force, and Special Reserve.—Indian Medical Service.—Senior officers in the Indian Medical Service.—Indian Defence Force Act, 1917, and non-official medical practitioners in India.—Payment of military medical officers in charge of special hospitals and departments.

(M) SCOTLAND.

Scottish Medical Service Emergency Committee.—Ministry of Health.—Education (Scotland) Bill.—Question of increase of medical fees.

(N) IRELAND.

Extra duties of medical officers of health under schemes for maternity and child welfare.—Poor Law medical officers' salaries.—Treatment of discharged disabled soldiers.—Maternity and child welfare.—Irish Medical War Committee.—Irish Medical Committee.

(O) OVERSEA BRANCHES.

Relationship between Oversea bodies and parent Association.—Functions of South African Committee.

Association Notices.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 26th, 1918, at 2 o'clock in the afternoon. Business: (1) Minutes of last meeting. (2) Appointment of auditors (Messrs. Price, Waterhouse and Co., offer themselves for re-election). (3) Award of Stewart Prize. (4) Report election of President.—By Order,

W. E. WARNE, *Acting Secretary.*

May 4th, 1918.

ELECTION OF COUNCIL, 1918-19.

NOTICE is hereby given that nominations for candidates for election as Members of Council by Branches or Groups of Branches in the United Kingdom for the year 1918-19 must be forwarded to reach the Acting Secretary, at the Office of the Association, not later than Saturday, May 18th, 1918. Each nomination must be on the prescribed form, copies of which will be furnished by him upon application.

Separate forms have been prepared:

- For a nomination by a Division, and
- For a nomination by any three Members of a Branch respectively.

Those applying are requested to state for which purpose the form is desired.

An announcement of the Nominations received will be made in the JOURNAL of May 25th.

Election will be by voting papers. These papers will contain the names of all duly nominated candidates, and will be issued from the Central Office on Saturday, June 8th, and will be returnable not later than Saturday, June 15th.

The result of the election of Members to the Council will be published in the JOURNAL of June 22nd, or, in the event of there being no contests, earlier.

By Order of the Council,

W. E. WARNE, *Acting Secretary.*

May 4th, 1918.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of scientific research into the causation, treatment, or prevention of disease. Preference will be given to medical practitioners and to applicants who propose to investigate the problems directly related to practical medicine.

Applications for grants for the year 1918-19 must be received not later than June 15th, 1918, and must be made on the prescribed form, which, together with the regulations governing the suggested grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C.2.

BRANCH AND DIVISION MEETINGS TO BE HELD.

SOUTHERN BRANCH.—Mr. James Green (Honorary Secretary) gives notice that the Branch Council at its next meeting will nominate candidates for the following offices for the ensuing year, namely, the President-elect, two Vice-Presidents, the Honorary Secretary, and the Honorary Treasurer, but that he is prepared to receive nominations, in writing, from any three members of the Branch for any such office on or before June 1st.

INQUIRY INTO CENTRAL POOL.

THE following further contributions have been received from Panel Committees towards the cost of the inquiry undertaken by the Insurance Acts Committee into the constitution of the Central Pool:

	£	s.	d.
Great Yarmouth Panel Committee	...	2	2
Wiltshire Panel Committee	...	5	0
Lindsey Panel Committee	...	19	0
Stockport Panel Committee	...	1	0
Bradford Local Medical and Panel Committee	...	10	10
Southport Panel Committee	...	2	2
Croydon Panel Committee	...	3	0
Oxfordshire Panel Committee	...	3	0
County of Lanark Local Medical and Panel Committee	...	5	0
Halifax Panel Committee	...	4	0
Glasgow Panel Committee	...	5	0
Durham Panel Committee	...	21	0
Warrington Local Medical and Panel Committee	...	1	0
Surrey Panel Committee	...	2	0
Hertfordshire Local Medical and Panel Committee	...	4	0
Berkshire Panel Committee	...	5	0
Hertfordshire Panel Committee	...	19	10
Stoke-on-Trent Local Medical and Panel Committee	...	5	0
Brecon Panel Committee	...	1	0
Birkenhead Panel Committee	...	3	0
Leth Panel Committee	...	2	0
Dorset Local Medical and Panel Committee	...	19	0
Worcester Panel Committee	...	1	0

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Temporary Surgeons H. W. Breese and G. O. Grant to Chatham Hospital, C. E. E. Herington and W. Whitfield to Haslar Hospital, J. S. L. Roberts and S. O. Rashbrook to Plymouth Hospital, W. S. Lynd to the *Vernon*. To be temporary Surgeons: E. V. Corry, A. S. Green, T. W. Carstairs, T. W. Evans.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: G. W. Chester, W. Davie, F. F. Peterson, J. Hirschmann, G. R. Falcon, H. W. Southgate.

ARMY MEDICAL SERVICE.

Colonel C. O. Reilly, C.B., is retained on the active list under the provisions of Articles 120 and 522 Royal Warrant for pay and promotion, and to be supernumerary.

Colonel W. H. Starr, C.M.G., is placed on retired pay.

ROYAL ARMY MEDICAL CORPS.

To be temporary Majors: J. G. Fitzgerald, H. Pritchard, M. B. Scott, Captain J. R. R. Trist, M.C., to be acting Lieut.-Colonel whilst in command of a medical unit.

Temporary Captain S. L. Hinda to be temporary Major (without increased emoluments).

The notifications in the *London Gazette* of March 27th and April 4th regarding temporary Captain G. J. Arnold and temporary Lieutenant R. G. Hill respectively are cancelled.

The name of temporary Captain John Norman Cruickshank is as now described, and not as in the *London Gazette* of June 7th, 1916, and May 30th, 1917.

W. C. W. Glenny and A. B. Jones, late temporary Captains, are granted the honorary rank of Captain.

Lieutenants (temporary Captains) to be Captains: D. Pottinger, M.C., A. L. Robb, D. Bell, M.C., E. Catford, A. F. I. Patterson, D.S.O., C. J. D. May, D. G. Cheyne, P. A. Opie, F. P. Rankin, W. C. Hartgill, M.C., T. F. Kennedy.

Temporary Lieutenants to be temporary Captains: R. D. Passey, M.C., I. C. Edwards.

To be temporary Captains: A. R. O. Milton, Captain J. S. Pearson (from general list), H. A. Cutler, S. Potter, M. Foulkes, W. Allan, H. A. Treadgold, A. G. Henderson, E. Gordon, M.C., A. Burton, H. A. Fenton, H. N. M. Puckle, J. Bain.

The name of temporary Lieutenant James Stewart Soutter is as now described and not as in the *London Gazette* of May 21st, 1917.

Officers relinquish their commissions: Temporary Major L. S. T. Burrell (on ceasing to be employed at the County of Middlesex War Hospital). Temporary Captains: F. O. Stohr, (acting Major) G. H. Clark (substituted for notification in the *London Gazette* of March 9th), G. A. Birnie, W. D. Bathgate, S. S. Depree, E. E. Willis, H. H. Fairfax, W. R. White-Cooper. Temporary Lieutenants: A. C. Johnson and G. E. P. Davis (on account of ill health contracted on active service and are granted the honorary rank of Lieutenant). J. Acomb, R. J. Dick, A. W. Laing, H. C. W. Wood, W. B. Douglas-Drummond.

To be temporary Lieutenants: C. I. McLaron, J. D. McKelvie, A. A. Hall, J. M. Smith, G. Maclean, J. F. Paul, E. Goffon, W. S. Perrin, H. Farncombe, J. F. Jennings, L. D. Stephen, S. E. Murray, J. C. Curtis, T. G. Rothwell, F. J. Fox, A. L. Vaughan, H. Menage, R. L. Hughes, C. S. Macaskie, P. W. Ashmore, R. H. Martin, S. F. Boyle, H. J. Knox, S. Broderick, W. H. Ross, F. J. Gordon, E. Clark, J. J. Hughes, R. S. Harrington, H. N. Crossley, H. D. Pollard, P. B. Whittington, C. T. Costello, C. W. Coghlan, J. Menzies, G. de P. D'Amico, A. N. Symons, S. G. Trail, E. J. Budd-Budd, A. L. White, W. M. Johnston, S. P. Hyam, T. A. Matthews, E. Reavley, E. C. Tatam, F. M. H. Sanderson.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Lieutenants to be Captains: A. Black, T. G. Roche, N. S. Tirard, T. D. Watt, J. S. B. Forbes, G. R. McRobert, T. H. Rhy, J. C. Burke, V. T. B. Yule, A. G. Lumsden, R. Lloyd-Jones, W. Christopher.

To be Lieutenants: G. V. W. Anderson, P. F. Bishop, O. B. Cohen, W. Feldman, R. B. Green, W. M. Heald, A. V. Pegge, B. B. Sharp, A. G. Shurlock, and G. K. Stone, from University of London Contingent O.T.C.; J. Chanley, J. C. T. Fiddes, and R. S. Paterson from Manchester University Contingent O.T.C.; F. W. M. Lamb from Birmingham University Contingent O.T.C.; H. S. Carter from Leeds University Contingent O.T.C.; E. R. Batho, A. E. Clark-Kennedy, W. S. Gross, R. M. Humphreys, J. W. Jones, P. M. Neighbour, M. C. Paterson, W. N. Goldschmidt, H. E. Bamber.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Deputy Director of Medical Services: Temporary Colonel J. A. Roberts, C.B., C.A.M.C.

Assistant Director of Medical Services: Temporary Lieut.-Colonel C. H. Dickson, D.S.O., C.A.M.C.

Deputy Assistant Directors of Medical Services: Temporary Major W. F. Nicholson, M.C., C.A.M.C.; temporary Major C. A. Young, C.A.M.C., relinquishes his appointment.

CANADIAN ARMY MEDICAL CORPS.

Temporary Captain (acting Major) M. M. Crawford relinquishes the acting rank of Major on ceasing to be specially employed.

Temporary Captains to be temporary Majors: (Acting Major) W. T. Ewing, J. E. McAskill, M.C., O. S. Waugh.

Temporary Captains to be acting Majors: F. C. Clarke, W. G. Cosbie, M.C.

Temporary Major E. R. Selly to be acting Lieutenant-Colonel, and to command a field ambulance.

Temporary Major J. H. Wood to be acting Lieutenant-Colonel.

Temporary Lieut.-Colonel L. E. W. Irving, D.S.O., to be acting Colonel whilst specially employed.

Temporary Captains (acting Majors) to be temporary Majors: R. J. Gardiner, M.C., G. W. Hall, and H. W. McGill, M.C. (substituted for notification in the *London Gazette* of March 8th, incorrectly describing the rank of these officers as Captains only).

Temporary Captain W. S. Macdonell to be acting Major while specially employed.

Temporary Captain (acting Major) W. J. Enright relinquishes the acting rank of Major.

A. B. Gordon to be temporary Captain.

Temporary Lieutenant J. A. Dickie is seconded for duty with the R.F.C.

Temporary Lieutenants to be temporary Captains: J. McW. McDonald, W. I. Henderson, O. A. Rae, J. E. Gimby, I. N. Mitchell, J. H. Macdonald, F. J. Elkerton.

SOUTH AFRICAN MEDICAL CORPS.

Temporary Lieutenants to be temporary Captains (without increasing emoluments): G. A. Beyers, C. F. Beyera, J. T. McAuslin, G. R. Cowie, P. A. Smuts, A. O. I. Brownlee.

Temporary Lieutenant H. Sterne-Howitt to be temporary Captain, with seniority next above G. A. Beyers.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captains to be Majors: J. H. H. Pirie (and to remain seconded), P. Howie, L. C. V. Bardwick, A. B. Sloan.

Captain (temporary Major) T. S. Allan to be acting Lieut.-Colonel whilst commanding a general hospital.

Captain (acting Major) E. A. C. Fazan, M.C., relinquishes his acting rank on alteration in posting.

Captains to be acting Majors whilst specially employed: H. B. Pope, J. H. Blackburn, M.C., W. T. D. Mart, H. Drummond, F. Darlow, M.O., G. L. K. Pringle, H. Drummond, G. E. G. Mackay, M.C., W. L. Robertson, M.C., G. W. Greene, O. H. J. Fagan.

Officers restored to the establishment: Captain (temporary Major) J. Tait (December 31st, 1917), Captains J. B. F. Wilson, and F. Alcock.

Captains P. N. B. Odgers and I. G. Black are seconded.

Officers relinquish their commissions: Captains G. Thomson on account of ill health and is granted the honorary rank of Captain, F. P. Sturm and J. E. S. Smith on account of ill health contracted on active service and are granted the honorary rank of Captain.

Sergeant G. M. Till to be Lieutenant.

TERRITORIAL FORCE RESERVE.

Lieut.-Colonel R. Kirk, from R.A.M.C., to be Lieut.-Colonel.

Captain D. W. Hardy, from a field ambulance, to be Captain.

VOLUNTEER FORCE.

Berwickshire Volunteer Regiment, 1st Battalion.—J. MacWatt (late Lieutenant, Yeomanry) to be Medical Officer and temporary Captain.

Buckinghamshire Volunteer Regiment, 3rd Battalion.—H. T. Wickham to be Medical Officer and temporary Lieutenant.

Gloucestershire Motor Volunteer Corps.—C. V. Knight (late Lieutenant, R.A.M.C.) to be Medical Officer and temporary Lieutenant.

West Riding Volunteer Regiment, 6th Battalion.—J. P. O'Connell to be Medical Officer and temporary Lieutenant.

Worcestershire Volunteer Regiment, 1st Battalion.—Captain H. Smith (late R.A.M.C.) to be Medical Officer and temporary Captain.

APPOINTMENTS.

ALLEN, W. T. D., M.B., B.Ch., Medical Referee for the Liverpool Local War Pensions Committee.

EADON-CLARKE, C. E., L.M.S.S.A., Assistant Medical Officer, Bermondsey Parish Infirmary.

CERTIFYING FACTORY SURGEONS.—A. Dick, M.B., Ch.B. Glasg., for the Birstall District, co. Yorks. L. A. Drake, M.B., for the Clwyd-Bont District, co. Carnarvon. G. E. Wood, M.R.C.S., L.R.C.P., for the Misterton District, co. Nottingham.

DISTRICT MEDICAL OFFICERS.—W. Asten, M.D. Brux., L.R.C.P. and S. Edin., of the Poole Union. W. L. Liston, M.D. Brux., M.R.C.S., L.R.O.P. Lond. (and Workhouse), of the Tewkesbury Union. P. Steadman, M.B., of the Leighton Buzzard Union. D. B. Trumau, M.R.C.S., L.R.C.P., of the Cosford Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

COWELL.—On the 12th April, at Shrubland Nursing Home, Croydon, the wife of Major E. M. Cowell, R.A.M.C. (S.R.), of a son.

DEATHS.

MACBETH.—On April 22nd, at "Sunnydale," 70, Raglan Road, Smethwick, Birmingham (suddenly), Alex. Stewart Macbeth, M.B., Ch.B., son of Alex. Macbeth, solicitor, Pitlochry, Perthshire, dearly beloved husband of Gertrude M. Macbeth.

MARTIN.—On April 14th, at the Croft, Trebarris, Glam., Edward Graeme Martin, B.A. Cantab., M.R.C.S., L.R.O.P., aged 33, son of Henry W. Martin, J.P., of Sherwood, Cardiff, dearly loved husband of Mabel H. L. Martin, only daughter of W. W. Leigh, J.P., M.R.C.S., of Glyn Bargoed, Trebarris, Glam.

DIARY FOR THE WEEK.

WEDNESDAY.

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.—5 p.m., Colonel W. T. Lister, C.M.G., A.M.S.: Pathological Aspect of Certain War Injuries of the Eye.

ROYAL SOCIETY OF MEDICINE.—Section of *Odontology*: Monday, 7.30 p.m., Annual Meeting. Dr. Nathan Mutch: Mouth and Gastro-intestinal Infections. Section of *Anaesthetics*: Tuesday, 8 p.m., Annual Meeting. 8.15 p.m., Dr. G. A. Buckmaster: Physiology of Anaesthesia by Chloroform. Demonstrations.—Dr. O. Mills: Foot-key for Cylinders. Captain C. T. W. Hirsch and Captain H. E. G. Boyle: Apparatus for Administering Nitrous Oxide, Oxygen, and Ether. Section of *Surgery*, Subsection of *Proctology*: Wednesday, 5.30 p.m., Annual Meeting. Clinical Section: Friday, 4.30 p.m., Annual Meeting. Cases: Mr. P. P. Cola: Pedicled Bone-graft in Ununited Fracture of the Mandible.

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

MAY.

11 Sat. Perth: Scottish Committee, Station Hotel, 12.15 p.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 11TH, 1918.

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British Medical Association.

CURRENT NOTES.

A Ministry of Health.

THE British Medical Association has issued an explanatory pamphlet¹ setting out the reasons which have led the medical profession to support the establishment of a Ministry of Health, together with the revised scheme approved by the Council on January 23rd, 1918, and a general account of the arrangements suggested therein. After a short historical summary the nature of the problem is indicated by an enumeration of the many central departments and local authorities in England and Wales now more or less directly concerned with the administration of health legislation. To give point to the complexity of the existing arrangements for the treatment of the individual, an extreme case is taken illustrating the large number of medical practitioners, responsible to almost as many authorities, who might conceivably attend the members of a single poor family, apart from diverse forms of institutional treatment. In presenting its case for unification of authority and simplification of procedure, the Association lays stress on the importance of utilizing the family doctor in domiciliary treatment of every kind. With regard to institutional care, the value of the voluntary hospital system is insisted upon, though it is recognized that modifications may be inevitable in the near future. A possible solution of some difficulties might consist in a large extension of the cottage hospital idea, which allows the family doctor to follow his patients to the hospital, with benefit to all concerned. Under the head of "local administration" the arguments are given for dealing with this problem side by side with unification of central administration. Lastly, the relation of the medical profession to the administrative arrangements proposed in the Association's scheme is discussed with special emphasis on the need for organizing the clinical service on the lines of private practice, in order to maintain the personal relationship and freedom of choice on both sides which are necessary for successful treatment. The proposed system rests on the principle that every kind of treatment for the cure or alleviation of disease should be available for all who need it, and that every class of practitioner should be brought into the medical service. While recognizing that the problem is far from simple, the Association submits its scheme as a contribution to the public discussion which it is hoped will soon result in the setting up of an effective Ministry of Health. The pamphlet is accordingly being sent not only to the chairmen and secretaries of Divisions and Branches, and of Local Medical and Panel Committees, to the members of the General Medical Council, and the heads of various professional bodies, but also to officials of the Government departments concerned, to municipal Poor Law and local bodies, to members of both Houses of Parliament, and other public men interested in the matter, and to the lay press.

The Education Bill.

When the Education Bill was introduced into Parliament last autumn, the British Medical Association issued a memorandum to its members drawing attention to the proposals contained in Clauses 18 and 19, which, if enacted,

¹ A Ministry of Health. London: 429, Strand, W.C.2: pp. 16. 3d.

would extend the power of local education authorities to provide medical treatment as well as medical inspection for all children and young persons between the ages of 2 and 18. The objections of the medical profession to these clauses were placed before the President of the Board of Education by a deputation on December 14th, 1917.¹ Notwithstanding this protest the bill has now been reintroduced with Clauses 18 and 19 unchanged. The Council of the Association, on January 23rd, resolved to press for the deletion of Clause 18, or, failing that, to urge that the new powers and duties given to local education authorities should be confined to medical inspection. The policy of the Association in this matter is to secure the position of the private practitioner in the treatment of school children, and to oppose an extension of the system of whole-time medical officers appointed to perform duties well within the competence of local practitioners. It should be added that the Parliamentary Subcommittee in its efforts at the centre has had the advantage of consultation with four members of Parliament known to be in sympathy with the views of the profession, namely, Sir Watson Cheyne, Sir Henry Craik, Sir Philip Magnus, and Sir Garrod Thomas. By agreement Sir P. Magnus will move *inter alia* for the exclusion of the words "and treatment" from Clause 18. If carried, this will have the effect of limiting the provisions of those clauses to medical inspection only, thereby excluding the proposed extension of the power to provide medical treatment. Secretaries of Divisions and Branches have been asked to approach their members of Parliament at once and ask them to support Sir P. Magnus's amendment and have been provided with a further memorandum which explains the position taken up by the Association.

IRISH COMMITTEE.

A MEETING of the Irish Committee was held at the Irish offices, 16, South Frederick Street, Dublin, on April 4th, with Dr. Giusani in the chair.

Domiciliary Treatment of Discharged and Disabled Soldiers.

The Irish Medical Secretary stated that a representative of the Ministry of Pensions attended a conference between the Medical Commissioners of the Irish Local Government Board, the Irish Insurance Commission, and representatives of the Irish medical profession, with regard to the treatment of disabled and discharged soldiers and sailors.

After discussion of various proposals as to medical treatment for disabled and discharged soldiers and sailors and its remuneration, the medical representatives agreed to submit for the consideration of the Irish Medical Committee the following terms of remuneration on a capitation basis to include the supply of medicine: In urban areas 12s. 6d., in rural areas 15s.; the payment for certification under the Insurance Act to be extra—namely, in borough and larger urban areas 1s. 3d., urban-rural areas 2s., and rural areas 2s. 6d. per capita.

The committee considered these terms satisfactory, but suggested that the scheme should be sufficiently elastic to be adapted to the circumstances of the profession in different areas throughout the country.

Poor Law Medical Officers' Salaries.

The Committee considered the position of the Enniskillen Poor Law medical officers, and directed the Irish Medical Secretary to give every possible assistance to them in their struggle with the board of guardians for adequate salaries. The Committee was also of opinion that the Local Government Board should exercise its

¹ SUPPLEMENT, February 16th, 1918.

powers, and fix forthwith in this and other unions adequate salaries for Poor Law medical officers.

After consideration of complaints from members of the Association in different parts of Ireland, the committee directed its Medical Secretary to write to the Local Government Board urging that when graded scales of salaries are passed after the usual procedure by boards of guardians, and when they are accepted by the medical officers concerned, the Board should sanction them with the least possible delay. The committee also pressed the Local Government Board to sanction and urge boards of guardians to adopt a maximum salary of at least £300 per annum, to be retrospectively applied and attained after ten or fifteen years' service. This request was supported by the following arguments among others:

1. That the maximum salary is very little more than the working expenses of the majority of dispensary districts in Ireland.
2. That it is only by a gross abuse of the Medical Charities Acts that wage-earners and their employers are relieved from contributing towards medical benefits under the Insurance Act as applied to Ireland.
3. In boroughs and the larger urban areas Poor Law medical officers have not sufficient time, when they have discharged their official duties, to compete for a remunerative practice.

Meetings of Branches and Divisions.

SUSSEX BRANCH: BRIGHTON DIVISION.

A MEETING of the Brighton Division was held on April 25th. Deep regret was expressed at the untimely death of Mr. Guy Elliston, Financial Secretary and Business Manager of the Association, and recognition of his valuable services found utterance. The SECRETARY reported that 223 copies of a circular with respect to the proposal to increase medical fees had been sent out and 70 answers had been received; 55 were in favour of the increase—some few expressing uncertainty as to its amount—and 5 more or less completely objected. It was resolved that the principle of the increase of medical fees be approved, that the members of the profession in the area be advised to act in accordance with the suggestion made, and that the local press be approached with a request to announce this decision. With regard to the scheme for a State Medical Service, proposed by a special committee and approved at a meeting of the local profession held on February 23th, the HONORARY SECRETARY, as requested, presented a digest showing the difference between that scheme and one proposed by the Council of the Association. After discussion it was resolved:

That the Division concurs in the opinion expressed by the general meeting of the profession held on February 23th, 1918, and commends the proposed scheme to the Council of the British Medical Association for their consideration and support; and that the Executive Committee be requested to bring these proposals before the annual meeting of the Division with a view to instructing their representative.

Naval and Military Appointments.

ARMY MEDICAL SERVICE.

Colonels to be Major-Generals: (Temporary Major-General) O. R. A. Julian, C.B., C.M.G., vice Major-General F. J. Jencken, retired; S. McDonald, C.M.G., vice Major-General H. G. Hathaway, retired; (Temporary Major-General) M. P. C. Holt, K.C.M.G., C.B., D.S.O., vice Major-General Sir F. H. Treherne, K.C.M.G., retired.

Lieut.-Colonel (Temporary Colonel) J. D. Alexander, D.S.O., from R.A.M.C., to be Colonel, December 26th, 1917.

ROYAL ARMY MEDICAL CORPS.

Brevet Colonel H. A. Haynes is placed on retired pay. Temporary Captain C. R. Macleod, M.C., relinquishes the acting rank of Major on reposting.

To beacting Majors: Captains J. Rowe, N. T. Whitehead, M. C. R. A. Flood. Temporary Captains H. A. Lake, T. B. Batchelor, H. Moore, M. C., A. W. Rattrie, H. B. German, M. C., F. C. Lees, A. Richmond, M. C., A. F. Mavety (from January 4th to 29th, 1918), C. B. Davies, M. C., F. J. O. King, D. M. Morrison, G. T. Baker (from January 4th to 15th, 1918), F. T. Fahy, A. R. Finn (from January 4th to February 9th, 1918), W. A. Hislop (from February 23rd to March 1st, 1918), A. P. Fry (from January 4th to February 15th, 1918), C. A. Lloyd, J. E. P. Allen, V. M. R. R. B. Rutherford, W. C. Douglass, W. J. Morgan, W. S. Danks, J. Gibson, V. L. Connolly, M. C., J. B. Lowe, J. E. Davies, W. T. Brown, M. C., G. D. R. Carr, M. C., J. F. Robertson, A. S. K. Anderson, D.S.O., M. C., H. Young, H. H. Sampson, M. C., J. Anderson, D.S.O., S. J. Rowntree, W. Rankin, F. B. Manser, J. D. Hart, M. C., A. Mearns, H. W. Batchelor, B. H. Barton, M. C., H. H. Warren, H. R. Grellet, H. M. Vickers, G. Buchanan, W. J. C. B. Wishart, D. S. Brough, M. C., F. H. McCaughey (from January 4th to February 15th, 1918), R. C. Irvine, R. M. Greig, S. Cross (from January 4th to March 3th, 1918), P. Carney, A. Sunderland, F. de S. McManis, J. A. Doull, R. Svensson, H. W. Turner, M. A. Power, M. C., J. B. Haycraft, J. S. Arkle, R. C. Alexander, A. Charles, T. C. Ritchie, W. G. Munford, Donaldson, J. B. Cook, R. M. C. R. T. Worthington, T. I. Bennett, A. G. Hamilton, F. G. Bell, M. C., R. T. Worthington, T. I. Bennett, H. W. Scavin, S. G. Luker, Lieutenants (Temporary Captains) G. A. E. Argo, H. A. Harbinson, M. C., H. A. Rowell, M. C., R. J. Clausen, M. O. Temporary Lieutenant H. Goodman.

Officers relinquish their commissions: Temporary Captains F. L. Wood, E. D. Richardson, and A. Stevenson (on account of ill health, and are granted the honorary rank of Captain), W. G. Weston, and A. D. Bigland (on account of ill health contracted on active service, and are granted the honorary rank of Captain), G. O. Anglin, on account of ill health, September 20th, 1917 (substituted for notification in the *London Gazette* of September 21st, 1917), J. Ross, F. G. Thomson, H. N. Rankin, D. Wilson, J. S. Ross, M. Ramsay, H. G. Brown, J. Marmion, L. McL. Weeks, M. O., J. H. Waterhouse, E. S. Gooddy, B. Wallace, M. Moran, W. O. Welby, H. Hannigan, G. N. Lorimer, M. O., H. M. Harrison, J. S. Annandale, A. Hendry, J. M. O'Reilly, T. J. Buckley, J. K. Watson, G. F. Forde, N. W. Walmesley, V. J. McAllister, J. H. Wilkison, R. Slaney, A. J. Smith, C. McShane, R. P. Smith, H. McLean, J. F. Sadleir, W. M. McLaren, J. A. Hutchinson, R. C. Brown, N. G. Harry, T. MacHardy, R. McL. Veitch, on appointment under the Ministry of National Service, December 4th, 1917 (substituted for notification in the *London Gazette* of January 4th, 1918). Temporary Lieutenants D. Lynch, M. A. Teale, A. Bevan, A. W. G. Clark, A. W. M. Sutherland, L. J. Spence, F. W. Hartley, F. J. Lawson, R. J. Maglion, A. A. Wilkinson, S. M. Wilcox, C. F. Hardie, A. Densham, R. T. Edwards (on account of ill health, and is granted the honorary rank of Lieutenant), T. E. A. Stowell.

INDIAN MEDICAL SERVICE.

Lieut.-Colonel P. P. Kilkelly, Presidency Surgeon, Western States of Rajputana, has been appointed temporarily to hold charge of the current duties of the office of the Resident, Western Rajputana States, with effect from September 25th, 1917.

Lieut.-Colonel W. W. Clemesha, M.D., has been granted the rank of temporary Colonel whilst employed as an Assistant Director Medical Services.

Major J. N. Walker to officiate as Professor of Medicine, King George's Medical College, Lucknow.

Lieut.-Colonel C. R. Stevens to officiate as Professor of Surgery, Medical College, Calcutta, and Surgeon to the College Hospital.

The promotion to present rank of the undermentioned officers is antedated as shown: Majors W. M. Pearson (July 23th, 1910); W. E. McKechnie (Jan. 1st, 1911); A. Spitteler (December 28th, 1911); N. S. Wells (July 29th, 1912); J. K. S. Fleming, E. C. Hepper, C. B. McConaghy, L. P. Brassey, and O. F. Marr (December 27th, 1912); S. H. Lee Abbott, B. J. Bradley, J. W. McCoy, T. G. F. Paterson, and D. G. Rai (July 29th, 1913); A. J. V. Betts, B. B. Paymaster, J. Forrest, and D. S. A. O'Keefe (January 26th, 1914); V. B. Nesfield, G. A. Jolly, C. E. Bulteel, and F. C. Rogers (March 1st, 1914); C. G. Seymour (July 31st, 1914); G. W. Maconachie, O. I. Brierley, and E. T. Harris (February 23th, 1915); H. Watts, W. T. McCowan, and E. A. Roberts (July 30th, 1915); H. S. Matson, P. H. Stewart, A. H. Proctor, R. T. Wells, I. M. Macrae, and F. B. Shettle (March 1st, 1916); A. F. Hamilton and A. A. McNeight (August 1st, 1916).

Appointed permanently as Lieutenants: B. C. Ashton, J. G. Bird, W. M. Crombie, R. Hay, G. A. S. Ramsey, and G. Shanks (January 23rd, 1917). N. Briggs and P. Verdon (August 8th, 1917).

To be temporary Lieutenants: Khuda Baksh, Parmanand, Kanan Bihari Sen Roy, Gopal Charan Sen, Leonard J. P. Mordaunt, Bulchad Batanmal Malkani, Khesat Chandra Bhattacharya, Oyiti Churia Madhavan, Sista Lakshminathi Somayaji.

Major J. M. Holmes, M.B., has been appointed Health Officer, notified area, Delhi.

Major H. Crossie has been posted as Joint Civil Surgeon, Peshawar, with effect from October 15th, 1917.

APPOINTMENTS.

STRATON, A. W. K., M.R.C.S., L.R.C.P.Lond., Certifying Factory Surgeon for the Wilton District, Co. Wilts.

THORNTLEY, R. L., M.D.Lond., D.P.H., County Medical Officer of Health to the East Riding of Yorkshire.

YOUNG, Robert Arthur, M.D., F.R.C.P., Physician to the Middlesex Hospital, vice Dr. F. J. Wethered, resigned.

DISTRICT MEDICAL OFFICERS.—J. Bradley, L.R.C.P.I., of the Salford Union. F. Dover, M.B., B.S.Durh., of the Cardiff Union. H. Litherland, L.S.A., (and Workhouse) of the Wigau Union.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

JAMES.—On May 2nd at Hungerford, Berks, the wife of R. Blake James, M.R.C.S.Eng., L.R.C.P.Lond., of a daughter.

DEATHS.

BLADES.—On April 22nd, at the Beeches, Bonmley, Cheshire, T. P. Blades, L.R.C.S.

HUNT.—Major T. Harold Hunt, R.A.M.C.(T.), M.D., R.S.Lond., of Halifax, Yorks, on April 29th, rather suddenly, from acute pneumonia.

DIARY FOR THE WEEK.

MONDAY.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1.—8 p.m., Annual Meeting, 8.30 p.m., Annual Oration by Dr. Theo. B. Hyslop, F.R.S.E., on Degeneration: The Medico-Psychological Aspects of Modern Art, Music, Literature, Science, and Religion.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos Street, W.—5.30 p.m., Major W. Byam, R.A.M.C.: Trench Fever.

ROYAL SOCIETY OF MEDICINE.—Tuesday, 5 p.m., General Meeting of Fellows, Section of History of Medicine: Wednesday, 4.30 p.m., Exhibition of books, pictures, etc., 5 p.m., Annual General Meeting. Papers by Sir William Osler, Dr. O. G. Crampton, Dr. Charles Singer, and Dr. Thomas Winston. Section of Dermatology: Thursday, 4.30 p.m., Cases, 5 p.m., Annual General Meeting. Section of Electro-Therapeutics: Friday, 8.30 p.m., Annual General Meeting. Papers.—Mr. E. M. Corner: Nature of Scar Tissue in War Wounds. Mr. Howard C. Head: A Mobile X-Ray Outfit (illustrated).

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British Medical Association.

CURRENT NOTES.

Medical Examination of Women seeking Employment in Munition Factories.

In February, 1917, the Association represented to the Ministry of Munitions that the fee for the medical examination of women seeking employment in munition areas should be 5s. per case instead of the fee of 2s. 6d. which was being offered, but which the Association considered inadequate, having regard to the importance of the work and the elaborate nature of the form to be filled in. In reply, the Association was informed that the fee of 2s. 6d. had been fixed after consultation with the medical advisers to the Ministry, and that no difficulty had been experienced in obtaining the desired medical services on those terms. Subsequently, representatives of the Association were invited to discuss the question with representatives of the Employment Department, and the Welfare and Health Section of the Ministry of Munitions, as a result of which the Association was invited to submit a draft form of certificate which the profession would be prepared to furnish on the basis of the 2s. 6d. fee. A simple form of certificate embodying the fundamental requirements of the department was drafted by the Medico-Political Committee, and forwarded to the Ministry of Munitions in October, 1917, but does not appear to have been adopted by that department. Notwithstanding the negotiations on this subject which have taken place between the Association and the Ministry of Munitions, practitioners in various parts of the country are still being asked by employment exchanges to fill in the original complicated form of report for a fee of 2s. 6d. It seems necessary, therefore, to remind practitioners that the Association considers a fee of 5s. should be the minimum payment for such reports.

War Emergency Fund of the Royal Medical Benevolent Fund.

The following further subscriptions have been received from Divisions of the Association, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL.

	£	s.	d.
Gateshead Division, per Dr. James Patton, Hon. Sec. ...	48	6	0
Leeds Division, per Dr. James Allan, Hon. Sec. ...	2	2	0
Guildford Division, per Dr. H. F. Parker, Hon. Sec. ...	22	0	0

Inquiry into Central Pool.

The following further contributions have been received from Panel Committees towards the cost of the inquiry undertaken by the Insurance Acts Committee into the constitution of the Central Pool:

	£	s.	d.
York Local Medical and Panel Committee ...	2	2	0
Hampshire Local Medical and Panel Committee ...	1	1	0
East Suffolk Local Medical and Panel Committee ...	1	1	0
Birmingham Panel Committee ...	25	0	0
Oldham Local Medical and Panel Committee ...	5	5	0

Association Notices.

GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Council of the British Medical Association is prepared to receive applications for grants in aid of scientific research into the causation, treatment, or prevention of disease. Preference will be given to medical practitioners

and to applicants who propose to investigate the problems directly related to practical medicine.

Applications for grants for the year 1918-19 must be received not later than June 15th, 1918, and must be made on the prescribed form, which, together with the regulations governing the suggested grants, can be obtained on application to the Medical Secretary of the Association, 429, Strand, London, W.C.2.

Meetings of Branches and Divisions.

LANCASHIRE AND CHESHIRE BRANCH: ROCHDALE DIVISION.

At the annual meeting of the Rochdale Division on April 4th the annual report was presented; the financial statement showed a balance in hand of £2 14s. 9d.

The following officers were elected:

Chairman: Dr. Geddes (Heywood). *Vice-Chairman:* Dr. Lord (Castleton). *Secretary and Treasurer:* James Melvin (Rochdale). *Auditor:* Dr. Harris (Rochdale). *Representative to Annual Meeting and Branch Council:* Dr. Lord (Castleton). *Deputy Representative:* Dr. Carse (Rochdale). *Executive Committee:* The officers, together with Drs. Ashcroft (Littleborough), Shaw (Bacup), and Kilroe and Wilson (Rochdale).

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

Surrey.—At a meeting of the Panel Committee, on February 15th, a resolution was passed protesting against an expression of opinion by the Medical Benefit Subcommittee, and maintaining the right of a Panel Committee to address or attempt to influence its electorate on any subject and in any way it thought desirable. It was agreed to accept payment for the supply of urgent medicines and dressings under the Croydon scheme, in which articles supplied are priced and paid for at the current drug tariff rates. A proposal to join the Association of Panel Committees was defeated.

Sunderland.—At a meeting of the Local Medical and Panel Committee, on April 19th, Dr. Modlin presented a report upon the proceedings of the special conference on April 11th, 1918. After a discussion in which the Insurance Acts Committee and the British Medical Association were severely criticized, the following resolutions were adopted:

That the only body competent to advance panel practitioners' interests is one possessing the constitution of a trades union.

That the Sunderland practitioners who are members of the P.M.P.U. (thirty-three in all) ask that body to constitute them a branch of the union.

That the membership of the P.M.P.U. be maintained and steps be taken to advocate the claims of that organization to the support of panel practitioners and to extend its ranks.

Renfrew County.—At a meeting of the Panel Committee, on March 27th, it was decided (a) that in the present national circumstances the profession should not favour any proposal to refuse to renew insurance contracts; (b) that organization for the future should be proceeded with so far as reasonably possible; (c) that without prejudice to any future discussion as to the adequacy of the present remuneration the profession should, in the meantime, follow up the suggestion made by the Government as to an additional travelling grant and as to an additional grant in respect of increased cost of living for practitioners below the £500 income line. An explanatory memorandum issued by the Association of Panel Committees was allowed to lie on the table, the Committee unanimously expressing its confidence in the Insurance Acts Committee of the British Medical Association.

County of Forfar.—At the annual meeting, on February 13th, of medical practitioners resident in the Forfarshire area, the members of the County of Forfar Local Medical Committee were duly elected. At the inaugural meeting of the Local Medical Committee it was resolved to impose a levy for expenses of one penny per five insured persons on the panel of each practitioner in the area from each of the four quarterly payments to be paid during the year.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Surgeon-General E. R. Dimsey, D.S.O., to London Recruiting Head Quarters; Deputy Surgeon-General J. Shand to the *Vivid* for Royal Naval Barracks, Devonport; Fleet Surgeon E. C. Sawdy and H. Spicer to the *Collingwood*; H. Hunt to the *Bacchante*. Staff Surgeons H. H. Babington to the *Astraea*, F. G. Goble to the *Gloucester*, A. Davidson to Plymouth Hospital, J. A. Thompson to the *Shannon*. Surgeons to rank as acting Staff Surgeons: W. H. King, H. E. R. Stephens, F. C. Alton, D. Loughlin, D.S.C., O. F. O. Sankey, D. A. Mitchell, E. MacEwan, A. H. Joy, M. O. Mason, A. S. Paterson, M. F. Caldwell, R. N. W. W. Biddulph, E. L. Markham. Temporary Surgeons T. W. Carstairs, D. Cook, and H. P. Williams to Chatham Hospital, J. A. McVea to the *Astraea*, G. H. Heath to Devonport Dockyard, A. J. MacDiarmid to the *Blanche*, J. H. Blackburn and J. C. Hendrie to Plymouth Hospital, A. M. Dunlop to the *Crescent*, S. Worthington to the *Inflexible*, W. E. Powell to the *Bristol*, A. V. S. Davies to the *St. Vincent*, G. E. Mullins, T. W. G. Hogg, G. H. C. Harding, and A. L. Spencer-Payne to Haslar Hospital, J. F. N. Payne to the *Excellent*, H. Mowat to the *Shannon*. To be temporary Surgeons: G. L. Mitchell, H. W. Barnes, H. V. Edwards, H. Morrison, A. D. Wall.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer E. T. Lloyd to the *Afridi*.

ARMY MEDICAL SERVICE.

Temporary Major-General Sir G. H. Makins, K.C.M.G., C.R., relinquishes his commission, and is granted the honorary rank of Major-General.

Colonel (temporary Major-General) Bruce M. Skinner, C.M.G., M.V.O., retired list, relinquishes his temporary rank, and is granted the honorary rank of Major-General.

Lieut.-Colonels from R.A.M.C. to be Colonels: (Brevet Colonel) T. W. Gibbard, K.H.S., W. E. Hardy, H. N. Dunn, C.M.G., D.S.O., E. M. Morphew, D.S.O.

Lieut.-Colonel J. Grech, D.S.O., relinquishes the temporary rank of Colonel on reposting.

Lieut.-Colonels to be temporary Colonels whilst employed as Assistant Directors of Medical Services of Divisions: N. Faichnie, B. B. Burke, D.S.O.

ROYAL ARMY MEDICAL CORPS.

Majors to be Lieut.-Colonels: A. R. C. Parsons, E. W. Powell, C. H. Carr, E. Bennett, A. C. Adderley, Sir E. S. Worthington, C.M.G., M.V.O. Major R. V. Cowey, D.S.O., relinquishes the acting rank of Lieut.-Colonel on reposting.

To be acting Lieut.-Colonels:—Whilst in command of a medical unit: Major (Brevet Lieut.-Colonel) B. A. Craig whilst specially employed: Temporary Major D. K. McDowell, C.M.G., Captain E. B. Lathbury.

Maurice Craig to be temporary Lieut.-Colonel.
C. F. Rolleston to be temporary Major whilst serving at the Manor (County of London) War Hospital.

Temporary Lieutenants to be temporary Captains: H. N. Welber, R. G. Sterling, P. Allan, G. Taylor, O. F. D. Airth, W. J. Purdy, P. Cheal, H. D. McCall, W. Templeton, C. C. Kennedy, J. D. Lyle, A. B. Jones, A. R. Leggate, J. Glaister, W. R. Reeds, T. Howell, S. Upton, W. H. Bennett, P. J. Montgomery, A. V. Boyall, G. B. Messenger, G. T. Hogg, J. S. Clark, L. C. Rivett, F. J. Waldmeier, J. M. Shaw, R. Appleton, S. W. Milner, W. L. G. Anderson, W. G. Attenborough, A. Graham-Stewart, E. A. Price, N. Clegg, C. P. A. Stranaghan, R. J. Croxford, H. S. Thomas, L. S. Davidson, T. B. Johnston, A. M. Caverhill, T. B. Davies, J. B. McDougall, D. S. Clarke, J. B. Ball, N. S. Lucas, H. E. Graham, H. Bardsley, W. L. M. Day, D. W. Anderson, E. H. R. Altounyan, M.C., A. C. Meek, W. H. Johnston, A. N. Collier, G. H. F. Graves, G. M. Simpson, E. J. Stuckey, C. H. Booth, R. J. Dunthie, A. W. Gill, J. A. Bateaman, C. O. Bodman, A. Shelley, J. McCartney, F. White, Simpson, L. D. H. Baugh, P. C. Bushnell, H. B. Pare, H. G. White, L. A. H. Bulkeley, J. Gaff, E. D. Keane, H. S. A. Hogg, G. R. Dobrashian, P. C. H. Bennett, R. W. Pearson, J. E. English, A. C. Hallows, M.C., H. G. Steel, J. P. McVey, W. B. Jack, R. J. Helsby, J. J. Armstrong, R. E. Whitting, M. C. E. P. Carmody, L. Gray, T. Mohan, C. C. Chance, J. W. Fox, W. J. Middleton, H. Parsons, R. G. Struthers, W. P. S. Johnson, R. H. Adams, A. R. Berris, J. B. Erskine-Collins, F. W. Browne, E. W. Sheaf, T. Hamilton, A. G. W. Owen, H. V. Deakin, A. F. Morcom, J. F. Mackay, E. Gardner, E. L. Council, M. L. Farner, A. Mackintosh, W. H. Howat, J. R. Scott, J. F. Sheppard, R. S. Stevenson, A. H. Sinclair, F. J. Trimmer, G. F. Woodroffe, P. E. H. Patey, B. McB. Richardson, R. M. Bradley, T. J. Killard-Leavey, H. M. MacL. Mackenzie, G. H. G. Davie, A. H. Richardson, C. H. Haddow, G. N. Montgomery, E. Saaschansky, E. H. Good, J. B. Mackenzie, F. W. Hayes, H. A. Easton, S. H. Kingston, S. S. Payne, L. R. King, A. J. O'Leary, S. Wigglesworth, C. G. Pugh, V. C. Pennell, H. A. Richards, G. Moxley, P. I. Dawson, R. H. G. Oulton, A. C. Campbell, F. C. Trappnell, W. Waugh, J. Buchanan, H. R. Crisp, R. S. Topham, J. W. Power, H. D. Ledward, W. St. C. McChere, G. M. Cameron, E. W. Atkinson, G. W. Clark, R. V. Howell, J. B. McMorland, C. K. Atlee, J. C. Nixon, W. S. Stevenson, G. H. Urquhart, L. W. Davies, T. St. C. Smith, P. McCool, G. Blair.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captain G. H. C. Mold relinquishes the acting rank of Major on reposting.

Captain R. J. Stirling to be Major.

Captains to be acting Majors: J. Kennedy, H. G. Crawford, M.C., H. S. Milne, M.C., J. D. Evans, C. N. Gover, S. R. Armstrong, G. T. Mulhally, M.C., W. McCumbie, W. Murdoch, M.C., W. McK. H. McCullagh, D.S.O., M.C., C. J. B. Way, M.C., R. H. Leigh, M.C., O. M. Fage, P. R. Corbett from January 4th to March 6th, J. Inkster from January 4th to March 1st, T. W. Clarke, M.C., (Brevet Major) R. O. O'Connell, B. Goldsmith, E. M. Cowell, W. McN. Walker, J. C. Young from January 4th to February 22nd, J. J. Speece, M.C., C. Nicholson, W. Hunt, M.C., W. McN. Chesney, M.C., T. F. Corkhill, M.C., O. Armstrong (whilst specially employed).

Captain F. O. L. Moore relinquishes his commission on account of ill health, and is granted the honorary rank of Captain.

Lieutenant D. J. Steele to be Captain.

H. M. Savery from University of London Contingent O.T.C., to be Lieutenant.

TERRITORIAL FORCE.

ARMY MEDICAL SERVICE.

The announcement regarding Colonel C. P. Oliver, C.M.G., which appeared in the *London Gazette* of April 20th, 1918, is cancelled.

ROYAL ARMY MEDICAL CORPS.

Officers retired under the provisions of para. 116 T. F. Regulations: Lieut.-Colonels C. Brook, W. A. Carline, and R. Saundby, and are granted the honorary rank of Lieut.-Colonel: Lieut.-Colonels Sir W. W. Cheyne, C.B., E. J. Domville, and R. Parker; Majors W. Russell and J. H. Nicoll; Captain J. S. R. Russell.

Captain W. H. G. Ball is restored to the establishment.

Captain J. A. Gunn is seconded.

Captain A. Urquhart relinquishes his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain.

Captain W. J. Lacey Hickey, from T.F. Reserve, to be Captain, with precedence as from August 19th, 1915.

Lieutenant J. W. Hedin to be Captain.

Captain A. N. McGregor is seconded for duty overseas.

Lieut.-Colonel (temporary Colonel) H. D. Brook relinquishes his temporary rank on vacating an appointment as Assistant Director of Medical Services and is restored to the establishment.

Lieut.-Colonel J. Oldfield relinquishes his commission on account of ill health, and is granted permission to retain his rank and to wear the prescribed uniform.

Major (acting Lieut.-Colonel) R. W. Brimacombe relinquishes his acting rank on alteration in posting.

Major W. G. Macfee relinquishes his commission on account of ill health, and is granted the honorary rank of Major.

Captain (acting Major) P. T. Rutherford to be acting Lieut.-Colonel whilst commanding a field ambulance.

Captains to be acting Majors whilst specially employed: G. W. Deeping, J. Derham-Reid, R. Ellis, H. E. Fox, G. Steven, W. P. Ferguson, R. C. S. Smith, W. J. Hirst, W. V. Wood, M. C. P. H. Green, C. H. Crawshaw, W. Briggs, C. B. Baxter, T. P. Caverhill, D. E. Finlay, S. S. Hollis, J. W. Cairns, F. G. Gauntlett, D.S.O., R. M. Vick, J. Taylor, W. H. Manson, F. J. B. Robson, V. H. Wardle, F. R. Eddison, E. L. Martin, W. A. Valentine, B. Hughes, D.S.O., G. E. Nash, J. C. Marklove, E. Babst, E. J. Y. Brash, R. V. Slatery, P. H. Michener, A. E. Barnes, T. H. W. Alexander, R. J. A. Longmore, W. J. Stuart, J. Patrick, R. E. Humphry, E. A. Houchin (September 26th, 1917).

Officers seconded for service with a general hospital: Lieut.-Colonel (Brevet Colonel) F. H. Westmacott, Major G. R. Murray, Captains G. L. Chienne and E. Moir.

Captain W. P. T. Atkinson relinquishes his commission on account of ill health, and is granted the honorary rank of Captain.

Lieutenant R. V. Favell to be Captain, December 31st, 1914 (substituted for notification in the *London Gazette* of January 18th, 1915).

APPOINTMENTS.

CLEGG, J. Gray, M.D., H.S., F.R.C.S., Honorary Ophthalmic Surgeon to the Royal Infirmary, Manchester.

COPLAND, J. G., M.B., Ch.B., Aberdeen, Medical Officer of the Children's Home of the Huddersfield Union.

MEASTER, C. G., M.A. Camb., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the Dudley District, co. Worcester.

WILLIAMS, M. W., M.B., Ch.B. Glasg., Assistant Medical Officer of the Swansea Union Workhouse.

DISTRICT MEDICAL OFFICERS.—J. Blakely, M.B., Ch.B. Glasg., of the Ecclesall Bierlow Union, W. Eales, L.R.C.P. and S. Edin., L.F.P.S. Glasg., of the Manchester Union, H. L. Morgan, L.S.A. of the West Ham Union, C. H. Rivers, M.D., of the Redruth Union.

ST. THOMAS'S HOSPITAL.—The following appointments have been made:—Casualty Officers and Resident Anaesthetists: C. H. Vernon, M.A. Cantab., M.R.C.S., L.R.C.P., E. J. S. Eouett, M.R.C.S., L.R.C.P., C. E. C. bh, M.R.C.S., L.R.C.P., N. B. de M. Greenstreet, B.A. Cantab., M.R.C.S., L.R.C.P., Resident House-Physicians: T. Patterson, M.R.C.S., A. T. Spoor, B.A. Cantab., Resident House Surgeons: F. C. Alton, M.R.C.S., L.R.C.P., F. G. Hobson, B.A. Oxon. (D.S.O.), E. N. Shewell-Rogers, B.A. Cantab., House-Physician to Block 8: T. M. Dilworth, M.B., B.Ch., B.A.O., N.U.I. Obstetric House-Physician: H. B. Russell, M.R.C.S., L.R.C.P., Clinical Assistant:—Throat: R. A. Walker, M.R.C.S., H. I. Marriner, Children's Surgical: G. Murray Levick, M.R.C.S., L.R.C.P., Electrical and X-ray Department: A. R. Hargreaves, B.A. Cantab., M.R.C.S., L.R.C.P., D.T.M.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

HAY.—On May 10th, at Trent House, Cowes, the wife of Arthur E. Hay, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

NABARRO.—On May 9th, at 27, 1st Avenue, Harrow-on-the-Hill, the wife of David Nabarro, M.D., F.R.C.P., of a daughter.

DEATH.

RUMLEY-DAWSON.—On May 6th, after a long and painful illness, Ernest Rumley-Dawson, L.R.C.P. Lond., M.R.C.S. Eng., of Teddington, Middlesex.

DIARY FOR THE WEEK.

ROYAL SOCIETY OF MEDICINE.—Section of Epidemiology and State Medicine, Friday 5.30 p.m.: A discussion on Industrial Tuberculosis will be opened by Dr. E. L. Collis (Welfare and Health Section, Ministry of Munitions) and continued by Drs. Brownlee, Greenwood, Leonard Hill, and Benjamin Moore.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MAY.
22 Wed.	London: Parliamentary Subcommittee, 2.30 p.m.
25 Sat.	Perth: Highlands and Islands Subcommittees of the Scottish Committee, Station Hotel, 12.15 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, MAY 25TH, 1918.

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Matters Referred to Divisions.

ANNUAL REPRESENTATIVE MEETING IN LONDON,

Thursday, July 25th, and following day(s).

FURTHER NOTICES OF MOTION.

The following Notices of Motion by the Divisions and Branch stated have been received for consideration by the Annual Representative Meeting of the Association, to be held in London on Thursday, July 25th, 1918, and following day(s):

(A) AFFECTING BY-LAWS OF ASSOCIATION.

Election of Members of the Association.

- By Eastbourne:
That in By-law 5 (I) (Section II of By-laws, as to membership), the word "Division" be substituted for "Branch," *mutatis mutandis*, throughout its text, and elsewhere.

Arrears of Subscription: Cessation of Membership.

- By Fife:
That, for the duration of the war, the automatic removal from the register of members in accordance with By-law 13 should not be proceeded with, if at all possible.

(B) AFFECTING ADMINISTRATION OF ASSOCIATION.

Procedure of Inquiry into Complaints Regarding Professional Conduct.

- By Eastbourne:
That it be an instruction to the Central Ethical Committee to amend No. 7 of the Ethical Rules of Divisions so as to give every member the right to have his case investigated by the Ethical Committee of the Division, provided that no legal liability be incurred by the Association.

Question of a Medical Annual; Question of Accident Insurance in Connexion with the "British Medical Journal."

- By Ashton-under-Lyne:
That it would be to the advantage and interest of the British Medical Association to publish a medical annual, and to formulate a system of accident insurance in connexion with the BRITISH MEDICAL JOURNAL.

(C) AFFECTING POLICY OF ASSOCIATION.

Representation of Medical Profession in Parliament.

- By Ashton-under-Lyne:
That the Association take steps to improve the medico-political education of the profession with a view to securing the medical vote for medical candidates for university seats in Parliament.
- By Bournemouth:
That the time has arrived when the medical profession should be more fully represented in the House of Commons. To this end financial aid should be provided when necessary for candidates approved by the British Medical Association, from funds specially collected by it for this purpose.

Organization of Medical Students.

- By Ashton-under-Lyne:
That the Association take steps to organize the medical schools (students) into probationary Divisions; the membership fee for students to be 10s. 6d., with right to the JOURNAL.

By order,
ALFRED COX,
Medical Secretary.

May 21st, 1918.

British Medical Association.

CURRENT NOTES.

Handbook of the Association.

In accordance with the instruction of the Annual Representative Meeting, 1917, the Council has prepared a Handbook of the Association for 1918. Copies are being sent to all honorary secretaries of Divisions and Branches, representatives of constituencies, and deans of medical schools. The volume contains the more important decisions of the Representative Body as to questions of policy, information as to membership of the Association, subscription, ethical machinery, constitution, information bureau, procedure, library, science grants, scholarships and prizes, the Medical Insurance Agency, and a list of the Council and Central Committees. It is believed that the Handbook will be of great service to the workers for the Association, and suggestions for embodiment in future editions will be welcomed. A limited number of copies are on sale (2s. 6d. a copy; post free, 2s. 8d.). Members may obtain copies, on application accompanied by remittance, addressed to the Acting Secretary, 429, Strand, W.C.2.

Doctors' Chauffeurs and Military Service.

The attention of the Central Medical War Committee has been drawn to the difficulties caused to rural practitioners by the calling up of their chauffeurs under the latest Military Service Act. In remote districts where the population is scattered and the roads difficult and where opportunities of securing repairs are few, the services of chauffeurs able to execute running repairs are essential if the work of the doctors is to be carried on. Urgent representations were made to the Ministry of National Service, which has replied that a delay in calling up for service will be exercised in favour of such chauffeurs where efforts to secure substitutes have failed; that an instruction to this effect had been sent to the local Commissioners; and that the delay would be for about a month in order to enable further endeavours to obtain substitutes to be made. The Labour Department of the Ministry will do what it can to help in providing substitutes; doctors requiring them should communicate with the employment exchanges at the command discharge centres; the local Commissioners will be glad to give further information.

Association Notices.

ELECTION OF COUNCIL, SESSION 1918-19.

NOTICE is hereby given that the following have been duly elected members of the Council for the 1918-19 Session:

BRANCHES IN THE UNITED KINGDOM.

England.
North of England, North Lancashire, and South Westmorland Branches: Professor R. A. Bolam, M.D., Newcastle-on-Tyne.
Yorkshire Branch: H. J. Campbell, M.D., F.R.C.P., Bradford.
Lancashire and Cheshire Branch: Sir James Barr, M.D., F.R.C.P., Liverpool. Wm. Fletcher Shaw, M.D., Manchester.
East York and North Lincoln and Midland Branches: Adam Fulton, M.B., Nottingham.
Cambridge and Huntingdon, East Anglian, and South Midland Branches: No return.

Birmingham and Staffordshire Branches: E. Noël Nason, M.D., Nuneaton.

North Wales, Shropshire and Mid Wales, and South Wales and Monmouthshire Branches: W. B. Crawford Treasure, M.D., Cardiff.

Bath and Bristol, Gloucestershire, West Somerset, and Worcestershire and Herefordshire Branches: George Parker, M.D., Bristol.

Dorset and West Hants, South-Western, and Wiltshire Branches: Russell Coombe, F.R.C.S., Exeter.

Oxford and Reading and Southern Branches: D. A. Sheahan, M.D., Portsmouth.

Kent, Surrey, and Sussex Branches: Claude Wilson, M.D., Tunbridge Wells.

Scotland.

Aberdeen, Northern Counties, Dundee and Perth Branches: C. S. Young, M.R.C.S., L.R.F.P.S.Glas., Dundee.

Edinburgh and Fife Branches: John Stevens, M.D., F.R.C.P.E., Edinburgh.

Glasgow and West of Scotland Branch (Four City Divisions): James R. Drever, M.B., Glasgow.

Glasgow and West of Scotland (Five County Divisions), Border Counties and Stirling Branches: John Goff, M.D., Bothwell.

Ireland.

Connaught and South-Eastern of Ireland Branches: Denis Walshe, M.D., Graigue, co. Kilkenny.

Leinster Branch: Wm. Doolin, M.D., Dublin.

Munster Branch: Joseph Ginsani, M.D., Cork.

Ulster Branch: R. J. Johnstone, F.R.C.S., Belfast.

By Order of the Council.

W. E. WARNE,
Acting Secretary.

May 25th, 1918.

INSURANCE.

TERM OF OFFICE OF PANEL COMMITTEES.

THE English National Insurance Commissioners last year extended the term of office of Panel Committees to July 15th, 1918. In view of the difficulty of holding elections at the present time the Commissioners anticipate that a similar extension of the term of office for a further year will meet the wishes of insurance practitioners generally, and they accordingly propose to adopt this course; but before doing so they are prepared, as on the last occasion, to consider any expressions of opinion from Panel Committees, or their constituents, in favour of holding an election. If the Commissioners are satisfied, either by a resolution passed by a meeting of a Panel Committee, or by representations from a substantial number of individual practitioners in an area, that an election is generally desired, they propose to refrain from exercising their power to extend the term of office of the present members of the Committee, which will accordingly end on July 14th next. Resolutions or representations must be notified to the Commissioners not later than June 15th.

Dr. B. A. Richmond, secretary to the London Panel Committee, in a letter dated May 17th, draws the attention of panel practitioners in London to this matter, and points out that the Panel Committee has expressed its opinion that no election should be held. In the absence of an expression of opinion on the part of panel practitioners contrary to this view, the Commissioners will extend the term of office of the present Committee for a further period.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are announced by the Admiralty: Fleet Surgeon R. S. Osborne to the *Bacchante*; Temporary Surgeons A. P. Robb, H. Whyte, and L. D. Porteous to Haslar Hospital; I. H. Beattie to the *Donegal*; G. L. Mitchell and H. D. Barnes to Plymouth Hospital; E. S. G. Vance to Chatham Hospital. To be temporary Surgeon: H. O. Long.

ROYAL NAVAL VOLUNTEER RESERVE.

To be Surgeon Probationers: G. A. Barber, W. G. Roberts, W. E. Neale, J. Worthington, A. A. Osman.

ARMY MEDICAL SERVICE.

To be Honorary Physicians to the King: Lieut.-Colonel L. W. Harrison, D.S.O., vice Colonel (Honorary Surgeon-General) R. S. F. Henderson, C.B., ret. pay; Colonel E. Eckersley, vice Surgeon-General T. M. Corker, C.B., ret. pay; Colonel (now Major-General) S. Macdonald, O.M.C., vice Surgeon-General Sir W. G. Macpherson, K.C.M.G., C.B., ret. pay.

To be Honorary Surgeons to the King: Major-General (temporary Lieut.-General) T. H. J. G. Goodwin, C.B., C.M.G., D.S.O., vice Colonel (Honorary Surgeon-General) S. Hickson, C.B., ret. pay; Colonel E. M. Pilcher, D.S.O., vice Colonel W. H. Horrocks, C.B., ret. pay.

Temporary Colonel Sir J. P. Stewart, K.C.M.G., C.B. (Captain R.A.M.C.T.F.), relinquishes his temporary commission on reposting and is granted the honorary rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

To be acting Majors: Temporary Majors C. H. Miller and G. Taylor, Captains R. A. Flood (from January 4th to 21st, 1918), E. Percival, D.S.O., M.O., J. A. Reubshaw; Temporary Captains C. H. S. Webb;

J. W. Dew, A. C. T. Woodward, C. W. G. Bryan, A. L. Lockwood, M.C., H. W. Gabe, T. T. Higgins, J. McL. Pinkerton, M.C., G. C. Timpon, F. R. Thornton, M.C., H. R. MacIntyre, M.C., W. G. Johnson, M.C., T. P. Cole, D. H. Russell, M.C., J. Greene, M.C., H. Upcott, R. V. Doleby, G. C. Chubb, W. E. Gemmell, P. J. Chisall, H. Hoage, R. Millar, A. A. Miller, L. F. Hemmans, J. C. L. Day, V. B. Kyle, C. L. T. Arthur, V. H. Mason, M.C., H. Dunkerley, R. J. B. Madden, M.C., H. F. Wilson, M.C., J. P. Davidson, M.C., J. S. Doyle, G. E. Nalikar, M.C., A. R. Jordan, J. Thornley, W. Anderson; Lieutenants (Temporary Captains) C. McN. McCormack, M.C., C. J. O'Reilly, M.C., J. La F. Lauder, D.S.O., M.C.

Lieutenants to be Captains: C. E. Hopwood, H. D. Melroy, E. R. Longstaff, W. Andrew, G. A. Harrison, E. A. C. Langton, K. N. O. Bailey, A. R. Dingley, W. G. Veroiquet, W. C. Mackinnon, O. V. Pearson, P. B. Pinkerton, J. D. Johnson, J. Allison, J. B. Hanna, W. McElroy, R. B. Smith, J. Allen, J. L. Hill, J. M. Martin, J. H. Neill, F. J. Jack, H. Patlansky, F. W. Hebbelthwaite, H. F. Hollis, C. L. Somerville, J. W. W. Baillie, A. McA. Blackwood, J. MacD. Clark, A. Dick, J. E. R. Holmes, W. H. Kerr, J. Liddell, F. O. Logan, K. McAlpine, A. D. C. McGowan, D. W. M. MacKenzie, W. D. Miller, W. H. Palmer, J. W. Patterson, H. B. Sergeant, A. W. Smith, R. Wiggins, R. R. Garden, A. C. Irvine, W. W. Nicol, R. Thom, J. H. Davison, H. W. Lewis, R. Nixon, E. Branley, J. M. Morrison, L. C. Rudd, D. Lennox, E. S. Stubbs, C. Shearer, S. N. Dykes, A. J. B. Griffin.

Temporary Lieutenant B. C. W. Pasco to be temporary Captain. The undermentioned relinquish the acting rank of Major on reposting: Captain R. J. Clausen, M.C., temporary Captains D. S. Brough, M.C., C. A. Bernard, M.C., G. W. Parry, M.C., V. B. Kayle.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Temporary Captain R. Gibson to be acting Major whilst specially employed.

Temporary Captain R. H. Malone relinquishes his commission on appointment to the I.M.S.

Temporary Captains to be temporary Majors: G. M. Foster, M.C., H. C. Dixon, W. L. Whittemore, M.C., H. M. Nicholson, K. E. Cooke, M.C., C. A. Baragar, W. H. Fager, G. F. Stephens.

Temporary Captain R. R. Barker to be acting Major.

SOUTH AFRICAN MEDICAL CORPS.

E. G. Pyott to be temporary Captain.

BRITISH WEST INDIES REGIMENT.

The notifications in the *London Gazette* of September 15th, 1917, regarding C. A. Moseley are cancelled.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Majors to be acting Lieut.-Colonels:—Whilst commanding a field ambulance: J. H. Steppen. Whilst commanding a stationary hospital: E. G. Peck, D.S.O.

Captain (acting Major) H. Seddon to be acting Lieut.-Colonel whilst commanding a field ambulance.

Captain (acting Lieut.-Colonel) R. S. Taylor, D.S.O., reverts to the temporary rank of Major on ceasing to command a field ambulance, with precedence from May 29th, 1915.

Captain (Brevet Major) C. N. Draycott relinquishes his commission on account of ill health, and retains the brevet rank of Major (substituted for notification in the *London Gazette* of April 3rd, 1918).

Captains to be acting Majors whilst specially employed: A. O. Watkin, K. D. Wilkinson, W. T. P. Meade-King, J. H. P. Fraser, M.C., T. W. Hancock, J. H. Thomas, D.S.O., B. E. Potter.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

ROBINSON.—On May 15th, 1918, at 392, Upper Richmond Road, Putney, S.W.15, to William E. and Catherine Robinson, a daughter.

DEATH.

WILKINSON, Arthur W., Captain West Yorkshire Regiment, died in France from wounds received in action on April 18th, aged 34 years. He was the second surviving son of Dr. Wilkinson of Tynemouth.

DIARY FOR THE WEEK.

TUESDAY.

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester Square, W.C., 4.30 p.m.—Cases and Specimens.

MEXICO-PSYCHOLOGICAL ASSOCIATION, 11, Chandos Street, W., 2.45 p.m.—The Rolandic Area in Insanity, by Dr. John Turner; The Prevention and Treatment of Neurasthenia, etc., by Dr. C. F. Fotbergill.

ROYAL SOCIETY OF MEDICINE.—Wednesday, 5 p.m., Discussion by the Fellows: The Future of the Medical Profession under a Ministry of National Health. To be opened by Sir William Osler, who will be followed by Mr. E. B. Turner, Dr. John C. McVail, Dr. Haydon Brown, Dr. Gordon Dill, and others. Section of Otolaryngology: Friday, 4.15 p.m., Cases and Specimens; 5 p.m., Annual General Meeting.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	MAY.
25 Sat.	Perth: Highlands and Islands Subcommittee of the Scottish Committee, Station Hotel, 12.15 p.m.
	JUNE.
19 Wed.	London: Finance Committee, 2.30 p.m.
26 Wed.	London: Council Meeting.
28 Fri.	Metropolitan Counties Branch, Annual General Meeting, 429, Strand, W.C.2, 4 p.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 1st, 1918.

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GENERAL COUNCIL

OF

MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1918.

THE summer session of the General Council of Medical Education and Registration was opened at the Council's offices, Hallam Street, London, on May 28th. Mr. TOMES, the Senior Treasurer, presided over the preliminary proceedings.

ELECTION OF PRESIDENT.

Sir Donald MacAlister was unanimously re-elected President for a further period of five years, on the motion of Dr. NORMAN MOORE, seconded by Sir JOHN MOORE. In welcoming Sir Donald MacAlister to the chair, Mr. TOMES referred in high terms to the work which the President had done on behalf of the Council, both during the half-yearly sessions and during the interims. Sir DONALD MACALISTER thereupon took the chair.

PRESIDENT'S ADDRESS.

Gentlemen,—Yesterday I completed my third term of office as President. My colleagues of the Executive Committee thought it would not be unfitting on my part, and might be agreeable to the Council, were I to prepare a short communication on the matters which have occupied us during the recess. It would at least serve to carry on the sequence of addresses from the chair, which you have been good enough to accept at my hands since you first placed me there in 1904. By your kindness to-day, I am now in a position to offer my proposed "communication" as a presidential address. I am deeply conscious of the honour your continued trust confers upon me. My tenure has already extended beyond that of any of my predecessors in the chair. I am equally conscious of the responsibilities the office entails. With what strength I have, I shall strive to become more worthy to share them with you. Your loyal and generous support lightens the burdens of the President, and makes him your very grateful debtor.

My membership of the Council dates from 1889. Sir George Hare Philipson joined it in 1892. When he passed away, on January 24th, 1918, he had for over a quarter of a century represented among us his well-beloved University of Durham. His courtly manners and his genuine friendliness gave him a warm place in our regard. His great services, professional and academic, to the cause of medical science in the North, gave weight to his judicious counsels here. We shall miss his kindly presence and co-operation. His contemporary at Caius College, Cambridge, Sir T. Clifford Allbutt, has just retired, after ten years' service as our member from that university. Happily in his case we can still count on a continuance, even in so-called retirement, of his luminous contributions to knowledge and wisdom. The writings of the Regius Professor of Physic at Cambridge have always the charm of style—the style which reveals the man. The Council takes leave of him reluctantly and with the best of good wishes.

To fill the places thus vacated, Durham sends us Professor Robert Howden, the accomplished editor of *Gray's Anatomy*; and Cambridge, Dr. Frederick Gowland

Hopkins, F.R.S., Professor of Biochemistry. Their scientific eminence will add to the repute and to the widely representative character of the Council.

Sir Frederick Taylor, our Junior Treasurer, whose health has given some cause for anxiety, is, we are glad to know, regaining strength, though he will probably be unable to attend during the present session. When he retired, in March, from the presidency of the Royal College of Physicians of London, that ancient and distinguished body called to its highest office our learned colleague, Dr. Norman Moore, chairman of the Business Committee. It will be your wish to offer him all fraternal congratulations on the well-merited honour, and to express the hope that he may find its claims on time and strength to be compatible with his continued services on our behalf.

The collection of the portraits of those who during the last sixty years have shared our labours, has been increased by the bequest of Sir George Philipson's, left to us by his will; and by the gift of Mr. Brudenell Carter's, for which I had the pleasure of thanking him in your name.

Finance.

The effects of the long-protracted war can be traced in most departments of the Council's activity.

With regard to finance, our expenditure increases, and our income is diminished. At the close of 1917 the accounts showed that the surplus of revenue for the General and Branch Councils had fallen to £363 11s. 10d. For 1916 the surplus was £1,014 14s. 1d. In the current year, if matters do not improve rapidly, the prospect of a favourable balance is small. Strict economy, both of time and of expense, becomes an imperative duty to the nation and to ourselves. We have lent all our available funds for the public use, and whatever we can further save is urgently needed by the national treasury. Such economy means additional labour and inconvenience to members and staff, but these will be cheerfully borne in view of the objects to be gained.

Number of Registered Practitioners.

With regard to the *Medical Register* for 1918, there is a net increase of 338 in the number of registered practitioners, as compared with a net increase of 256 in that for 1917. The number removed on intimation of death is 801, as compared with 933 in the *Register* for 1917. It is certain, however, that the losses of the year are not yet fully known. The periodical revisions which reveal these to the Registrar, by the operation of Section 14 of the Medical Act, 1858, have of necessity had to be suspended during the war. When peace returns it will be our first duty to resume them. The new names registered in 1917 numbered 1,134; while those in 1916 numbered 1,202. The corresponding figure for 1914 was 1,433.

The *Dentists Register* shows a net increase of only 12, and thus reflects the undue depletion of the men in training for this important branch of the national service which occurred in the first years of the war. Measures have now been taken to check the drain, but it will be some time before their effects are apparent.

Number of Medical Students.

The medical students in actual attendance on professional instruction were, as I reported in November last,

more numerous in October, 1917, than at the beginning of the year. The *Students Register* for 1917 shows that the number registered by each of the three Branch Councils was higher than in the preceding year. The total registrations for 1917 amounted to about 2,165, as against 1,480 in 1913, and 1,600 in 1914. The registrations for 1917 have, indeed, exceeded those for any year since 1891. A recent instruction has, moreover, with a view to the speedy training of men fit to serve as surgeon-probationers in the navy, directed the conditional and temporary release from combatant duty of students who have completed their preliminary scientific examinations in physics, chemistry, and biology, and are thus ready for the second stage of the curriculum. They will be expected to finish this stage within a prescribed time, to keep up their military training, and to accept service with the navy when required. As this measure of release has probably taken effect by this time, I have suggested to the Minister of National Service that useful information would be gained regarding the prospect of replenishing the ranks of the profession hereafter, were a census to be taken now on the lines of those instituted on behalf of the Council in 1917. From the figures so obtained we might ascertain in what degree the forecasts of a serious shortage of qualified practitioners in 1918 and 1919 are likely to be verified. The Ministry has adopted the suggestion, and the census is now in progress.

Entrance Examinations.

The influx of exceptionally young students, considerably below the age of 18, into the ranks of the First Year, has led some deans and registrars to suggest to me that a proportion of them are being prematurely withdrawn from their ordinary school studies, to the detriment of their general education. It is further suggested that the Junior or minimum Preliminary Examination is no longer a sufficient guarantee of maturity for professional study in the case of such young students; and that the present situation would fully justify the Council in taking the step it has long contemplated, and withdrawing its recognition from all examinations in England and Scotland lower in standard than the new School Examination organized by the English Board of Education, and the Scottish Arts or Science Preliminary and Leaving Certificate Examination. As these exempt the holders from university matriculation tests, the vexed question of "compulsory Latin" would incidentally be solved so far as we are concerned. The Council has ceased to require Latin of students who are thus guaranteed to have received a sound secondary education in a sufficient range of other subjects, and to have qualified for matriculation in arts or science. The experience of the next year or two will show whether those are right who question the fitness of many very young students, now admitted to the first year stage, to profit by a professional course. But in the meantime the question of raising now and permanently the minimum educational standard for entrance thereon may profitably be considered by the Education Committee. There is undoubtedly, for the time being, a "shortage of doctors"; but there is apparently no shortage of potential medical students. If by a step, in itself educationally sound and desirable, it were practicable to ensure that only the better prepared of these were selected as actual recruits for the profession, the advantage would be obvious.

The New Military Service Act.

The demands made by the war on the body of qualified medical practitioners are still increasing. The transfer of the duties of selection and distribution to the Ministry of National Service, which I described in my last address, has led to better organization and to fuller co-operation between the authorities and the civil professional committees. But these improvements in machinery alone have now proved inadequate to meet the greater need for man power in the field and at home. Accordingly, the new Military Service Act has extended the service age limit for the whole male population of Great Britain to 50, and for medical men to 55. This special legislation for our profession is perhaps a tribute to its general standard of healthy vigour; it is certainly an admission that the remaining supply of practitioners under 50 is too scanty to provide for all the fresh national requirements which the situation has induced. This latter conclusion has been urged on the Government for over a year past by professional bodies. The particular mode of meeting

the situation now adopted by Parliament may not be that which all would favour. But we shall do well to accept it as an honour that, as we are held capable of a unique form of service to the State, so we are charged with a heavier responsibility than others. Under the new arrangements some readjustment of the functions of professional tribunals and committees will doubtless be required, both in England and in Scotland. Exemption from military service on "occupational" grounds—that is, on the simple ground that a man is a qualified practitioner—will almost necessarily be "conditional" on his undertaking, if required, to give professional service where there is urgent need of medical help. In other words, a certain amount of "redistribution" and "concentration" of civil practice will have to be arranged, in order that places that have yielded up all their younger doctors to the army may not be left without medical provision. It is satisfactory to learn that in making such arrangements the Minister will continue to avail himself of the experience and local knowledge of the professional Committees, which have so greatly assisted him under the earlier Military Service Act.

The Midwives (Ireland) Bill.

The Midwives (Ireland) Bill, to which I referred six months ago, has passed into law; and the whole of the United Kingdom is now, as regards midwifery, under statutory conditions which are uniform in substance, though differing in administrative detail. The Irish Midwives Board is already in process of formation. Its first duty will be to frame rules regulating the admission and practice of midwives, and these will be submitted for consideration to the Executive Committee of this Council before they become operative. Experience has shown that the English Midwives Act, which was the first to pass, requires certain amendments to make its working more effective, and to articulate it with the Scottish and Irish Acts. It is therefore likely that an English Midwives Act Amendment Bill may be submitted to Parliament at an early date.

Departmental Committee on the Dentists Act.

The Departmental Committee on the Dentists Act, appointed by the Lord President, is still taking evidence under its terms of reference. As your President I appeared before it for the second time, and supplied information regarding the steps taken by the Council towards a revised curriculum for qualifications in dental surgery. The war has in various ways brought home to the nation the inadequacy of the present law to provide a body of dentists sufficient in number and in skill for the requirements of public health and efficiency. It is much to be desired that the Committee now sitting may devise means for remedying the evil by amending the law. We may hope before next session to have its report in our hands.

Pharmacopoeial Economies.

War conditions, which last year made it necessary to limit the use of glycerin and refined sugar in pharmacy, have this year forced us to a like economy of fats and oils. Lard and suet must be reserved for food; castor oil and olive oil are scarce, and are required for other important uses. Representations from the Government satisfied the Executive Committee that immediate action must be taken to authorize the use of substances other than these in the official ointments, liniments, etc., of the *British Pharmacopoeia* 1914. After consultation with the Pharmacopoeia Committee, it was decided that the only way to meet the emergency was to follow the precedent of July, 1917, and to amend and alter the *Pharmacopoeia* by the insertion therein of an official leaflet, of which notice was published on behalf of the Council, as the Act directs, in the *Gazettes* of London, Edinburgh, and Dublin on March 29th, 1918. Pharmacists and dispensers thus obtained liberty, in making certain official preparations, to substitute suitable bases for the fatty substances that are no longer procurable. The prompt response of the Executive Committee to the representations made to it has been acknowledged by the Government authorities concerned.

Medical Certificates.

The remarks made, with your assent, in my last address, concerning the danger of laxity in the granting of medical certificates, have met with general acceptance, and have, with your Warning Notice, been included by the Ministry

of National Service in a circular of suggestions issued to practitioners throughout the country. It is satisfactory to report that intimations of alleged laxity have almost ceased to reach us; and no formal complaint of culpable conduct in respect of "untrue, misleading, or improper" certificates has been submitted for inquiry by the Council.

Offences under Medical Service Acts.

Some of your time must, however, be devoted to certain cases in which practitioners have been convicted in the criminal courts of other offences connected with the operation of the Medical Service Acts. These differ from cases in which the charge is one of "infamous conduct in any professional respect." The Council, on proof of the conviction, has to determine whether, having regard to the nature of the offence, it shall "see fit" to direct the erasure of the convicted practitioner's name from the Register.

Prosecution of Impostors.

Considerable activity has been shown by the police and other civil authorities in prosecuting impostors who deceive the public by illegally assuming medical titles and functions. As I have already indicated, the existing emergency has in some places been boldly exploited by such persons, to the obvious detriment of the community. In a number of instances, where the prosecution has been supported by the Medical Defence Union, convictions have been obtained and penalties inflicted.

Direct Representatives.

Unless conditions alter, the general election of Direct Representatives to the Council, which has been postponed by Order until November, 1918, will have to be further postponed. The question is engaging the attention of the Lord President, who is fully informed of the difficulties of the existing situation.

Duration of Session.

Members may find that the difficulties extend to our domestic arrangements; but they will accept the assurance that the Council's officers have done their best to minimize the inconvenience, and take comfort in the prospect that the session will not be of long duration.

British Medical Association.

CURRENT NOTES.

Supply of Surgical Instruments to Civilian Medical Practitioners for their Private Use.

IN consequence of war conditions the Ministry of Munitions has found it necessary to control the supply of surgical instruments. Army and navy surgeons are supplied with any necessary instruments in the ordinary course, while civil hospitals have been furnished by the Ministry of Munitions with a maintenance upkeep permit and can obtain surgical instruments by quoting the number of the permit to their suppliers. The Priority Department of the Ministry of Munitions has now asked the British Medical Association to undertake the investigation of all applications from civilian medical practitioners for surgical instruments for their private use, and has authorized the Association to stamp such applications as the Association may approve with the necessary permit number and classification to enable the practitioner to obtain the required instruments from the manufacturers. Civilian medical practitioners requiring any surgical instruments are requested to furnish full particulars to the Medical Secretary, 429, Strand, W.C.2, but it must be understood that as supplies of surgical instruments are limited, requirements must be kept down to the absolutely necessary, and care will have to be exercised by the Association in endorsing applications. All applications must be accompanied by a Ministry of Munitions Form of Certificate (to be obtained from any post office), filled in and signed by the medical practitioner placing the order.

War Emergency Fund of the Royal Medical Benevolent Fund.

The following further subscriptions have been received from Divisions of the Association in response to the recent appeal, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual sub-

scribers are published monthly in the advertisement pages of the JOURNAL.

	£	s.	d.
Dudley Division, per Dr. L. A. Taylor, Hon. Sec. (third instalment) ...	10	10	0
Kesteven Division, per Dr. C. H. D. Robbs, Hon. Sec. ...	5	5	0
Torquay Division, per Dr. G. Young Eales, Hon. Sec. ...	5	5	0
Marylebone Division, per Dr. C. E. Wallis, Hon. Sec., and Mr. Bishop Harman, Chairman ...	211	2	0
South-Eastern Counties Division, per Dr. M. J. Oliver, Hon. Sec. ...	6	5	6

Association Notices.

MEETING OF COUNCIL.

The next Meeting of Council will be held on Wednesday, June 26th, in the Council Room, 429, Strand, London, W.C.2.—By order,

W. E. WARNE,
Acting Secretary.

May 30th, 1918.

ELECTION OF COUNCIL, SESSION 1918-19.

NOTICE is hereby given that the following have been duly elected members of the Council for the 1918-19 Session:

Cambridge and Huntingdon, East Anglian, and South Midland Branches: E. O. Turner, M.B., Great Missenden, Bucks.

Metropolitan Counties Branch: M. G. Biggs, M.D., 101, Northcote Road, Battersea, S.W. 11. B. Brackenbury, M.B.C.S., L.R.C.P., 21, Quernmore Road, Stroud Green, N. Sir Bertrand Dawson, G.C.V.O., C.B., 32, Wimpole Street, W. W. McAdam Eccles, M.S., F.R.C.S., 124, Harley Street, W.

By Order of the Council,

W. E. WARNE,
Acting Secretary.

June 1st, 1918.

HOME CONSTITUENCIES FOR ELECTION OF REPRESENTATIVE BODY, 1918-19: RETURNS OF REPRESENTATIVES.

NOTICE is hereby given that pursuant to authority delegated by the Council in that behalf, the Organization Committee, on consideration of the membership figures contained in the Annual List of Members, 1918, has decided that the Home Constituencies for election of the Representative Body, 1918-19, under By-law 33, shall be the same as for 1917-18, with the exception that the newly approved Dewsbury Division be grouped with the Leeds Division to form one constituency.

Honorary Secretaries who have not yet forwarded to the Head Office the names and addresses, and dates of election, of the Representatives appointed by their constituencies for 1918-19, are requested to forward these particulars to the Medical Secretary by the earliest possible date. Under By-law 35, Representatives require to be elected not more than nine months nor less than four weeks before the Annual Representative Meeting, and their names to be notified to the Head Office by at latest July 4th. The Representative can, if necessary, be elected and instructed by one and the same meeting of the constituency.

By order,
ALFRED COX,
Medical Secretary.

May 25th, 1918.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells) gives notice that the annual meeting of the Division will be held at the Railway Hotel, Newtown St. Boswells, on Wednesday, June 19th, at 3.15 p.m., for: (1) Election of officers; (2) annual report and financial statement; (3) report of War Committee and reappointment of Committee; (4) instructions to Representative at Representative Meeting.

METROPOLITAN COUNTIES BRANCH.—Mr. N. Bishop Harman and Captain Wilfred Kingdon, R.A.M.C. (Honorary Secretaries), give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C.2, on Friday, June 28th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of Council and of representatives of the Branch on the Central Council. (3) President's address, Dr. M. G. Biggs (Professional organization from the point of view of the general practitioner).

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—Dr. L. Freeman Marks, Honorary Secretary (Brynhaelog, Mumbles, Glam.), gives notice that the annual meeting of the Branch will be held at the General Hospital, Swansea, on Thursday, June 13th, at 3.30 p.m.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeon A. Woolcombe to the *Colossus*. Acting Fleet Surgeon E. J. Steegman to the *President*, additional, for service at the Medical Depot. Staff Surgeon F. S. Wilkinson to the *Chatham*. Surgeon C. E. Gresson to Yarmouth Hospital. Temporary Surgeons J. F. W. Campbell to the *Lord Nelson*; J. L. Pringle to the *Crescent*; G. Cochrane to the *Europa*; C. Colmer to the *Maggie*; A. S. Mackie to the *Imperieuse*; A. K. Roche to the *Hearty*; G. Young and C. K. Scales to Chatham Hospital; H. J. R. Surrage and T. H. R. McKiernan to the *Lancaster*.

ROYAL NAVAL VOLUNTEER RESERVE.

Staff Surgeon H. L. Murray to the *Engle*.

ARMY MEDICAL SERVICE.

Colonel S. G. Moores, C.B., C.M.G., to be temporary Major-General whilst employed as Director of Medical Services of an army.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel R. H. Hall is placed on retired pay. Temporary Majors to be temporary Lieut.-Colonels: Sir R. Armstrong-Jones, H. C. Marr, J. J. G. Blandford.

To be acting Lieut.-Colonels whilst in command of a medical unit: Majors G. E. Ferguson and S. B. Smith, D.S.O.; Captains C. H. Stringer, G. G. Collet, and L. T. Poole, M.C.; Lieutenant (temporary Captain) R. W. Galloway.

Temporary honorary Major T. E. K. Stansfield, M.B., to be temporary honorary Lieut.-Colonel.

Temporary honorary Major W. J. Richard to be temporary honorary Lieut.-Colonel whilst employed at the Merryflats War Hospital.

To be acting Lieut.-Colonels whilst specially employed: Major T. J. Potter; Temporary Majors J. L. Birley, (Captains R.A.M.C.T.F.) L. C. Bruce, M.C., and C. S. Young; Temporary Captain (temporary Major) F. G. W. Deane; Temporary Captain P. Steele.

To be acting Majors: Captain C. T. Edmunds (from January 4th to 29th), Temporary Captains D. B. Pascali, N. A. A. Hughes, A. C. Hancock, M.C., H. J. de Brent, M.C., R. Tindall, M.C.; Temporary Lieutenant D. C. Ogilvie.

Temporary Captain W. Kennedy-Taylor to be acting Major, February 27th, 1918 (substituted for notification in the *London Gazette* of April 13th, 1918).

Temporary Captain P. J. A. Seccombe to be temporary Major whilst commanding troops on a hospital ship.

Temporary Captains John Purcell and William Core, M.B., and temporary Lieutenant George Liggett, M.B., are dismissed the service by sentences of general court-martial, the first two dated March 14th, and the third February 19th.

Lieutenants (temporary Captains) to be Captains: K. A. M. Tomory, J. S. Sloper, C. Wilson, H. N. Stafford, M.C., R. J. Sullivan, M.C., R. A. Anderson, F. M. Lipscomb, H. P. Rindolf, D. N. Macleod.

J. Beckett to be temporary honorary Captain whilst serving with St. John Ambulance Brigade Hospital.

The undermentioned late temporary Lieutenants are granted the honorary rank of Lieutenant: P. Hall, O. A. Purnell.

Temporary Lieutenants to be temporary Captains: T. N. Darling, J. E. Mitchell, R. Beeley, H. G. Sparrow, C. E. Evans, C. S. Stollerforth, T. Forde, G. V. Fiddian, P. M. Reid, R. H. S. Torney, A. G. Wilson, M. Horan, W. St. J. Cogan, J. C. D. Allan, S. McMurray, J. A. Wood, H. A. Cecil, A. Briggs, P. S. Clarke.

Major F. D. G. Howell, D.S.O., M.C., to be temporary Lieutenant-Colonel whilst employed as Assistant Director of Medical Services of an army.

Major T. C. Lucas is placed on the half-pay list on account of ill health contracted on active service.

To be acting Majors whilst specially employed: Captain J. W. Houston, D.S.O., F. J. Thorne, O. Shields, W. F. Abbott, W. Fell, H. K. G. Hodgson; Temporary Captains B. Hogan, A. K. H. Pollock, J. Taylor, A. J. H. Boyton, K. Edwards, H. F. Sheldon, G. Marshall, J. O'D. Egan, W. F. Law, D. J. Glen, J. P. Duncan, W. M. Buchanan, D. Fletcher, P. H. Macdonald, J. T. McCullagh, W. E. P. Phillips, J. Philp, J. Porter, A. Abrahams, J. T. McCullagh, W. E. P. Phillips, A. C. E. Gray, A. H. M. Robertson, R. M. Fenn, D. F. O'Kelly, J. E. Power, Lieutenant (temporary Captain) O. B. Pratt, Lieutenant D. Burrows.

N. W. Rawlings, H. C. C. Rennie, G. Morria, and G. N. B. Sebastian, late temporary Captains, are granted the honorary rank of Captain.

Officers relinquish their commissions: Temporary Major T. B. Rhodes on ceasing to be employed with the North Staffordshire Infirmary. Temporary Captains T. G. Copestake and H. K. Graham-Hodgson (on account of ill health contracted on active service, and are granted the honorary rank of Captain), (acting Major) C. A. L. Evans, E. P. Blasbki, P. S. Hopkins, T. B. Brandon, C. W. Walker, H. C. Davies, E. W. Lynch, R. Buchanan; F. S. Campbell (on taking up duty under the Ministry of National Service), S. F. Lusk, E. A. Morgan, G. F. Nelson, R. P. Williams, F. J. Colling, G. Stewart, A. A. Hill, F. W. S. Stone, A. Cameron (and is granted the honorary rank of Captain), (acting Major) G. W. Parry, C. D. G. Odenough, W. T. Evans, W. L. Christie, C. A. Verge (August 12th, 1917, substituted for notification in the *London Gazette* of September 5th, 1917), M. McK. McKrae, M.C., S. J. A. Beale, M.C., J. S. E. Selby, W. Carnes, W. C. Blackham, J. V. Watson, E. H. Montgomery, A. E. J. Barcroft, temporary honorary Captain W. R. Carter (on ceasing to be employed with the British Red Cross Society in France); temporary Lieutenants C. L. Traylor and C. Beards (on account of ill health and are granted the honorary rank of Lieutenant), B. K. Nutman, H. S. Johnston, W. N. Eustace, J. K. Thompson, K. B. Allan (April 30th, 1917, substituted for notification in the *London Gazette* of October 9th, 1917), A. A. Bisset, A. H. G. McKintosh, C. F. Beavor (on account of ill health contracted on active service and is granted the honorary rank of Lieutenant), W. Robertson, F. R. Sinton, H. B. Corry, G. B. Scott, A. J. M. Paget, R. Butterworth, F. J. Willans; temporary honorary Lieutenants G. Lucas (on ceasing to serve with a stationary hospital), O. C. Snyder, J. W. Hawthorne.

Temporary honorary Lieutenants to be temporary honorary Captains: E. D. Busby, E. S. Welles, E. S. Fish, F. Packard, C. N. Lewis, W. S. Ramsey, L. M. Van Stone.

J. P. Griffin to be temporary honorary Lieutenant whilst serving with British Red Cross Hospital, Netley.

ROYAL AIR FORCE.

MEDICAL BRANCH.

A. A. Bisset and G. H. Warner to be temporary Captain and temporary Lieutenant respectively.

H. C. T. Langdon and F. F. Muecke (temporary Majors R.A.M.C.) are granted temporary commissions as Majors and to be temporary Lieutenant-Colonels whilst employed as Lieutenant-Colonels (medical).

A. H. Cheate is granted a temporary commission as Major and to be temporary honorary Lieutenant-Colonel whilst holding present appointment as temporary honorary Lieutenant-Colonel (medical).

R. P. Williams (temporary Captain R.A.M.C.) is granted a temporary commission as Captain and to be temporary Lieutenant-Colonel whilst employed as Lieutenant-Colonel (medical).

H. Prithard (temporary honorary Major R.A.M.C.) is granted a temporary commission as honorary Major.

M. W. Flack (temporary honorary Major R.A.M.C.) is granted a temporary commission as honorary Major and to be temporary honorary Lieutenant-Colonel whilst employed as temporary honorary Lieutenant-Colonel (medical).

A. P. Bowden and J. McIntyre (temporary Captains R.A.M.O.) are granted commissions as Captains and to be temporary Majors whilst employed as Majors (medical).

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Major A. C. Turner, from D.A.D.M.S., to be Major.

Captains (acting Majors) relinquish their acting rank on ceasing to be specially employed: H. P. Malcolm, R. G. Badenock.

Captain G. H. Spencer to be acting Lieut.-Colonel whilst commanding a military hospital.

Captain W. W. Horton relinquishes his commission on account of ill health and is granted the honorary rank of Captain, November 30th, 1917 (substituted for the announcement which appeared in the *London Gazette* of November 29th, 1917).

Captain R. S. Taylor, D.S.O., to be acting Major with the pay and allowances of his substantive rank.

Captains C. H. Keay and J. L. Wilson relinquish their commissions on account of ill health and are granted the honorary rank of Captain.

Major E. G. Peck, D.S.O., to be acting Lieut.-Colonel whilst commanding a stationary hospital.

Captains to be acting Majors whilst specially employed: C. D. S. Agassiz, M.C., S. R. Gibbs, J. S. Ward, A. E. Huxtable, F. E. W. Rogers, A. J. Blackland, C. A. Pearson, J. Graham, C. J. Fox, C. T. Holland, W. R. Wood, J. E. G. Thomson, H. A. Macmillan, M.C., F. Metcalfe, H. D. Clement-Smith, J. A. Young, M.C., C. H. Caldicott, W. Brander, A. Griffith, W. F. Young, W. B. Hill, G. Young, (Brevet Major) R. C. Elmslie, S. G. Webb, A. G. Kewley, G. H. Cowen, W. L. Griffiths, A. R. Paterson, A. Ricketts, C.M.G., T. H. Richmond, A. Campbell, J. H. Craze, W. R. Bristow.

Lieut.-Colonel (Brevet Colonel) A. B. Gemmel, Major E. N. Cunliffe, and Captain A. Ellison, J. R. Riddell, and T. H. W. Alexander are restored to the establishment.

Captains W. B. Ainger and A. Richardson are seconded for services overseas.

Captain (acting Lieut.-Colonel) R. Waterhouse reverts to the temporary rank of Major on alteration in posting due to reorganization, with precedence from August 8th, 1915, March 15th, 1917 (substituted for notification in the *London Gazette*, May 22nd, 1917).

VOLUNTEER FORCE.

County of Aberdeen Volunteer Regiment, 11st Battalion.—The notice which appeared in the *London Gazette* of December 14th, 1917, regarding Medical Officer and temporary Captain R. M. Wilson is cancelled.

Durham Volunteer Regiment, 4th Battalion.—S. G. Moatyn to be Medical Officer and temporary Lieutenant.

Isle of Wight Volunteer Regiment, 1st Battalion.—Captain E. F. W. Bockell (late R.A.M.C.) to be Medical Officer and temporary Captain.

Hamshire Volunteer Regiment, 3rd Battalion.—Lieutenant R. J. Lytle (late R.A.M.C.) to be Medical Officer and temporary Lieutenant.

APPOINTMENTS.

PLAYFAIR, Ernest, M.B. Lond., M.R.C.P., Assistant Anaesthetist and Instructor in Anaesthetics, King's College Hospital.

WESTMAN, G., M.R.C.S., L.R.C.P., to the charge of the Great Northern Central Hospital's new Electro-Therapeutic and Massage Department.

WILSHAW, T. R., L.S.A., District Medical Officer of the Darlington Union.

DIARY FOR THE WEEK.

WEDNESDAY.

MEDICO-LEGAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.1.—5.30 p.m., Annual General Meeting.

FRIDAY.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, 8.30 p.m.—Address, illustrated by lantern slides, by Captain D. McCrae Aitken: The Correction of Gross Bony Deformities Resulting from War Injuries.

ROYAL SOCIETY OF MEDICINE.—Section of *Larungology*: Friday, 3.45 p.m., Cases and Specimens. 4.30 p.m., Discussion: On Warfare Injuries and Neuroses of the Larynx, to be opened by Mr. Douglas Harmer and Dr. Henry Smurthwaite.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JUNE.	
5 Wed.	London: Medico-Political Committee, 2 p.m.
7 Fri.	London: Central Ethical Committee, 2.30 p.m.
12 Wed.	Kent Branch, Annual Meeting, Tonbridge, 3.30 p.m.
13 Thur.	South Wales and Monmouthshire Branch, Annual Meeting, Swansea, 3.30 p.m.
19 Wed.	London: Finance Committee, 2.30 p.m.
	South-Eastern Counties Division, Edinburgh Branch, Annual Meeting, Newtown St. Boswells, 3.15 p.m.
20 Thur.	Conference of Scottish Local Medical and Panel Committees, Edinburgh (North British Station Hotel) 10.45 a.m.
25 Wed.	London: Council Meeting.
28 Fri.	Metropolitan Counties Branch, Annual General Meeting, 429, Strand, W.C.2, 4 p.m.

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 8TH, 1918.

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GENERAL COUNCIL

OF MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1918.

Sir DONALD MACALISTER, K.C.B., President,
in the Chair.

The Teaching of Preventive Medicine.

Dr. McVAIL proposed:

That it be remitted to the Education Committee (1) to report to the November Session of the Council as to whether the Council should take any action towards promoting or systematizing the teaching of preventive medicine in the medical schools throughout the country; and (2) to make such inquiry as the Committee may find necessary to enable it to report.

Dr. McVail said that the motion was not intended to relate to the existing teaching of public health, which had to do mainly with environment; what he was specially thinking of was the maintenance of the health of the individual, and he was of opinion that the general practitioners of the future should be so educated that they should always have in their minds the preventive aspects of medical work. At present perhaps the best work for the maintenance of health was being done through child welfare agencies and school medical inspection, because the cure of disease in early years often meant the maintenance of health throughout the rest of life. While treatment must remain for generations the most evident function of the profession, the preventive side should be as largely developed as possible. A fear had sometimes been expressed that the general practitioner was becoming only a finger-post, pointing one patient to an institution, another to a specialist, and so on. On the contrary, the work of the practitioner should become more and more important. With recent years the phrase "the pretuberculous stage of tuberculosis" had been accepted, and though strictly speaking it was a contradiction of terms it conveyed quite a useful meaning. Similarly a preatheromatous stage of atheroma, a prenephritic stage of Bright's disease, or a prediabetic stage might also be spoken of. Ten years ago he had recommended to the Royal Commission on the Poor Laws that the general practitioner should have an advisory relationship to his patients, even in the absence of actual disease, but towards that end it was necessary that students should be educated on preventive lines. He had in view not so much the addition of fresh courses of study as the systematization of the teaching of the preventive side of medicine through the whole curriculum in connexion with existing chairs, such as that of zoology in respect of parasitology, that of physiology in respect of breathing, and eating and drinking and exercise, and that of practice of medicine. In the meantime, however, all he asked was that the Education Committee should be requested to consider and report on the system of medical education from this point of view. The country was now alive as it never had been before to the national importance of the physical welfare of individuals; it also was realizing as it never had before the value of the services which the medical profession might render to the nation, and he thought the General Medical Council would

be doing its best work in the direction of national reconstruction if it were to take into consideration the development of medicine on the lines indicated.

Dr. ELLIOT SMITH, in seconding, said that much of the teaching in medicine, surgery, and pathology was already preventive; at the same time it would be an advantage to consider the matter and make suggestions as to further developments. The experience of the last four years had shown the enormously wide range of preventive medicine. It was not for the Council to dictate to the schools as to how they should do their teaching, but it would serve a very useful purpose, even if only in stimulating attention to the subject, for the Committee to submit a series of questions.

Sir JOHN MOORE warmly supported the proposition, but suggested that the words "and in clinical hospitals" should be added after the words "medical schools." He thought that it was at the bedside of the sick that this teaching was needed.

Sir ARTHUR NEWSHOLME said that Dr. McVail had raised a matter of national importance. Already a large part of the teaching in medical schools was along the lines of preventive medicine, but it was asked that this should be increased and made more obvious.

Dr. NORMAN MOORE said that if an inquiry were made it would not be sufficient to look through a collection of calendars and prospectuses of the several schools. The whole condition of medical learning would have to be studied, and cognizance would have to be taken of the kind of men the schools were turning out. It was not a case of adding this or that course to the curriculum, but of discovering whether the present teaching in this respect was stagnant or (as he fully believed) progressive. Already the curriculum was overloaded with subjects, and one rose in despair from any attempt to reduce it.

Dr. MACKAY said that they all felt that the teaching must be more and more directed towards practice, and the physiologists and anatomists must think of their students as future practitioners. He believed that the teachers generally were interested in this subject, and in a way were doing their best to further it, and while he would not hinder the Education Committee from making the investigation proposed, he advised the Council not to expect any direct or immediate results.

The motion, with the addition of the words proposed by Sir John Moore, was carried *unanimously*, and Drs. McVail and Elliot Smith were added to the Education Committee for this purpose.

Finance of the Council.

Mr. C. S. TOMES, in moving the reception of the Finance Committee's report, said he thought the result was fairly satisfactory. The income of the General and Branch Councils for 1917 was £7,710 16s. 4d. and the expenditure £7,342 4s. 6d. Increased legal expenses were due to a good deal of correspondence with regard to complaints which did not materialize. The Council would be in the position of having a decreased income for the next few years owing to the smaller number of men qualifying and also to the general increase in expenses. The number of original registrations for 1917 (not including those on the Colonial and Foreign List) was 985. It was difficult to forecast the number for this year, but up to the present

there had been a slight falling off. A deficit of £130 on the Dental Fund was mainly due to the further drop of twenty-six in the number of original registration fees.

It was hoped that some means would be found of postponing the election of direct representatives this year. The cost of such an election would not be less than £800, and with so many medical men away from their homes it would be an unsatisfactory procedure.

DISCIPLINARY CASES.

Professional Relationship in Adultery Case.

The Council considered the case of Arthur Edward Gladstone, M.R.C.S., L.R.C.P., registered as of Plymouth, and now of Alexandria, New Zealand, who had been summoned on the charge of abusing his position as a medical practitioner by committing adultery and eloping with Mrs. Margaret Frances Hayo, whom and her husband and family he had attended professionally, subsequent to which he was co-respondent in the case of *Hayo v. Hayo* and Gladstone, a decree of divorce being pronounced in April, 1916, and afterwards made absolute.

The case was partly heard at the November session, when the evidence of Mr. Hayo was taken (SUPPLEMENT to the BRITISH MEDICAL JOURNAL, December 22nd, 1917, p. 125).

Dr. Gladstone was represented by counsel, Mr. Craig Henderson. In the absence of a complainant, Mr. C. J. S. Harper, the Council's solicitor, laid the documents before the Council, and said that Dr. Gladstone did not deny that he attended the Hayo family professionally up to July, 1914, on the 29th of which month Mrs. Hayo left home and went into lodgings which he found for her.

Captain Sydney Allen, R.A.M.C., of Dunedin, New Zealand, stated in evidence that it was impossible for Dr. Gladstone to come to England either in a civil or military capacity.

Mr. Craig Henderson read a declaration from Dr. Gladstone affirming that while medical attendant no improper relations existed between Mrs. Hayo and himself. The earliest act of adultery alleged in the divorce proceedings was in February, 1915, by which time he had for several months ceased to attend the Hayo family or engage in private practice.

After the Council had considered the case *in camera* the PRESIDENT said:

I have to announce that the Council has found that the facts alleged against Arthur Edward Gladstone have been proved to its satisfaction, that it has adjudged him to have been guilty of infamous conduct in a professional respect, and has directed the Registrar to erase his name from the *Medical Register*.

Convictions.

The Council considered, on May 30th, the case of George Harry Bishop, M.B., of Lemau Street, Aldgate, who was charged with having been convicted at the Central Criminal Court last October of conspiring with other persons to defeat the provisions of the Military Service Acts by enabling persons liable for military service to escape wholly or partially from that liability, and sentenced to twelve months' imprisonment without hard labour.

The Council's SOLICITOR said that he understood the facts were not denied. The manner in which the offence was carried out was by the administration of thyroid extract. Dr. Bishop was not present, but was represented by counsel, Mr. E. J. Purchase, who said he was not in a position to dispute the conviction, but urged certain circumstances in explanation and mitigation. Dr. Bishop was held in the highest respect by his patients and his fellow practitioners. The offence was an isolated lapse by a man upon whom no shadow of suspicion had previously rested. There was no sort of bribe, no considerable payment of any kind. But in a weak moment he lent himself to this act; he had been accustomed to use thyroid extract in his practice very extensively. He was made a tool of by other men, and himself played a comparatively small part in the conspiracy, which had begun long before he knew anything about it. Testimonials from medical men as to Dr. Bishop's previous good character were put in, and a witness was called to speak of his careful and attentive work as medical officer to a local institution.

The SOLICITOR to the Council, in replying, said that while no considerable pecuniary reward had actually been received, the possibility of a number of future guineas in an East End practice like Dr. Bishop's might have had its influence.

After the Council had deliberated *in camera*, the PRESIDENT said:

I have to announce that, it having been proved that George Harry Bishop was convicted of the misdemeanour alleged against him in the notice of inquiry, the Registrar has been directed to erase his name from the *Medical Register*.

The Council next considered the case of John Henderson Bell, M.D., of Beaufort Mansions, Chelsea, who was summoned on the charge:

That being a registered medical practitioner you were convicted of the following misdemeanours, namely: (1) At the Marlborough Street Police Court on the 29th day of June, 1917, of unlawfully and wilfully attempting to produce a disease in one Albert Cyril Orr, a man belonging to His Majesty's Forces, contrary to the Defence of the Realm Regulations, and were sentenced to six months' imprisonment with hard labour; (2) At the Clerkenwell Police Court, on the 5th day of July, 1917, of unlawfully doing an act preparatory to the commission of the offence of unlawfully and wilfully producing a disease or infirmity in one Howard Hawkins, a man belonging to His Majesty's Forces, contrary to the Defence of the Realm regulations, and were sentenced to six months' imprisonment with hard labour; both sentences on your appeal to quarter sessions being modified to six months' imprisonment in the second division.

Mr. C. J. S. HARPER (Solicitor to the Council) stated that in this case Dr. Bell did not plead any extenuating circumstances, nor did he ask for mercy. He simply said he did not do that with which he was charged.

Mr. A. Neilson, who appeared for Dr. Bell, said that the evidence upon which the magistrate had convicted was to him, as a barrister, surprising. (A long argument ensued concerning the power of the Council to retry the case.) Continuing, Mr. Neilson said that the magistrate seemed to have felt satisfied that the injection of a quarter of a grain of morphine sulphate into Orr's knee was enough to cause disease in the knee; but counsel was told such was quite impossible. Moreover, the only supporting evidence was that of Orr himself and a policeman.

The President pointed out that the practice of the Council was to accept the conviction as a fact, and they were not empowered to retry the case, but had to decide whether the practitioner's name ought to be removed from the *Register*.

Mr. Neilson said that in the second case the evidence was that Hawkins's nose was examined through a speculum, and cotton-wool saturated with suprarenal extract was applied to the mucous membrane. The accusation here was, in fact, an act preparatory to the commission of an alleged offence, that of producing a disease. He then related Dr. Bell's personal and professional history during his seventeen years' practice since graduation. In Chelsea he had a comfortable and remunerative practice, so there was no question of pecuniary need as a temptation to dishonourable conduct. No man suddenly became a rascal. It was not until Orr complained of pain and faintness after manipulation that the morphine was injected on the inner aspect of the thigh, a little above the knee, and the man was then advised to go to a military hospital to rest his knee. Dr. Bell received a guinea; this was the only time he ever saw or treated the man. Three days later Orr went to the Australian Military Hospital and said he had fallen off an omnibus four days previously, and his knee was swollen and painful. He was found to be a deserter from France, having made use of another man's pass, and was now serving a term of imprisonment.

Mr. Harper pointed out that Dr. Bell's story differed from Inspector Wensley's.

The President asked Mr. Neilson to confine his remarks to generalities, as the inspector was not present to be examined.

Mr. Neilson said that in regard to the second case, that of Hawkins, Markham (one of Dr. Bell's patients) came to Dr. Bell and said that he knew somebody who had nose trouble, and he had recommended him to Dr. Bell, knowing him to have done much nose and throat work. Dr. Bell said he would see him at his surgery, but Markham asked that Dr. Bell should see the man at his house in Woodstock Street, and he went there with Markham, taking with him a head mirror, a nasal speculum, nasal forceps, a bottle of suprarenal extract, cotton-wool, a thermometer, and a stethoscope. There Dr. Bell saw an Australian, who was introduced to him as Trooper Burgess; but this was not his name, and he was in fact a warrant officer in the Australian military force. Dr. Bell adjusted his mirror and looked into Hawkins's nose, inserted the speculum, and examined with great care. Mucus was found in the right nostril, the left was normal. Dr. Bell wiped the mucus away with cotton-wool, and as there was evidence of congestion he applied wool dipped in suprarenal extract. Hawkins resisted this and nothing further was done. Within a minute Sergeant Brewer emerged with another officer from a cupboard. A surgeon, Captain Kenneth Shaw, came in and examined all the instruments Dr. Bell had brought, and said he found nothing available for performing an operation for the purpose of injuring the patient's nose. Mr. Harper here pointed out that Captain Shaw had found Hawkins's nose quite normal. Continuing, Mr. Neilson said no attempts were made to show that money had reached Dr. Bell in this relation; he received one guinea for the treatment of Orr. He (Mr. Neilson) considered that Dr. Bell had been made the cat's-paw of Markham.

Several witnesses testified to Dr. Bell's character. The Rev. Dr. Pentreath, late senior military chaplain at Malta, said he had never come across a more honourable man. Counsel put in a letter from Dr. S. A. Kinnier Wilson, of 14, Harley Street, who was unable to remain to give evidence in person, stating that he had known Dr. Bell intimately since 1902, and had often met him during his practice in Chelsea, in consultation and otherwise; he had the highest regard for his

professional attainments, and considered him a practitioner of sound judgement and straightforward probity.

Dr. Bell, in evidence, said that he simply examined the men as any doctor would do; he had done nothing to be ashamed of. The minute injection of morphine into the thigh could not produce any disease. Markham was a patient of his and nothing more, and Markham's recommendation of him to other patients he attributed to gratitude for what he had done for Markham's family. Orr did not say that the examination of his knee had any relation to military service. Hawkins's examination was not completed; the man behaved very strangely. He received a fee of one guinea for Orr, but for Hawkins nothing. Dr. Bell added that he did not claim to be a nasal specialist, but he possessed the necessary instruments for at least a proper examination of such cases. He was never asked, nor did he intend, to do anything improper, and no monetary offer had been made to him.

The Council deliberated on the case *in camera*, and upon the readmission of parties and strangers, the PRESIDENT said:

Dr. Bell, I have to announce to you that the Council does not see fit to direct the Registrar to erase your name from the *Medical Register*.

[The remaining proceedings of the Council will be reported later.]

British Medical Association.

CURRENT NOTES.

Notice.

In view of the increased postage rates, which came into force on June 3rd, the Medical Secretary does not propose in future to acknowledge the receipt of those communications and documents which in an ordinary way would simply receive formal acknowledgement. Exception will, of course, be made whenever an acknowledgement is asked for.

War Emergency Fund of the Royal Medical Benevolent Fund.

The following further subscriptions have been received from Divisions of the Association in response to the recent appeal, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL.

	£	s.	d.
Kesteven Division, per Dr. C. H. Robbs, Hon. Sec. (second list) ...	1	1	0
Worcester Division, per Dr. C. H. Pollard ...	52	10	0
Marlebone Division, per Dr. C. E. Wallis, Hon. Sec., and Mr. N. Bishop Harman, Chairman ...	21	0	0

Inquiry into Central Pool.

The following further contributions have been received from Panel Committees towards the cost of the inquiry undertaken by the Insurance Acts Committee into the constitution of the Central Pool:

	£	s.	d.
Lancashire Local Medical and Panel Committee ...	10	10	0
Portsmouth Panel Committee ...	5	5	0
Northumberland Local Medical and Panel Committee ...	5	5	0
Barrow Local Medical and Panel Committee ...	1	1	0
Middlesex Panel Committee ...	10	10	0
Coventry Local Medical and Panel Committee ...	5	5	0
West Sussex Local Medical and Panel Committee ...	5	5	0
Middlesbrough Panel Committee ...	2	2	0
Bristol Panel Committee ...	2	2	0

Association Notices.

MEETING OF COUNCIL.

The next Meeting of Council will be held on Wednesday, June 26th, in the Council Room, 429, Strand, London, W.C. 2.—By order,

W. E. WARNE,

Acting Financial Secretary and Business Manager.

May 30th, 1918.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells), gives notice that the annual meeting of the Division will be held at the Railway Hotel, Newtown St. Boswells, on Wednesday, June 19th, at 3.15 p.m., for: (1) Election of officers; (2) annual report and financial statement; (3) report of War Committee and re-appointment of Committee; (4) instructions to Representative at Representative Meeting.

METROPOLITAN COUNTIES BRANCH.—Mr. N. Bishop Harman and Captain Wilfred Kingdon, R.A.M.C. (Honorary Secretaries), give notice that the annual general meeting of the Branch will

be held at 429, Strand, W.C. 2. on Friday, June 28th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of Council and of representatives of the Branch on the Central Council. (3) President's address, Dr. M. G. Biggs (Professional organization from the point of view of the general practitioner).

SOUTHERN BRANCH: PORTSMOUTH DIVISION.—Dr. J. H. Frederick Way, Honorary Secretary (151, Victoria Road North, Southsea), gives notice that the annual meeting of the Division will be held in the Medical Library, 25, Western Parade, Southsea, on Thursday, June 13th, at 3.30 p.m.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—Dr. L. Freeman Marks, Honorary Secretary (Brynheulog, Mumbles, Glam.), gives notice that the annual meeting of the Branch will be held at the General Hospital, Swansea, on Thursday, June 13th, at 3.30 p.m.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

Birmingham.—At a meeting of the Panel Committee, on May 7th, it was decided to inform the London Panel Committee that, while fully agreeing with the principle laid down in the Whitley report, it was not possible at the present time to say whether consultation with Government departments should take the form of medical councils or should be conducted in some such way as at present undertaken by the Insurance Acts Committee. A letter from the Panel Medico-Political Union relating to the recent conference and increased remuneration, and suggesting an address to the Panel Committee by a member of their Council, was allowed to lie on the table. A resolution was received from the Small Heath Ward, maintaining that a pensions scheme for panel practitioners should now be initiated.

County Palatine of Chester.—The Local Medical and Panel Committee, on December 12th, 1917, resolved not to commit itself formally to the pledge (M. 19) issued by the British Medical Association, in view of the failure of the Insurance Acts Committee to carry out the intention of the October conference to put the scheme of collective bargaining into operation forthwith, but to inform the Insurance Acts Committee that "it may rely on our support in any strong action in connexion with the demand for the increased fee." At a meeting on April 6th, 1918, it was resolved to join the Association of Panel Committees. At a meeting on April 20th Dr. Hodgson gave a report of the proceedings at the April 11th conference. The resignation of the honorary secretary, Dr. Lionel Picton, on account of the decision of the Committee to join the Association of Panel Committees, was eventually withdrawn.

Staffordshire.—At a meeting of the Panel and Local Medical Committee, held at Stafford on April 26th, Dr. G. L. Lefevre (Longton) resigned his position as secretary in consequence of having accepted a commission in the R.A.M.C. The Chairman (Dr. T. Ridley Bailey) referred in glowing terms to Dr. Lefevre's work and the loss the Committee would sustain by his resignation of the post. Drs. Bull, Tibbets, and Wolverson endorsed the Chairman's remarks, and a presentation was made to Dr. Lefevre as a token of affection and esteem. Dr. W. L'Estrange Mathews (Bradley, Bilston) was appointed Secretary.

Durham County.—The Panel Committee has expressed the opinion that the formation of an Association of Panel Committees is unnecessary in view of the existing arrangements with the British Medical Association, and has recommended insurance practitioners in the area to support its view that the explanatory memorandum of the Association of Panel Committees cannot be accepted as a statement of facts nor can its suggestion of policy be acquiesced in.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments are announced by the Admiralty: Fleet Surgeons: C. T. Baxter to the *Indefatigable*; R. B. Campbell (temporary) to the *Crescent*, additional. Surgeon G. A. Finegao to *Sick Quarters*, *Shetley*. Temporary Surgeons: D. G. Churcher to the *Esperley*; D. L. Baxter to R.N. Division; J. F. M. Campbell to the *Diamond*; H. Millett to the *Lord Nelson*; H. T. Cubbon to the *Dreadnought*; G. O. Grant to the *Shannon*; F. B. Dutton to the *Commonwealth*. To be temporary Surgeon: H. J. Leviser.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer J. E. Fishburn to the *Brisk*. To be Surgeon Probationers: S. A. Holling, J. J. Doyle, T. R. E. Hillier.

ARMY MEDICAL SERVICE.

Lieutenant-General Sir A. T. Sloggett, K.C.B., K.C.M.G., K.C.V.O., is placed on retired pay on completion of the term of his appointment as Director-General, June 1st.

Major-General (temporary) Lieutenant-General T. H. J. C. Goodwin, C.B., C.M.G., D.S.O., to be Director-General, and to be Lieutenant-General, June 1st.

Major-General W. G. Birrell and Colonel H. I. Pocock, C.M.G., retire on retired pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel P. H. Henderson, D.S.O., to be temporary Colonel whilst employed as Assistant Director of Medical Services of a Division, December 27th, 1917.

Temporary Lieut.-Colonel Harold W. Bruce, from Southwark Military Hospital, to be temporary Major on reposting, February 6th, 1918, with

seniority from November 1st, 1915 (substituted for notification in the *London Gazette* of February 18th, 1918).

T. S. Good to be temporary Lieutenant-Colonel whilst employed at the Ashurst War Hospital.

Captain H. W. Carson relinquishes the acting rank of Lieut.-Colonel and reverts to the acting rank of Major (with pay and allowances of his substantive rank), November 27th, 1917.

Captain G. H. Stack to be acting Lieut.-Colonel whilst in command of a medical unit.

Temporary Captains to be acting Lieut.-Colonels: (Acting Major) H. Moore, M.C., whilst in command of a medical unit; C. J. West, whilst specially employed.

Temporary Captains to be temporary Majors (without increased emoluments): J. F. Carruthers, J. F. O'Malley.

Temporary Captains relinquish the rank of acting Majors on re-posting: J. Watson, C. F. Drew, E. O. Abraham, M.C.

S. Ritson and David Wilson, late temporary Captains, are granted the honorary rank of Captain.

Temporary Lieutenant W. O. van Milligan to be temporary Captain.

The names of temporary Major Harold Waterlow Wiltshire and temporary Lieutenant Joseph L. Meynell are as now described, and not as in the *London Gazette* of August 7th, 1916, and July 2nd, 1917, respectively.

To be acting Majors:—Captains: V. T. Carruthers, D. C. Munro, O. R. McEwen, L. A. Andrews, H. F. Joynt, A. S. Cane, J. R. H. I.

Temporary Captains: A. G. Cook, A. P. Saint, M.C., T. Ferguson, J. A. Conway, M.C., W. Crabtree, J. R. Craig, W. M. Badenoch, J. H. Banks, R. K. Birnie, G. B. Holroyde, W. V. Macaskie, H. B. Atlee, M.C., J. Hughston, K. G. Fraser, W. K. McLutye, M.C., W. H. Pescod, J. H. McNicol, M.C., W. A. Rogerson, A. Dick, W. H. Welsh, C. G. Sutherland, J. P. Oord, A. R. Green, F. C. Tibbs, R. Scott, W. D. Cruickshank, A. C. Sturrock, G. D. Mathewson, A. G. Anderson, I. Jones, E. B. Gunson, W. T. Hessel, W. P. Ker, R. A. P. Hill, J. L. Gordon, L. D. Woods, C. A. H. Gee, R. S. Dewar, G. V. Bakewell, L. G. McCune, S. Campbell, D. I. Anderson, J. Alexander. Temporary

Lieutenants (temporary Captains) St. J. D. Buxton, J. F. Bourke, M.C. Temporary Lieutenants N. B. Stewart, W. B. Griffin.

To be acting Majors whilst specially employed: Captains A. Jackson, R. M. Dickson, H. G. Winter, M.C. Temporary Captains W. Martin, F. N. Brown, J. A. W. Waits, H. T. Newling, F. B. Young, W. A. Wheelton, J. D. Duncan, A. Griffiths. Temporary Lieutenant R. A. Oram.

Officers relinquish their commissions: Temporary Captains W. J. Hepworth, A. M. Kennedy, B. C. W. Pasco, E. L. Shelton Jones, and G. D. Cairns (on account of ill health contracted on active service and are granted the honorary rank of Captain); D. Simston (on account of ill health, and is granted the honorary rank of Captain); W. A. Edwards, L. B. W. Braine, R. W. Buchanan, H. C. Smyth, F. Shannon (and is granted the honorary rank of Captain); C. M. Rout. Temporary

Lieutenants C. H. Wagner (on account of ill health contracted on active service, and is granted the honorary rank of Captain), E. H. Smith, J. A. Lees, G. P. Norman.

R. F. H. Jones to be temporary honorary Lieutenant whilst serving with the Welsh Hospital, Nelly.

Temporary Lieutenant J. T. Cameron to take rank and precedence in the corps and in the army as if his appointment to that rank bore date April 18th, 1918.

Herbert Child, late temporary Captain, is granted the honorary rank of Lieutenant.

Temporary honorary Lieutenant W. A. Pride to be temporary honorary Captain whilst serving with the Crookston War Hospital.

INDIAN MEDICAL SERVICE.

Colonel W. H. B. Robinson, C.B., Inspector-General of Civil Hospitals, Central Provinces, to be Surgeon-General with the Government of Bengal.

Lieut.-Colonel D. T. Lane, M.D., has been permitted to retire from the service on account of ill health, with effect from March 29th.

Major E. O. Thurston posted as Residency Surgeon and *ex officio* Assistant to the Resident in Nepal, November 14th, 1917.

Lieut.-Colonel H. B. Melville has been posted as Residency Surgeon in Kashmir, November 12th, 1917.

Captains have been promoted to be Majors, August 1st, 1917: H. W. Pierpoint, W. D. H. Stevenson, H. P. Cook, W. J. Fraser, C. A. Gosson, R. H. Lee, W. A. Mearns, W. B. A. K. Cullen.

Major F. Norman White, O.I.E., A.D.G., I.M.S. (Sanitary), to officiate as Sanitary Commissioner with the Government of India, in addition to his own duties (December 1st, 1917).

Lieut.-Colonel R. Birr, M.V.O., O.I.E., V.C.S., granted privilege leave for three months combined with furlough for nine months.

The services of Lieut.-Colonel C. H. James, C.I.E., have been placed at the disposal of the Chief Commissioner, Delhi (September 29th, 1917).

The services of Major A. S. M. Peebles, M.D., have been placed at the disposal of the Government of Bihar and Orissa (December 15th, 1917).

The services of Lieut.-Colonel A. T. Gage are replaced at the disposal of the Government of Bengal (January 8th, 1918).

To be permanent Lieutenants (November 9th, 1917): H. S. Anand, S. D. Sondhi, M.C., M.B.

Major J. N. Walker, M.R.C.P., has been appointed Professor of Medicine, King George's Medical College, Lucknow, substantively *pro tempore* (December 15th, 1917).

Captains promoted to be Majors (February 1st, 1918): K. G. Gharpurey, P. S. Mills, M.B., D. C. V. FitzGerald, M.C., R. S. Kennedy, M.C., B. Higham, M.B., P. Hefferman, M.B., F. P. Vernicke, M.B., H. S. Hutchison, M.B., R. G. G. Croly, M.B., S. T. Crump, and J. M. Skinner, M.B.

Majors to be Lieut.-Colonels (January 28th, 1918): H. Kirkpatrick, F. D. S. Fayer, P. K. Chitale, T. Hunter, W. R. Batty, D.S.O., G. Hutchison, W. G. Liston, C.I.E., (Brevet Lieut.-Colonel) H. Boulton, R. W. Anthony, E. E. G. Tucker, G. E. Stewart, F. S. C. Thompson, T. S. Novis, J. W. Watson.

Lieut.-Colonel P. B. Haig has been posted as Agency Surgeon in the Eastern States of Rajputana (January 2nd, 1918).

ROYAL AIR FORCE.

MEDICAL BRANCH.

To be Lieutenants: G. M. Mellor, L. E. Stamm.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Majors to be Lieutenant-Colonels: W. K. Steele, J. Olerke, J. H. P. Graham.

Captains W. Ranson, D.S.O. (Lieut.-Colonel R.A.M.C.T.F.), and J. L. W. Morris, to be Majors.

Captains to be acting Lieut.-Colonels whilst in command of a medical unit: (Acting Major) C. M. Page, A. T. Pitts, C. J. A. Griffin, (Acting Major) G. T. van der Vijver.

Captains to be acting Majors: J. G. Ronaldson, M.C., H. W. Matthy, R. L. Newell, D. Macie, M.C., C. D. M. Buckley, M.C., T. O. Graham, H. R. Friedlander, G. H. Stevenson, R. P. A. Kirkland, H. D. Rollinson, W. C. B. Meyer, W. Johnson, M.C., G. Marshall, J. R. Dale, W. H. H. Miles, P. A. Ashcroft, E. W. Bowell, A. D. Gorman, A. B. Black, W. Brown, N. S. Bruce, R. G. Battersby, L. W. Hughes, J. J. Muir, W. W. Newton, T. C. Murphy.

Captains to be acting Majors whilst specially employed: W. A. Thompson, M. W. Ruthven.

Lieutenants to be Captains: P. A. Buxton, H. W. H. Holmes, F. C. Taylor, T. L. Heath, C. G. S. Milne, Vidot, M.C., M. C. Joynt, T. P. Chapman, E. D. Roberts, E. V. Beale, J. M. Norman, A. L. Packman, J. A. Tolmie, S. A. T. Ware, H. J. Blampied, D. C. B. Nett, J. R. Harris, M. W. H. Miles, P. A. Ashcroft, E. W. Bowell, A. D. Gorman, A. B. Black, W. Brown, N. S. Bruce, R. G. Battersby, L. W. Hughes, J. J. Muir, W. W. Newton, T. C. Murphy.

To be Lieutenants: J. G. Lawn and H. A. Chodak from University of London Contingent O.T.C.; M. Chalmers, A. Kennedy, A. E. Cochran, W. S. L. McLeish, J. Nicolson, J. J. Treanor, and W. A. Walker from Glasgow University Contingent O.T.C., Second Lieutenant J. D'A. Champney from unattached list T.F., J. H. Tighe from Birmingham University Contingent O.T.C., N. E. ff. Keim from Bristol University Contingent O.T.C., J. Gilmore from Durham University Contingent O.T.C., G. M. S. Smith from Edinburgh University Contingent O.T.C., A. G. Mitchell and W. A. Jackson from Manchester University Contingent O.T.C., A. G. McColl, A. Piney, D. Macqueen, V. J. Perez, D. Taylor, G. H. Gidlow-Jackson, J. D. White.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Temporary Major E. S. Jeffrey, M.C., C.A.M.C., to be Deputy Assistant Director of Medical Services.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major A. E. H. Bennett to be acting Lieut.-Colonel whilst specially employed.

Temporary Captain H. J. Williamson to be acting Major whilst specially employed.

Temporary Captain T. W. Moore, M.C., to be temporary Major.

VOLUNTEER FORCE.

City of Glasgow Medical Volunteer Corps.—Lieutenant M. Campbell (late R.A.M.C.) to be temporary Captain.

Lancashire Medical Volunteer Corps.—Temporary Major E. Quayle to be temporary Lieut. Colonel.

Lancashire Volunteer Regiment, 16th Battalion.—J. Holmes to be Medical Officer and temporary Lieutenant.

Leicestershire Volunteer Regiment, 2nd Battalion.—J. B. Foulds to be Medical Officer and temporary Captain.

Middlesex Medical Volunteer Corps: Motor Ambulance Conty.—To be temporary Captains: W. I. Atkinson, W. C. Davis, A. S. Powell, J. B. Johnson, C. G. Hare, A. Paul. To be temporary Lieutenants: H. G. Cottrell, L. C. Hudson.

Northamptonshire Medical Volunteer Corps.—F. A. Husbands to be temporary Lieutenant.

Northumberland Volunteer Regiment, 5th Battalion. Captain O. H. Evers (late R.A.M.C.) to be Medical Officer and temporary Captain.

Suffolk Motor Volunteer Corps.—R. Rendall to be Medical Officer and temporary Lieutenant.

Warwickshire Volunteer Regiment, 5th Battalion.—J. Frew to be Medical Officer and temporary Lieutenant.

West Riding Volunteer Regiment, 20th Battalion.—T. Johnstone to be Medical Officer and temporary Lieutenant.

Lancashire Volunteer Regiment, 17th Battalion.—Medical Officer and temporary Lieutenant W. A. Rice to be temporary Captain.

APPOINTMENTS.

DISTRICT MEDICAL OFFICERS.—F. H. de G. Best, M.R.C.S., L.R.C.P. (Edmonton Union), E. F. W. Buckell, M.R.C.S., L.R.C.P. (Isle of Wight Union), S. C. Clarke, F.R.C.S. (Shardlow Union), G. H. Garnett, M.D. (Edin. (Greenwich Union), E. M. Judge, L.S.A. (Medway Union), A. P. Laycock, M.B., B.C. (Cambs. (Fulham Parish), E. H. Milson, M.R.C.S., L.R.C.P. (Andover Union).

DIARY FOR THE WEEK.

THURSDAY.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.—5 p.m., First Croonian Lecture, by Dr. W. Langdon Brown: Sympathetic Nervous System in Disease.

ROYAL SOCIETY OF MEDICINE.—Section of Odontology: Monday, 7.30 p.m., Sir St. Clair Thomson: Removal of a Child's Tooth from a Secondary Branchus by Lower Bronchoscopy. Section of Ophthalmology, 8 p.m., Dr. Lewis R. Yealland: Hysterical Disorders of Vision. Mr. P. C. Bardeley: A Bilocal for Myopes.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
	JUNE.
11 Tues.	St. Helens Division, Annual Meeting (followed by Conjoint Meeting of Warrington and St. Helens Divisions).
12 Wed.	Kent Branch, Annual Meeting, Tonbridge, 3.30 p.m.
13 Thnr.	Portsmouth Division, Annual Meeting, Southsea, 3.30 p.m. South Wales and Monmouthshire Branch, Annual Meeting, Swansea, 3.30 p.m.
19 Wed.	London: Finance Committee, 2.30 p.m. South-Eastern Counties Division, Edinburgh Branch, Annual Meeting, Newtown St. Boswells, 3.15 p.m.
20 Thnr.	Conference of Scottish Local Medical and Panel Committees, Edinburgh (North British Station Hotel), 10.45 a.m.
25 Wed.	London: Council Meeting.
23 Fri.	Metropolitan Counties Branch, Annual General Meeting, 429, Strand, W.C.2, 4 p.m.

BRITISH MEDICAL JOURNAL.

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GENERAL COUNCIL

OF

MEDICAL EDUCATION AND REGISTRATION.

SUMMER SESSION, 1918.

Sir DONALD MACALISTER, K.C.B., President,
in the Chair.

Election of Committees.

The following committees were elected:

Executive Committee: The President (*ex officio*), Dr. Norman Moore, Sir Frederick Taylor, Mr. Tomes, Dr. Langley Browne, Mr. Hodsdon, Dr. Norman Walker, Sir John Moore, Sir Arthur Chance.

Penal Cases Committee: The President (*ex officio*), Mr. Tomes, Sir Francis Champneys, Dr. Norman Walker, Sir Bertram Windle.

Business Committee: Dr. Norman Moore, the President, Dr. Macdonald, Dr. Norman Walker, Dr. Magennis.

Pharmacopoeia Committee: The President, Dr. Norman Moore, Dr. Caton, Dr. Barrs, Dr. Cash, Dr. Norman Walker, Sir John Moore, Dr. Kidd, Dr. Hopkins.

Finance Committee: Mr. Tomes, the President, Sir Frederick Taylor, Mr. Hodsdon, Sir Arthur Chance.

Dental Committee: The President, Mr. Waring, Mr. Tomes, Mr. Hodsdon, Sir Arthur Chance.

Dental Education and Examination Committee: Mr. Tomes, the President, Mr. Waring, Mr. Hodsdon, Dr. Knox, Sir Arthur Chance, Dr. Symington, Sir Arthur Newsholme (for special business).

Students' Registration Committee: Dr. Norman Moore, the President, Dr. Langley Browne, Dr. Mackay, Dr. Littlejohn, Sir Bertram Windle, Dr. Kidd.

Examination Committee: Sir F. Taylor, Dr. Elliot Smith, Dr. Caton (English Branch Council), Dr. Russell, Dr. Cash, Dr. Norman Walker (Scottish Branch Council), Sir John Moore, Sir A. Chance, Dr. Kidd (Irish Branch Council).

Education Committee: Dr. Norman Moore, Dr. Barrs, Sir F. Champneys (English Branch Council), Dr. Mackay, Mr. Hodsdon, Dr. Knox (Scottish Branch Council), Sir A. Chance, Sir B. Windle, Dr. Dixon (Irish Branch Council).

Public Health Committee: Sir A. Newsholme, Dr. Letimer, Mr. Verrall (English Branch Council), Sir D. MacAlister, Dr. Littlejohn, Dr. McVail (Scottish Branch Council), Sir John Moore, Dr. Magennis, Dr. Coey Bigger (Irish Branch Council).

The reports of committees were taken on May 31st. Each of the reports in turn was received, approved, and entered on the minutes.

Annual Tables of Examinations.

Dr. NORMAN WALKER presented the Examination Committee's analysis of the annual tables for 1917, showing the results of the professional medical examinations in medicine, surgery, and midwifery, by the conjoint boards and the several universities.

Of the twenty-three examining bodies, thirteen did not allude to the subject of operative surgery, five gave the passes and rejections, four stated that the subject was included under surgery, and one that the examination was suspended during the war; twelve did not allude to the subject of ophthalmic surgery or ophthalmology, four gave the passes and rejections, four stated that the subject was included in surgery, one that it was taken with final, one that the examination was suspended during the war, and one that there was no special examination in the subject; ten did not allude to the subject of mental diseases, seven gave the passes and rejections, five stated that this was included in medicine, and one that it had no special examination in the subject.

Sir JOHN MOORE drew attention to the discrepancy between the number of rejections in midwifery and in the other two subjects.

The British Pharmacopoeia.

Sir JOHN MOORE, in presenting the report of the Pharmacopoeia Committee, said that in order to restrict the use in pharmacy of certain oils and fats required for other purposes the use of alternative bases for official liniments, ointments, and the like had been sanctioned. An intimation was published in the *Gazettes* and included in copies of the *Pharmacopoeia* withdrawing certain substances and directing the substitution and modification of others. Regret was expressed at the deaths of Sir George Hare Philipson, an assiduous member of the Committee, and of Dr. Joseph Price Remington of Philadelphia, whose labours for the assimilation of the British and American *Pharmacopoeias* were warmly appreciated on both sides of the Atlantic.

School Examinations in India.

Dr. J. Y. MACKAY reported, on behalf of the Education Committee, that in reply to a recent communication from the India Office the Under Secretary for India had been informed that the Council would recognize as qualifying pupils for admission to the *Students Register* all school examinations in India which were accepted by any Indian university as equivalent to its own matriculation examination, on the same terms and subject to the same conditions as those on which that examination was recognized by the Council. That was the invariable rule of the Council in such cases. It was added that suggestions made by any of the universities of India for the modification of the regulations which at present applied to Indian preliminary examinations would be carefully considered by the Council.

Students' Registration and Approval of Institutions.

Dr. NORMAN MOORE presented the report of the Students' Registration Committee on exceptional registrations and the antedating of the commencement of professional study.

The number of medical students whose registration had been antedated since November, 1917, was 75. The Committee had resolved, satisfactory evidence as to visitation having been received, to add King Edward VI Grammar School, Southampton, and University College School, Hampstead, both of which were recognized by the English Conjoint Board, to the list of recognized institutions approved by the Council.

Validity of Certificates.

Sir JOHN MOORE brought forward a report of the Public Health Committee on various matters remitted to it. The Council agreed, on the recommendation of the Committee, following upon a letter from Surgeon-General M. P. Holt, D.M.S. British Salonica Force, that certain certificates granted to Special Reserve, Territorial, and temporarily commissioned officers should remain valid for examination purposes after the officers in question had been demobilized or had resigned their commissions.

The Apothecaries' Hall of Ireland.

Dr. NORMAN WALKER, on behalf of the Examination Committee, brought forward the report of Dr. William Boxwell on the examinations of the Apothecaries' Hall of

Ireland; also the report by Dr. R. J. Rowlette for the period May-July, 1917, when Dr. Boxwell was absent on service. Certain remarks of the reporters as to the examination in pathology (which was stated by Dr. Boxwell to be definitely below the standard required by any other licensing body he knew of), and also some criticisms in respect to procedure at other examinations, were regarded by the Committee as calling for the most careful consideration of the Apothecaries' Hall.

Dr. MAGENNIS said he did not object to the reception of the report, but he doubted its value.

The Council decided to forward the report to the Apothecaries' Hall, and also to request the Hall to continue to furnish tables of exemptions from, and results of, examinations as heretofore.

Shortage of Dental Students.

Mr. TOMES said that the figures of dental registrations indicated the serious effect of the war upon the number of dental students entering on professional studies. The number of dental students registered in recent years was as follows:

1917 ...	143	1914 ...	294	1912 ...	336
1916 ...	158	1913 ...	361	1911 ...	280
1915 ...	217				

The number for 1917 was the smallest for any year since 1890. It was understood that the question was now receiving the attention of the Ministry of National Service.

Dental Nurses.

Mr. TOMES, Chairman of the Dental Education and Examination Committee, said that the Birmingham Education Committee had suggested the employment of dental nurses to assist in the school clinics. In all its correspondence on this subject the Council had carefully guarded the position by stating that the nurses must always be under the supervision of a registered practitioner. The Birmingham authorities had quite fallen in with this view; the position of these dental nurses would be precisely analogous to that of hospital nurses undertaking surgical dressings according to the instruction of a surgeon.

The Council endorsed the action taken by the Chairman of the Dental Education Committee in approving the proposed arrangements.

Appointment of General Registrar.

On the motion of Dr. NORMAN MOORE, Lieutenant-Colonel Norman King was reappointed General Registrar, and Mr. A. J. Cockington to serve as Acting Registrar.

The Council then sat *in camera* to discuss the reports of the Office Site and Emergency Committees and other business.

DISCIPLINARY CASES.

Giving Certificates without Personal Examination.

On May 29th the Council considered the case of Frederick William Salter, L.R.C.P., L.R.C.S., of New Mills, Newtown, Montgomery, who was charged with giving certificates, between January and June, 1917, as to the health of a man liable under the Military Service Acts (whereby he was able for a time to avoid service) without seeing or examining him. The case was adjourned from the November, 1917, session, when the Council decided that Dr. Salter had given certificates which were misleading and improper, but postponed judgement.

Dr. Salter's counsel now produced letters from four medical practitioners in Dr. Salter's neighbourhood, all holding official positions, who spoke in favourable terms as to his character and conduct in the interval, and further, Dr. Salter put in a statutory declaration as to his conduct. It was stated on behalf of Dr. Salter that he had seen the man on several occasions previous to the giving of the first of the seven certificates, and understood his condition, and further, that the man, after being taken for the army, had now been discharged as unfit. The complainant, the Deputy Commissioner of Medical Services, Ministry of National Service, did not offer further evidence.

After the Council had deliberated *in camera* the PRESIDENT said:

Mr. Salter, I have to inform you that the Council, having taken into consideration your expression of regret, the assurances as to your future conduct which you have given in your

declaration, and the certificates as to character which have been furnished by four of your professional brethren, has not seen fit to direct the Registrar to erase your name from the *Medical Register*.

Professional Relationship.

The Council on May 30th and 31st considered the case of Frederic Cecil Robinson, M.R.C.S., L.R.C.P., of Carshalton Road, Sutton, who had been summoned on the charge that, being a registered medical practitioner, he abused his position by writing improper letters to Mrs. Maureen Alexander, whom he was attending professionally, and, with a view to entering into immoral relations with her, by meeting her clandestinely, and by paying her improper attentions. Dr. Robinson was present with his counsel, Mr. E. W. H. Jones, and the complainant, Mr. C. S. Alexander, was represented by Mr. Storrey Deans.

Mr. Deans stated that in January, 1915, Dr. Robinson was called in to attend Mrs. Alexander; he attended her also in October, 1916, and her husband in May, 1917. In the autumn of 1917 Mr. Alexander discovered a letter addressed to his wife by Dr. Robinson, and two other letters were afterwards discovered. Mr. Alexander gave evidence as to professional relationship. Dr. James Calvert testified favourably to Dr. Robinson's general and professional character. Dr. Robinson, in evidence, said that he was very much ashamed of the letters which had been written, and that all correspondence and meetings had now ceased. The letters, which were undated, he assigned to July-October, 1917.

Mr. Jones, for Dr. Robinson, said he had no word in defence of the letters; but, however foolish they were, they contained no suggestion of indecency. The last professional attendance by Dr. Robinson on Mrs. Alexander was in October, 1916. As the date of the earliest letter was July, 1917, the charge of professional misconduct fell to the ground. Mr. Storrey Deans, in reply, pointed out that the July letter, the first of those obtained, was sufficiently intimate in its terms to show that the attentions had been going on for some time.

After the Council had deliberated *in camera*, the PRESIDENT announced its finding as follows:

Mr. Robinson, the Council have found the following facts alleged against you in the notice of inquiry to have been proved to their satisfaction: that being a registered medical practitioner, you abused your position by writing improper letters to Mrs. Alexander, whom you were attending professionally, by meeting Mrs. Alexander clandestinely, and by paying her improper attentions. Having found these facts to be proved, they have now judged you to be guilty of infamous conduct in a professional respect, and have directed the Registrar to erase your name from the *Medical Register*.

Charge against Dentist of Assisting in Unqualified Practice.

The Council considered, on May 28th, a charge against Bertram Douglas Black, a registered dentist, of having been employed by or associated with an unqualified person carrying on dental practice in Ireland. This unqualified person had widely advertised his practice in newspapers and elsewhere, and had been convicted at the instance of the Irish Branch of the British Dental Association of unlawfully using the letters D.D.S., U.S.A. The complainants were the British Dental Association. The Dental Committee reported that Mr. Black admitted that he had for some months been employed by this unqualified person, but that he had severed his connexion with him. He maintained, moreover, that he had been employed in the workshop, acting only occasionally as assistant, and had made it a condition that the fact of his being qualified should not be used to further the business. The defendant apologized to the Council, and promised that there should be no cause for complaint in the future; and on this undertaking the President, after the Council had considered the case *in camera*, announced that although there was no doubt that the defendant had been guilty of foolish and reprehensible conduct, the Council did not see fit to erase his name from the *Register*.

After the hearing of disciplinary cases and the passing of certain formal resolutions as to procedure, the Council rose, having concluded its session.

THE Insurance Commissioners have made regulations applying the provisions of the Arbitration Act, 1889—in so far as they relate to the costs of an arbitration, attendance of witnesses, and production of documents—to inquiries relating to medical practitioners and chemists, held under the National Health Insurance (Medical Benefit) Regulations (England), 1913. A schedule is attached showing the provisions of the Arbitration Act to be applied to such inquiries.

THE Central Committee of the Leicester Union of Medical Practitioners has passed a resolution welcoming medical inspection of children and young persons, but strongly urging that the treatment of all children and young persons as included in Clauses 18 and 19 of the Education Bill should be carried out by the general practitioners instead of by whole-time men appointed for that particular purpose.

INTOXICANT DRUGS FOR THE TROOPS.

IN the JOURNAL of December 15th, 1917, p. 797, we referred to the Army Council Order of May 11th, 1916, which prohibited any person from selling or supplying any article specified in the schedule to the Order to or for any member of His Majesty's forces, unless ordered for him by a registered medical practitioner on a written prescription, dated and signed by the practitioner with his full name and qualifications, and marked with the words "not to be repeated," and unless the person so selling or supplying marked the prescription with his name and address and the date on which it was dispensed.

That Order has been revoked by a new Army Council Order dated June 5th, 1918, which limits the restriction to any member of His Majesty's forces *not being a registered medical practitioner, or registered dentist, or registered veterinary surgeon*, and imposes the following conditions in respect of selling, giving, procuring, or supplying, or offering to sell, give, procure, or supply, any of the specified drugs to other members of His Majesty's forces:

(a) The drug must be supplied on and in accordance with a written prescription by a registered medical practitioner, dentist, or veterinary surgeon, and dispensed by a person legally authorized to dispense such prescription.

(b) The prescription must be dated and signed by the medical practitioner, dentist, or veterinary surgeon, with his full name and address and qualifications, and marked "not to be repeated," and must specify the total amount of the drug to be supplied on the prescription, except that in the case of a proprietary medicine it is sufficient to state the amount of the medicine to be supplied.

(c) The drug must not be supplied more than once on the same prescription.

(d) The prescription must be marked with the date on which it is dispensed, and retained by the dispenser. It must be kept on the premises where it is dispensed, and be open to inspection by authorized persons.

(e) The ingredients of the prescription, together with the name and address of the person to whom they are supplied, must be entered in a book set apart for this sole purpose kept on the premises where the prescription is dispensed, and open to inspection by authorized persons.

It should be noted that the new Order does not supersede or modify the requirements of Defence of the Realm Regulation 40 B in regard to opium or cocaine, which must still be complied with.¹ The schedule to the new Order is almost identical with that to the Order of May 11th, 1916. The drugs specified are:

Barbitone.	Codeine.
benzamine lactate.	Diamorphine.
Benzoamine hydrochloride.	Indian hemp.
Chloral hydrate.	Opium.
Coca.	Morphine.
Cocaine.	Sulphonal and its homologues;

and any salts, preparations, derivatives, or admixtures prepared from or with any of the above mentioned drugs.

Association Notices.

ANNUAL REPRESENTATIVE MEETING, 1918.

Date of Meeting.

THE Annual Representative Meeting of the Association will be held at the Connaught Rooms, Great Queen Street, Kingsway, W.C. 2, on Thursday, July 25th, at 10 a.m., and following day(s) as may be required.

Returns of Representatives.

Honorary Secretaries who have not yet forwarded to the head office the names and addresses, and dates of election, of the Representatives appointed by their constituencies for 1918-19, are reminded that these particulars should be forwarded to the Medical Secretary by the earliest possible date. Under By-law 35, Representatives must be elected not more than nine months nor less than four weeks before the A.R.M., and their names notified to the head office by at latest July 4th. The Representative can, if necessary, be elected and instructed by one and the same meeting of the constituency.

Agenda of A.R.M.: Further Notices of Motion by Divisions and Branches.

The Recommendations contained in the annual report of the Council, 1917-18, were published in the SUPPLEMENT of May 4th (a copy of the full report is being sent post free to every member applying for it). Notices of Motion by Divisions and Branches were published in the SUPPLEMENT of May 25th. Any Recommendations contained in the supplementary report of the Council will be published in the SUPPLEMENT of July 6th. There will also be included in the final agenda of the Meeting, to be issued to the members of the Representative Body on or about

July 18th, not only the Recommendations and Notices of Motion above referred to, but also all Notices of Motion received up to Thursday, July 11th, found by the Agenda Committee to be in order.—By order,

ALFRED COX,

Medical Secretary.

June 12th, 1918.

MEETING OF COUNCIL.

THE next Meeting of Council will be held on Wednesday, June 26th, in the Council Room, 429, Strand, London, W.C. 2.—By order,

W. E. WARNE,

Acting Financial Secretary and Business Manager.

May 30th, 1918.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EDINBURGH BRANCH: SOUTH-EASTERN COUNTIES DIVISION.—Dr. M. J. Oliver, Honorary Secretary (St. Boswells), gives notice that the annual meeting of the Division will be held at the Railway Hotel, Newtown St. Boswells, on Wednesday, June 19th, at 3.15 p.m., for: (1) Election of officers; (2) annual report and financial statement; (3) report of War Committee and re-appointment of Committee; (4) instructions to Representative at Representative Meeting.

LEINSTER BRANCH.—Mr. William Doolin, F.R.C.S.I. (50, Fitzwilliam Square, Dublin), gives notice that the annual meeting of the Branch will be held in the Irish Offices of the Association, 16, South Frederick Street, Dublin, on Monday, June 24th, at 5 p.m., to be followed by meetings of the Dublin and East Leinster Divisions.

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—Dr. H. J. Henderson, acting Honorary Secretary (Alwyns, Amersham), gives notice that the annual meeting of the Division will be held at the Red Lion Hotel, High Wycombe, on Thursday, June 20th, to which all practitioners are invited, at 2.15 p.m. (lunch at 1.30). Tea will be provided.

SOUTH-WESTERN BRANCH.—Major Russell Coombe, acting Honorary Secretary, gives notice that the seventy-ninth annual meeting of the Branch will be held on Wednesday, June 19th, at the Royal Devon and Exeter Hospital, Exeter, at 3 p.m. In view of the continuance of the war the meeting will be restricted to formal business, but a communication from the Central Office with regard to the possibility of putting forward one or more medical candidates for Parliament will be read, and its contents will be open for discussion and the passing of resolutions.

KENT BRANCH: ISLE OF THANET DIVISION.—Dr. G. E. Halstead, Honorary Secretary (Albion Hill House, Ramsgate), gives notice that the annual meeting of the Division will be held at Dr. Nichol's house, 1, Ethelbert Terrace, Margate, on June 20th, at 4.15 p.m. Agenda: Ethical rules, and usual annual business.

EDINBURGH BRANCH.—Drs. John Stevens and John Eason, Honorary Secretaries (78, Polwarth Terrace, Edinburgh), give notice that the annual meeting of the Branch will be held in the Hall of the Royal College of Surgeons of Edinburgh, Nicolson Street, on Tuesday, June 25th, at 4 p.m. (tea at 3.45 p.m.). Business: Report of Branch Council; annual report of Branch and Divisions; financial statement. Election of officers, etc. Scottish Committee. War emergency (the Military Service (No. 2) Act, 1918, as affecting the medical profession; report of action of Branch Council). Annual report of Council.

Meetings of Branches and Divisions.

DORSET AND WEST HANTS BRANCH.

THE annual meeting of the Branch was held at Bournemouth on May 15th, when Dr. FORSTER, Vice-President (in the absence of the President), was in the chair. The HONORARY SECRETARY, in presenting the annual report, stated that in spite of increasing difficulties owing to prevailing conditions, the usual meetings of the Branch had been held during the year. The membership of the Branch showed a decrease of five, and the financial statement showed a balance in hand of £15 19s. 7d. The election of officers for 1918 was announced as follows:

President: Dr. H. Simmons (Bournemouth). *Vice-Presidents:* Dr. Willans (Bournemouth), and Dr. Luther (Puddletown). *Honorary Secretaries:* Dr. F. Fowler and Mr. P. A. Ross.

THE PRESIDENT-ELECT, in the course of a short address on the work of the Association, put forward a strong plea for the whole-hearted support by the profession of the leaders of the Association, and suggested a distribution of a summary of the work of the Council and its various committees (whose report he recommended every member of the Branch to read) to all non-members as well as members, and also a modification of the terms of subscription for those wishing to participate only in the medico-political side of the Association's work.

¹ BRITISH MEDICAL JOURNAL, November 17th, 1917, p. 657.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following promotions and appointments are announced by the Admiralty:—Staff Surgeons to be Fleet Surgeons: C. A. G. Phipps, W. B. Harrison, W. G. Edwards, E. E. Bolton, R. L. Jones, R. H. Atkins, C. J. O'Connell, and J. A. Thompson. Staff Surgeons J. E. Johnston to the *Dublin*; W. G. Edwards to the *Mars*. Temporary Surgeons W. H. Sarra to the *Devonshire*; W. H. Du Pro to the *Cesar*; F. Caldecott to the *Sapphire*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationers J. G. Dunlea to the *Defender*; C. C. MacKinnon to the *Porpoise*; W. L. Balfour to the *Nymph*; H. W. D. McCar to the *Brisk*. To be Surgeon Probationers: H. O. Macnamara, G. A. Jordan, H. G. Clark, G. T. Zimstein, H. G. Armstrong, A. C. Gordon, S. L. E. Danby, A. H. G. Down.

ARMY MEDICAL SERVICE.

Major-General C. H. Burchall, C.B., C.M.G., to be temporary Lieut.-General whilst Director-General Medical Services, British Armies in France.

Colonel A. E. Tate, C.M.G., is placed on retired pay on attaining the age limit, December 26th, 1917 (substituted for notification in the *London Gazette* of December 25th, 1917).

Colonel (honorary Surgeon-General) Sir J. Maher, K.C.M.G., C.B. (ret. pay), to be temporary Major-General whilst specially employed.

Colonel (temporary Major-General) G. D. Hunter, C.B., C.M.G., D.S.O. (ret. pay), relinquishes his temporary rank and is granted the honorary rank of Major-General.

Lieutenant-Colonels R.A.M.C. to be temporary Colonels whilst employed as Assistant Directors of Medical Services of Divisions: F. J. Brakenridge, C.M.G., D. O. Hyde, D.S.O., T. C. Mackenzie, D.S.O.

ROYAL ARMY MEDICAL CORPS.

To be acting Lieutenant-Colonels: Temporary Major R. D. Hotchkiss whilst employed at the Dykebar War Hospital, Major R. J. C. Thompson, C.M.G., D.S.O., whilst in command of a medical unit.

To be acting Lieutenant-Colonels whilst specially employed: Major and Brevet Lieut.-Colonel F. W. Lamballe, temporary Major J. Russell, Major H. E. J. A. Howley, temporary Captain E. A. Gates.

Major (acting Lieut.-Colonel) R. N. Woodley, D.S.O., to be temporary Lieut.-Colonel whilst employed as Assistant Director of Medical Services of a Division.

Major F. D. G. Howell, D.S.O., M.C., to be temporary Lieut.-Colonel whilst employed as Assistant Director of Medical Services of an Army, April 2nd, 1918 (substituted for notification in the *London Gazette* of May 21st, 1918).

To be acting Majors whilst specially employed: Captain and Brevet Major R. W. D. Leslie, Captain (local Major) A. T. J. McCreery, M.C. Temporary Captains: F. E. Fielden, H. C. W. Allett, H. B. Wilson, H. D. Stuart, H. A. L. Banham, B. Cox, R. W. Nairn, J. P. Mussen, A. C. Profeit, G. W. Stone, T. Russell, J. G. Murray, J. MacF. Donnan, J. W. Applegate, G. S. Mill, R. McRae, T. Martin. Temporary Lieutenants: R. H. Paramore, J. Maxwell.

To be temporary Captains: D. Wainwright, W. B. Heywood, H. B. Moyle, G. R. Hannan, J. M. Twentyman, H. M. Hart Smith, P. L. Blayer, A. J. Beadel, W. E. Hills, E. S. Gooddy, J. S. Ross, O. E. Ward, F. E. Easton, G. N. Lorimer, M.C., J. S. Annaedale, F. R. Smyth, C. H. Brookes, P. McDougall, W. C. P. Bremner, J. A. Hayward, A. A. Winter, J. S. Stewart, G. Thom, temporary Captain W. L. Webb (in general list), J. C. R. Braine-Hartnell, W. M. Ferguson, J. J. McMillan, T. W. Rutledge, E. M. Ashcroft, A. G. Harvey, J. Prichard, R. de C. Wheeler, S. J. C. Fraser, E. C. MacKay, D. M. Moffatt, M.C., W. R. Reynell, G. Jefferson, J. P. E. Prideaux, A. Lindsay, F. W. Lyle, A. E. Simpson, J. H. Wilkinson, P. J. Murphy, C. F. Dillon-Kelly, L. O. A. Kelly, honorary Captains A. E. Stevens, R. V. Steele, and J. W. Darling, M.C.; temporary Lieutenants A. G. Wilkins, H. D. Wyatt, A. L. Candler, W. H. Orton, H. C. Quirk, H. E. Barrett, R. H. Grompton, R. T. Martin, J. J. Reynolds, A. C. Reid, J. Cullen, A. H. Holmes, O. W. Jones, D. McDougall, C. Gordon, W. B. Griffin, W. Messer, C. E. Lowe, F. B. Penfold, E. L. M. Lebb, D. M. Ross, R. K. Robertson, D. M. Booth, F. J. Child, F. Green, G. C. Birt, W. J. MacNab, L. J. Spence, R. H. Hunter, S. Nix.

Captains of Special Reserve to be Captains: R. A. Hepple, J. Y. Moore, A. R. Robertson, T. I. Dun, M.C., R. H. Leigh, M.C., H. G. Trayer, R. A. Austin, M.C., C. Popbam, C. de W. Gibb, G. P. Kidd, S. D. Robertson, T. K. Bouey, H. S. Milne, M.C., Q. V. B. Wallace, M.C., J. B. Fotheringham, J. P. Quin, M.C.

To be Captains: Captains S. S. B. Harrison, M.C. (T.F.), H. D. Lane, M.C. (T.F.), F. C. Chandler (T.F.). Temporary Captains: C. S. P. Hamilton, M.C. (T.F.), C. A. Bernard, M.C., R. E. Gibson, K. P. Mackenzie, E. G. Foley, S. Smith, J. H. Fletcher, D.S.O., M.C., J. H. Barry, D.S.O., M.C., G. d'R. Carr, M.C., D. H. Hadden, M.C., E. F. W. Mackenzie, M.C., C. Scales, A. Wilson, M.C., C. K. G. Dick, M.C., T. R. Snelling, M.C., E. Adam, M.C.

To be Lieutenants and to be granted the temporary rank of Captain: Captains F. J. Halliuan (S.R.), S. Robertson (T.F.), J. Baird (S.R.), W. D. Andersen (S.R.), T. D. Inch, M.C. (S.R.), J. H. Hare, M.C. (S.R.), J. D. Pound, M.C. (S.R.), J. E. Rusby (S.R.), R. T. Jones (T.F.), J. H. C. Walker (S.R.), M. B. King, M.C. (S.R.), W. Hunt, M.C. (S.R.), C. A. Slaughter (S.R.), W. H. Ferguson (S.R.), G. G. Drummond (S.R.), F. O. L. Dawson (S.R.), W. M. Cameron (S.R.), A. Rodd (S.R.), D. J. Batterham (S.R.). Temporary Captains: T. J. L. Thompson, M.C., A. G. P. Hardwick, R. D. Davy, M.C., J. M. Mackenzie, M.C., A. J. Hickey, M.C., W. J. Robertson, C. Russell, M.C., W. J. Knight, M.C., R. A. Mansell, W. L. Partridge, M.C., W. D. Newland, L. S. C. Roche, M.C., G. T. Baker, G. E. Spicer, G. T. Garraway.

To be temporary Lieutenants: F. T. Simpson, M.C., J. Anastasi, J. E. Richards, A. V. McMaster, F. S. Adams, G. F. Riden, R. W. Taylor, J. W. Stephen, A. D. Slater, H. Sheasby, J. M. Flavelle, B. F. O'Reilly, W. Hickey, R. F. Tort, J. C. Bell, A. Hogg, S. W. Smith, M. D. B. Tonks, R. H. Watt, G. P. G. Beckett, P. Johnson, E. H. Edwards, H. E. White, A. W. H. Cheyne, E. Cansfield, J. A. B. Hicks, J. G. Glasgow, J. J. Pickles, C. A. Masson, S. Osborn, C. W. Somerville, J. Jamieson, G. M. Crawford, E. Hutcheson, A. H. Davidson, A. Bremner, J. B. J. L. Dalby, A. P. Green, S. H. Wilkinson, J. Russell, A. F. Calwell, B. M. Wilson, H. Harrison, R. C. Redman, A. Y. Hutchison, T. D. Homan, J. Taplin, W. L. Young, E. A. King, C. Edwards, J. L. Anson, F. G. Beatty, J. A. Davidson, E. T. C. Hughes, B. Morrison, F. Shearer, I. D. C. Howden, J. L. Spence, A. G. Tolpitt, E. W. Dewey, H. W. Freer, W. Napier, D. R. Wheeler, J. Walker, C. Watson, E. Evans, T. C. A. Sweetnam, H. A. R. E. Unwin, C. R. Dykes, N. A. Macleod, C. J. G. Exley, J. E. Boon, F. A. Stokes, G. L. Lefevre, D. G.

Gellatly, D. A. H. Moses, M.C., H. L. Parker, L. W. Oliver, C. A. Palmer, F. A. Alexander, T. G. Dickson, E. J. F. Hardenberg, J. F. Lynch, N. S. Twist, A. J. de Spiganoviez, F. M. Simmonds, J. C. Loughridge, H. Mowat, J. Elder.

ROYAL AIR FORCE.

MEDICAL BRANCH.

H. Pritchard (temporary Major, R.A.M.C.) to be temporary Major, May 2nd (substituted for notification in the *London Gazette* of May 26th).

To be temporary Captains: J. MacGregor, E. H. Hogg, F. Rogerson, W. L. Scott.

To be temporary Lieutenants: G. Bourne, O. F. Conoley, L. C. Broughton-Head, G. H. Johnson, C. Murray-Shirref, H. T. Prys-Jones, H. W. Toms, H. B. Troop, R. T. Williams, J. J. Savage, L. C. W. Ballis, C. S. Dowdell, A. G. Hewer, R. Mughlston, J. C. Smyth, R. A. Spong, H. L. Thorn.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel E. Lloyd-Williams is retired under the provisions of paragraph 116 T.F. Regulations, and is granted permission to retain his rank and to wear the prescribed uniform.

Major (Brevet Lieut.-Colonel) B. M. H. Rogers and Major J. E. Bates to be acting Lieut.-Colonels whilst specially employed.

To be acting Lieut.-Colonels whilst commanding field ambulances: Major G. F. Whyte, Captain (acting Major) D. H. Weir.

Captain (honorary Colonel) Sir J. P. Stewart, K.C.M.G., C.B., and Captains F. G. Armstrong and G. M. Benton are restored to the establishment.

Captains to be acting Majors whilst specially employed: H. A. P. Robertson, S. H. Rentsch, G. W. Shore, R. A. Fleming, W. Redpath, F. W. Lewis, D. R. Kilpatrick, W. A. Philipps, M.D., H. J. Gorrie, M. Coplans, D.S.O., and remain seconded, C. W. J. Brasler, M.D., A. E. P. McConnell, A. J. Gibson.

Captain E. F. Buzzard is seconded whilst holding a temporary commission in the R.A.M.C.

Captains S. F. Smith and J. S. Tomb relinquish their commissions on account of ill health, and are granted the honorary rank of Captain.

Captain (acting Major) G. Stevenson relinquishes his acting rank on ceasing to be specially employed.

Captain A. L. Flemming is seconded for service with a general hospital.

APPOINTMENTS.

MACILRAITH, W. MacLaren, L.R.C.P. and S. Edin., L.R.F.P.S. Glas., Deputy Chief Surgeon to the Ambulance Department of the National Fire Brigades Union, Bradford.

CERTIFYING FACTORY SURGEONS.—W. Patey, M.D. Lond. (Newton Abbot District, co. Devon). J. W. Richmond, M.B., Ch. B. Glas. (Tunstall District, co. Stafford). W. Wyper (Motherwell District, co. Lanark).

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTHS.

DICKENSON.—On June 7th, at 54, Bootham, York, the wife of Staff Surgeon G. O. M. Dickenson, M.B., R.N., of a son.

LAPAGE.—On May 29th, 1918, at 194, Wilmslow Road, Withington, Manchester, to Major and Mrs. C. P. Lepage, a son.

SHEPPARD-JONES.—On June 4th, the wife of Captain J. E. S. Sheppard-Jones, R.A.M.C. (T.C.), of a son (Roger Gurney).

THOMPSON.—On June 8th, the wife of J. Hilton Thompson, M.D., "Heysbam House," Bolton, of a son.

MARRIAGE.

ROBERTSON—RUTTER.—On June 11th, at Brixton, W. J. Robertson, M.D., second son of W. B. Robertson, M.D., J.P., Dulwich, to Rose, third daughter of Mr. George Rutter, Winchester.

DEATH.

READER.—On May 29th, at his residence, Westgate End House, Wakefield, Jeremiah Reader, surgeon, aged 63 years. R.I.P.

DIARY FOR THE WEEK.

THURSDAY.

ROYAL SOCIETY OF MEDICINE.—Section of Dermatology: 4.30 p.m. Cases.

FRIDAY.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chaodas Street, W. 1, 5.30 p.m.—Annual General Meeting. Professor Warrington Yorke: "E. histolytica and E. coli Cysts in People who have not been out of England." Professor J. W. Stephens: "The Curative Value of the Treatments of Malaria."

DIARY OF THE ASSOCIATION.

Date. Meetings to be Held.

JUNE.

19 Wed. London: Finance Committee, 2.30 p.m. South-Eastern Counties Division, Edinburgh Branch, Annual Meeting, Newtown St. Boswells, 3.15 p.m.

20 Thur. South-Western Branch, Annual Meeting, Exeter, 3 p.m. Buckinghamshire Division, Annual Meeting, High Wycombe, 2.15 p.m.; Lunch, 1.30 p.m.

Conference of Scottish Local Medical and Panel Committees, Edinburgh (North British Station Hotel), 10.45 a.m.

Isle of Thanet Division, Annual Meeting, Margate, 4.15 p.m.

24 Mon. Leinster Branch, Annual Meeting, Dublin, 5 p.m.; Meetings of Dublin and East Leinster Divisions afterwards.

25 Tues. Edinburgh Branch, Annual Meeting, Edinburgh, 4 p.m.; Tea, 3.45 p.m.

26 Wed. London: Council Meeting.

28 Fri. Metropolitan Counties Branch, Annual General Meeting, 429, Strand, W.C. 2, 4 p.m.

BRITISH MEDICAL JOURNAL.

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British Medical Association.

CURRENT NOTES.

Medical Practitioners and Reduction of Lighting, etc.

On the instruction of the Medico-Political Committee a communication was recently addressed to the President of the Board of Trade urging that as paragraph 8 of the Lighting, Heating, and Power Order, 1918, exempted hospitals and bona fide nursing homes from the provision of Part II of the Order (which laid down that in any quarter of the present year only five-sixths of the amount of electric light or gas could be used of the amount used in the equivalent quarter last year) medical practitioners should be exempted from provisions of the Order as regards the use by them of gas and electricity for lighting, power, and heating purposes so far as their professional consumption thereof can be differentiated from their private consumption. A reply has been received that the Board of Trade is prepared, in cases where medical practitioners find themselves unable by reason of their professional needs to effect the economy prescribed by the above Order, to accept this as a sufficient explanation under paragraph 14 of the Order, which runs as follows:

Proceedings for infringements of Part II of this Order shall not be instituted except by or by the direction of the Board of Trade or the Attorney-General. Before instituting any proceedings the Board of Trade shall call upon the person affected to give an explanation of the apparent excessive consumption, and the Board shall consider any explanation offered. Provided that it shall be assumed in any prosecution, unless the contrary is proved, that such explanation was called for and, if offered, considered before such prosecution was instituted.

War Emergency Fund of the Royal Medical Benevolent Fund.

The following further subscriptions have been received from Divisions of the Association in response to the recent appeal, and have been passed on to the Treasurer of the War Emergency Fund. The names of individual subscribers are published monthly in the advertisement pages of the JOURNAL.

	£	s.	d.
Marylebone Division, per Dr. C. E. Wallis, Hon. Sec., and Mr. N. Bishop Harman, Chairman ...	2	10	0
Newcastle-on-Tyne Division, per Dr. J. Hudson, Honorary Secretary ...	17	12	0
English Division (Border Counties Branch), per Dr. J. R. S. Anderson, Honorary Secretary ...	10	10	0
Southport Division, per Dr. R. Harris, Honorary Secretary ...	2	2	0

Meetings of Branches and Divisions.

GRENADA BRANCH.

DURING the past year four meetings of the Branch were held. Three of these were mainly concerned with the Venereal Diseases Ordinance, which is now practically complete and has been sanctioned for one year on trial. The other meeting of the Division was convened to bid farewell to Dr. N. S. Durrant on his retirement on pension from the service; he was presented by the President of the Branch with an address signed by the medical officers of the colony and a sum of money with which to purchase a piece of plate as a memento of his labours there.

GLASGOW AND WEST OF SCOTLAND BRANCH.

THE annual general meeting of the Branch was held on May 23rd, when Dr. W. S. SYME, the President, presided. The Secretary's and Treasurer's reports were read and adopted. The President then vacated office in favour of the President-elect, Dr. Lawrie, to whom he referred in felicitous terms. Dr. Snodgrass was unanimously appointed President-elect, and Drs. W. F. Brown and W. S. Syme Vice-Presidents. The Secretary and Treasurer were also duly appointed, and the interim Honorary Secretary agreed to continue his work as such. On the motion of Dr. SNODGRASS it was decided to look into the matter of the infliction of penalties by the National Insurance Commissioners.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.

At the annual general meeting of the Division, held on May 15th, when the Chairman, Mr. BISHOP HARMAN, was in the chair, the following officers were elected:

Chairman: Major McAdam Eccles. Vice-Chairman: Dr. C. O. Hawthorne. Honorary Treasurer: Dr. Comyns Berkeley. Honorary Secretaries: Mr. N. Bishop Harman and Mr. C. Edward Wallis. Representatives in Representative Body: Dr. C. O. Hawthorne, Major McAdam Eccles, Mr. Bishop Harman, Mr. C. Edward Wallis. Deputies: Dr. Joseph Pollard, Dr. Jobson Horne. To the Branch Council: Dr. Mary Bell, Dr. Jobson Horne, Dr. Joseph Pollard, Mr. Charles Ryall.

The following nominations were agreed upon:—To Central Council: Dr. M. G. Biggs, Dr. H. B. Brackenbury, Sir Bertrand Dawson, Major McAdam Eccles. To Council of the Metropolitan Counties Branch: President-elect: Major McAdam Eccles. Vice-Presidents: Dr. James Berry, Dr. Comyns Berkeley, Dr. H. J. Cardale, Dr. H. J. Cooper. Honorary Treasurer: Mr. Betham Robinson. Honorary Secretaries: Mr. N. Bishop Harman, Dr. Wilfred Kingdon.

Annual Representative Meeting.—The Representatives were instructed as follows: (1) That the Council be requested to take into consideration the question of endeavouring to obtain a subvention from the Government towards the expenses of the Central Medical War Committee. (2) That, as agreed in 1917, the Division approves generally of the scheme for the establishment of a national Ministry of Health. (3) That in other matters Representatives be given a free hand to deal with situations as they arise.

MIDLAND BRANCH: HOLLAND AND KESTEVEN DIVISIONS.

At the annual meeting of the Holland Division, held on May 20th, when Dr. PILCHER was in the chair, the following officers were elected:

Chairman: Dr. Wrinch. Vice-Chairman: Dr. Witham. Secretary and Treasurer: Dr. R. Tuxford (re-elected). Representative on Branch Council: Dr. Wright (re-elected). Executive Committee: Messrs. Braithwaite, Husband, Morris, Munro, South, Walker, and White.

It was unanimously resolved to apply to the local Red Cross hospitals for payment to the members of the medical staff who were attached to them under Army Council Instruction 193 of 1918.

At a subsequent joint meeting of the Holland and Kesteven Divisions it was resolved to ask Dr. C. Frier (Grantham) to act as Representative at the next annual representative meeting of the Association.

SOUTH-EASTERN OF IRELAND BRANCH.

The annual meeting of the South-Eastern of Ireland Branch was held at Kilkenny on May 1st, with Dr. DENIS WALSH in the chair. The following officers were elected:

President: Dr. J. H. Jellett. *President-elect:* Dr. C. E. James. *Honorary Secretary:* Dr. Grace. *Honorary Treasurer:* Dr. Jellett. *Representative on Council of Association:* Dr. D. Walshe. *Representative in Annual Representative Body:* Dr. J. Power. *Deputy Representative:* Dr. Grace. *Representative on Irish Committee:* Dr. J. V. Ryan.

SOUTH-WESTERN BRANCH: TORQUAY DIVISION.

At the annual meeting of the Division, held on May 16th, the following were elected officers for the ensuing year:

Chairman, and Representative in Representative Body: Dr. H. Goodwyn. *Vice-Chairman:* Dr. H. V. McKenzie. *Honorary Secretary and Treasurer:* Dr. G. Young Bales. *Auditor:* Dr. H. V. McKenzie. *Representatives on Branch Council:* Drs. H. P. V. Wiggin and S. R. Williams. *Executive Committee:* Drs. J. Culross, G. J. Gibson, H. K. Lacey, and F. T. Thistle.

SURREY BRANCH: KINGSTON-ON-THAMES DIVISION.

At the annual general meeting of the Division, held on May 14th, it was agreed that the annual general meeting of next year should be held on the second Tuesday in May, and that no other general meeting should be called except to deal with such matters as might arise. The following officers were elected:

Chairman: Dr. R. N. Goodman. *Vice-Chairman:* Dr. A. Max Sully. *Honorary Secretary and Treasurer:* Dr. T. W. Letchworth. *Representatives (on Branch Council):* Dr. A. E. Evans; (in Representative Body): Lieut.-Colonel M. O. Coleman. *Executive Committee:* Drs. H. Cooper, G. Cowen, W. W. Groome, H. N. Holberton, F. B. Norris, A. B. Taylor, R. F. Walker, and Alderman Finny, M.D., J.P.

SUSSEX BRANCH: HORSHAM DIVISION.

At a meeting held at Horsham on May 23rd the following officers were elected:

Chairman: Dr. M. Vernon. *Vice-Chairman:* Dr. S. P. Matthews. *Representatives (on Branch Council):* Dr. F. Boxall; (in Representative Body, with Worthing and Chichester Division): Dr. Gostling (Worthing). *Secretary:* Dr. M. Vernon.

In the course of a discussion on the subject of a Ministry of Health, the necessity for such a Ministry was recognized and the proposals of the Association were generally approved, especially those for safeguarding the interests of the general practitioner.

With reference to the clauses of the proposed Education Bill to which the Association drew attention, it was decided to write to the member of Parliament for the division, or, in his absence on military service, to the member for the neighbouring division of Chichester, asking for his support in amending the bill where necessary in the interests of the profession.

ULSTER BRANCH: BELFAST DIVISION.

At the annual meeting of the Division, held on May 16th, the following office-bearers for 1918-19 were elected:

Chairman: Dr. H. J. Boyd (Hillsborough). *Representatives in Representative Body:* Drs. A. G. Robb and J. R. Davison. *Treasurer and Secretary:* Dr. W. L. Storey (Belfast). *Executive Committee:* Drs. W. M. Burnside, *M. F. Cabill, T. C. D. Cathcart, Foster Coates, J. Colville, *T. A. Davidson, *J. R. Davison, *D. Gray, *S. T. Irwin, R. W. Leslie, J. B. Moore, *A. G. Robb, J. Rusk, W. A. Wadsworth, R. Watt, J. A. Clarke, W. R. Davison, A. McN. D'Evelyn, *D. P. Gaussen, J. C. Loughridge, *R. Reid, G. St. George, T. M. Tate.

* On the Branch Council.

YORKSHIRE BRANCH: HARROGATE DIVISION.

The annual meeting of this Division was held on May 22nd, when the following officers were elected:

Chairman: Dr. Edgecombe. *Vice-Chairman:* Dr. Nimmo Watson. *Honorary Secretary:* Dr. Gibson. *Representative in Representative Body:* Dr. Hinsley Walker. *Representative on Branch Council:* Dr. Gibson. *Committee:* S. M. Boyd, Daggett, Garrad, Greenwood, Mackay, Hinsley Walker, Crawford, Watson, and Mantle.

A list of periodical publications, official reports, and Blue Books in the Library of the British Medical Association available for issue to members on loan has been printed, and copies can be obtained free on application to the Librarian at the house of the Association, 429, Strand, W.C.2. The regulations governing the loan of these publications are stated in the introduction to the list. The Library is open for consultation from 10 a.m. till 5 p.m. (on Saturdays till 2 p.m.).

Association Notices.

MEETING OF COUNCIL.

The next Meeting of Council will be held on Wednesday, June 26th, at 11 a.m., in the Council Room, 429, Strand, London, W.C.2.—By order,

W. E. WARNE,
Acting Financial Secretary and Business Manager.
May 30th, 1918.

ANNUAL REPRESENTATIVE MEETING, 1918.

Date of Meeting.

The Annual Representative Meeting of the Association will be held at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2, on Thursday, July 25th, at 10 a.m., and following day(s) as may be required.

Returns of Representatives.

Honorary Secretaries who have not yet forwarded to the head office the names and addresses, and dates of election, of the Representatives appointed by their constituencies for 1918-19, are reminded that these particulars should be forwarded to the Medical Secretary by the earliest possible date. Under By-law 35, Representatives must be elected not more than nine months nor less than four weeks before the A.R.M., and their names notified to the head office by at latest July 4th. The Representative can, if necessary, be elected and instructed by one and the same meeting of the constituency.

Agenda of A.R.M.: Further Notices of Motion by Divisions and Branches.

The Recommendations contained in the annual report of the Council, 1917-18, were published in the SUPPLEMENT of May 4th (a copy of the full report is being sent post free to every member applying for it). Notices of Motion by Divisions and Branches were published in the SUPPLEMENT of May 25th. Any Recommendations contained in the Supplementary Report of the Council will be published in the SUPPLEMENT of July 6th. There will also be included in the final agenda of the Meeting, to be issued to the members of the Representative Body on or about July 18th, not only the Recommendations and Notices of Motion above referred to, but also all Notices of Motion received up to Thursday, July 11th, found by the Agenda Committee to be in order.—By order,

ALFRED COX,
Medical Secretary.
June 12th, 1918.

ANNUAL GENERAL MEETING.

NOTICE is hereby given by the Council that the Annual General Meeting of the British Medical Association will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, July 26th, 1918, at 2 o'clock in the afternoon. Business: (1) Minutes of last meeting. (2) Appointment of auditors (Messrs. Price, Waterhouse and Co. offer themselves for re-election). (3) Award of Stewart Prize. (4) Report election of President.—By order,

W. E. WARNE,
Acting Financial Secretary and Business Manager.
Dated this 20th day of June, 1918.
429, Strand, London, W.C.2.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EDINBURGH BRANCH.—Drs. John Stevens and John Eason, Honorary Secretaries (78, Polwarth Terrace, Edinburgh), give notice that the annual meeting of the Branch will be held in the Hall of the Royal College of Surgeons of Edinburgh, Nicolson Street, on Tuesday, June 25th, at 4 p.m. (tea at 3.45 p.m.). Business: Report of Branch Council; annual report of Branch and Divisions; financial statement. Election of officers, etc. Scottish Committee. War emergency (the Military Service (No. 2) Act, 1918, as affecting the medical profession; report of action of Branch Council). Annual report of Council.

LEINSTER BRANCH.—Mr. William Doolin, F.R.C.S.I. (50, Fitzwilliam Square, Dublin), gives notice that the annual meeting of the Branch will be held in the Irish Offices of the Association, 16, South Frederick Street, Dublin, on Monday, June 24th, at 5 p.m., to be followed by meetings of the Dublin and East Leinster Divisions.

METROPOLITAN COUNTIES BRANCH.—Mr. N. Bishop Harman and Captain Wilfred Kingdon, R.A.M.C. (Honorary Secretaries), give notice that the annual general meeting of the Branch will be held at 429, Strand, W.C.2, on Friday, June 26th, at 4 p.m. The business will be: (1) Report of scrutineers as to the election of new officers. (2) The annual reports of Council and of representatives of the Branch on the Central Council. (3) President's address, Dr. M. G. Bigga (Professional organization from the point of view of the general practitioner).

SUSSEX BRANCH.—Dr. A. M. Dady, Honorary Secretary (14, Palmeira Avenue, Hove, Sussex), gives notice that the fifth annual general meeting of the Branch will be held in the Assembly Rooms, North Street, Chichester, on Wednesday, June 26th, at 2.15 p.m. Agenda: Election of officers, nominated by the Council; annual report with financial statement; Presidential address on "A Whole-time State Medical Service," to be followed by a discussion. The President-elect (Dr. Ernest H. Buckell, J.P.) will entertain members who intend to be present at the meeting to luncheon at West Pallant House at 1.30 p.m. Chichester members of the British Medical Association invite those attending the meeting to tea at 3.30.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—Dr. S. O. Legge, Honorary Secretary (24, Foregate Street, Worcester), gives notice that the annual meeting of the Worcester Division will be held at the Worcester General Infirmary on Tuesday, June 25th, at 3.30 p.m., and that the annual meeting of the Branch will be held at Hereford on Thursday, June 27th, at 3 p.m.

INSURANCE.

LOCAL MEDICAL AND PANEL COMMITTEES.

County of London.—At the meeting of the London Panel Committee, on May 21st, a recommendation was carried that practitioners who might be appointed by the Director-General of National Service for substitution work at a distance should have their practices safeguarded in the same way as men holding commissions—that is, by the restriction of the right of transfer of insured persons on their lists. It was decided that a fee of half a crown would be considered adequate for the furnishing of information in reply to inquiries from the Local War Pensions Committee as to the previous medical history of an invalided man. It was understood that the practitioners would not be asked for a professional opinion, but only for certain particulars as to the man's previous illnesses, and that the patient's written consent would be obtained to the furnishing of such a report by his medical adviser. The Committee further passed a recommendation that antogenous vaccines ought to be included in medical benefit, but that until provision was made for their manufacture on behalf of insured persons they should be supplied in the same way as other treatment of a specialist character—namely, by referring insured persons to the out-patient department of a hospital—and the costs should not fall on the drug fund as at present constituted.

Kesteven.—At a meeting of the Local Medical and Panel Committee, on May 21st, it was decided to subscribe two guineas from the voluntary levy fund towards the cost of the inquiry into the constitution of the central pool. The offer of the Council of the panel Medico-Political Union to address the Committee was not accepted. As all the members of the Committee are more or less concerned in rural practice, it was not considered necessary to appoint a special rural sub-committee.

Renfrewshire.—At a meeting of the Panel Committee, on April 24th, the report of the President of the Institute of Actuaries upon the constitution of the central medical pool was approved. It was agreed to distribute the extra mileage grant for 1917 in the same proportion as the main mileage grant. It was decided to ask the Glasgow Panel Committee to convene a local conference of Panel Committees or take other suitable action.

County of Forfar.—At a meeting of the Local Medical Committee, on May 31st, Dr. John Craig submitted his report of the proceedings at the April Conference in London. At a meeting of the Panel Committee on the same day a Special Committee was appointed with full powers to take steps to have the grievances of panel practitioners arising from the method of certification of illness of panel patients discussed and if possible redressed.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments and promotions are announced by the Admiralty: Staff Surgeon T. A. Smyth promoted to rank of Fleet Surgeon (especially for war services); Staff Surgeon A. B. Marsh to the *Crescent*. Surgeons (acting Staff Surgeons) to be Staff Surgeons: W. H. King, H. E. R. Stephens, F. C. Alton, D. Loughlin, D.S.O., C. F. O. Sankey, D. A. Mitchell, E. MacEwan, A. H. Joy, M. C. Mason, A. S. Paterson, M. F. Caldwell, E. N. W. W. Biddulph, E. L. Markham, E. L. Atkinson, J. S. Austin, A. R. Fisher, A. A. Sanders, F. G. Hitch, F. G. H. R. Black, W. Bradbury, J. S. Orwin, H. Burns, J. Hadwen, J. A. S. Hamilton, W. C. Carson, R. J. G. Parnell, J. H. B. Martin, F. L. Smith, C. D. Ball, T. O. Patterson, M. H. Langford, A. Fairley, A. G. V. French, C. G. Sprague, A. C. Rusack. Temporary Surgeons: J. D. Dimock to the *Endymion*; E. B. Kelly to R.N. Dépôt, Crystal Palace; H. H. Silley to Chatham Hospital; F. N. V. Dryer to Haslar Hospital; H. Wilks to the *Clio*; W. Meikle to the *Thunderer*; J. M. Gigginton to the *Britannia*; D. M. Muir to the *Bellerophon*; T. M. Payne to the *Chatham*; G. A. S. Shacklock to the *Coltingwood*; M. E. Jones to the *Indomitable*; J. W. McK. Nicholl to the *Hannibal*; R. T. Bailey to the *Maidstone*.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Probationer J. A. Graham to the *Firedrake*. To be Surgeon Probationers: W. Y. Jamieson, O. F. Watson, H. G. Stevenson, W. F. Chatteria, F. H. Wilson, G. R. Haid, E. S. M. Shunk, M. D. MacQueen, A. G. Armstrong, W. O. Atwell, W. D. Swan, S. C. Skipper, R. M. Jewell, R. O. Sullivan, M. W. Kemp, W. E. Woods, B. N. C. Richardson.

ARMY MEDICAL SERVICE.

Lieut.-Colonel (Brevet Colonel) T. W. Gibbard, R.H.S., from R.A.M.C., to be Colonel, December 26th, 1917 (substituted for notification in the *London Gazette* of May 15th, 1918).

Colonels to be Major Generals: J. B. Wilson, C.B., C.M.G., (temporary Major-General) E. G. Browne, C.B., C.M.G.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonels from R.A.M.C. to be Colonels: (temporary Colonel) G. W. Tate, D.S.O., J. D. Ferguson, C.M.G., D.S.O., (Brevet Colonel) L. P. More.

Lieut.-Colonel L. W. Harrison, D.S.O., to be Brevet Colonel on appointment as honorary physician to the King.

Major J. E. Powell, D.S.O., relinquishes the temporary rank of Lieut.-Colonel on reposting.

To be acting Lieut.-Colonels whilst specially employed: Major and Brevet Colonel J. S. Bostock, Major J. E. Carter (R. of O.), Temporary Major N. H. Mummery.

Officers R.A.M.C.(T.F.) to be temporary Lieut.-Colonels whilst specially employed: Major and Brevet Lieut.-Colonel T. W. Griffith O.M.G., Captain J. Hay.

To be acting Majors whilst specially employed: J. Lamont, A. W. G. Woodtorda, H. T. Mant, W. F. Thompson, J. V. Bates, M.C., W. T. Hedley, F. G. Collins, O. E. Murphy, A. W. Rowe, N. F. Norman, G. A. Skinner, A. E. Marsack, R. J. T. Thornhill, O. de Muth, M.C., R. R. Wallace, R. E. F. Pearce, T. D. H. Holmes, temporary Major G. W. FitzHenry, temporary Lieut.-Colonel B. Hart.

Captain (acting Major) E. C. Lang, D.S.O., to be acting Lieut.-Colonel whilst in command of a medical unit.

Temporary Major J. Gott (Lieut.-Colonel Hampshire Regiment, T.F.) to be temporary Lieut.-Colonel, October 8th, 1917.

To be acting Majors: A. C. Drynan, A. J. Dunlop, C. A. Bernard, M.C., temporary Major H. W. Bruce. Captains H. W. Farebrother, S. Fenwick, A. C. Amy. Temporary Captains C. D. Faulkner, J. P. Cahir, C. H. F. Frances, C. Burnham, G. W. R. Rudkin, M.C., O. A. Briscoe, M.C., C. Roche, M.C., A. W. S. Christie, L. S. C. Roche, M.C., C. H. Corbett, J. V. Holmes, D. M. Hunter, M.C. (January 4th, 1918, substituted for notification in the *London Gazette* of April 22nd, 1918), Lieut.-Colonel (temporary Captain) E. Davies (from January 4th to February 3rd), temporary Lieut.-Colonel A. M. Caverhill.

Temporary Captains relinquish the acting rank of Major on reposting: W. P. Ker, A. R. Esler, A. Sutherland, W. T. Brown, M.C.

Captain Archer Irvine-Fortescue to be acting Lieut.-Colonel whilst in command of a medical unit, March 1st, 1918 (substituted for notification in the *London Gazette* of April 6th, 1918).

Officers relinquish their commissions: Temporary Major A. Paling (on ceasing to be employed with the Horton-County of London—War Hospital), Temporary Captains: V. Colmer, I. W. Magill, H. Hargreaves, J. R. H. Ross, H. A. Upward, W. A. Bowman, R. A. McKay, R. L. M. Wallis, J. E. O'Donnell, G. R. Lawless, G. R. Russell (and is granted the honorary rank of Captain), J. MacGregor, M.C., T. G. Stevens, E. C. Wallace, J. M. D. Mitchell (on account of ill health contracted on active service, and is granted the honorary rank of Captain), G. W. Harrison, M.C. (on account of ill health and is granted the honorary rank of Captain), H. Hargreaves, L. J. Hood, O. R. Chichester, R. H. G. Weston, J. C. Thornhill, J. Dixon, (acting Major) F. T. Rees, M.C. (and to be granted the honorary rank of Captain), A. P. Bowdler, W. D. Rose, S. Batchelor, F. W. Clement, M. E. Gorman, H. F. H. Eberts, temporary honorary Captain D. Cotterill (on ceasing to be employed with Scottish Red Cross Society), Temporary Lieutenants: H. R. Oarter, G. R. Cox, W. L. Stuart, J. T. Cameron, H. J. Henderson, J. S. W. Nuttall (on account of ill health contracted on active service and is granted the honorary rank of Lieutenant), H. G. Arnott, W. B. Clarke, B. F. O'Reilly (on account of ill health), Temporary honorary Lieutenants: E. V. Keller, H. V. Hunter.

To be temporary Captains: J. O. Skewington, C. H. Treadgold, F. A. Anderson, M.C., C. F. Simpson, H. W. Drew, B. W. Gonn, H. Hannigan, C. S. Kingston, A. B. Northcote, W. A. Murphy, Captain P. S. Hunter (Singapore Volunteer Corps), temporary Lieutenants J. B. Jordan, A. N. E. Rodgers.

Granted temporary rank whilst serving with the Ceylon Sanitary Company—As Major: F. N. Holden. As Captain: C. L. de Zylva and J. A. Moraes. As Lieutenants: F. G. Stevens and T. C. Van der Ziel.

Late temporary Captains granted the honorary rank of Captain: R. W. Buchanan, J. G. Leslie, J. F. Strickland.

To be temporary honorary Captains: Temporary honorary Lieutenants D. J. Knowlton (while employed with No. 22 General Hospital), F. L. Johnson (while serving with No. 22 General Hospital, Harvard Unit), B. Mc B. Richardson, R. M. Bradley (substituted for notification in the *London Gazette* of May 4th).

The notification in the *London Gazette* of March 6th, 1918, regarding temporary Captain John S. Taylor is cancelled.

R. M. Blake to be temporary honorary Captain whilst serving with British Red Cross Society in France.

To be temporary Lieutenants: E. Ringross, J. H. D. Phelps, R. J. Hutchinson, J. H. Rodgers, G. W. Middlemiss, O. H. Bryan, J. M. H. Caldwell, J. Campbell, W. Q. Wood, P. A. Mansfield, J. M. Hall, M. F. Tylor, C. D. Lochrane, W. H. Gray, W. H. Prathowan, R. J. Wilson, D. M. Young, E. L. N. Pridmore, R. J. Attridge, A. F. Galloway, J. Dewar, C. I. Harmer, F. W. P. Sullivan, J. R. Sutherland, W. Gilmore, W. C. Rainsbury, J. J. Foran, A. T. Densham, J. A. Berlyn, A. E. Clarke.

To be temporary honorary Lieutenants: W. M. Richards, J. Todesco, C. H. Evans.

INDIAN MEDICAL SERVICE.

The services of Major J. B. Christian have been replaced at the disposal of the Government of Bombay.

Colonel C. R. M. Green, M.D., F.R.C.S., Assistant Director Medical Services, Derajat Brigade, to be Inspector-General, Civil Hospitals, Central Provinces.

Lieut.-Colonel S. P. James, M.D., retires from the service on account of ill health due to field service, January 15th, 1918.

Colonel W. H. B. Robinson, C.B., has been promoted to the rank of Surgeon-General, vice Surgeon-General W. R. Edwards, C.B., C.M.G., M.D., K.H.P., January 8th, 1918. Surgeon-General Robinson's tenure of appointment will reckon from March 12th, 1918.

Lieutenants to be Captains: J. B. de W. Molony, December 1st, 1915; H. G. Alexander, F.R.C.S., O. Wilson, M.B., J. J. Liston, M.B., K. R. Batra, B. H. Singh, P. D. Chopra, M.B., and O. R. Unger, July 16th, 1916; I. D. Grant, M.B., M. M. Khat, S. N. Mukerji, H. E. Murray, M.B., A. N. Bose, J. Dow, A. S. Fry, J. G. J. Green, W. P. Hogg, R. L. Vance, and J. H. G. White, July 17th, 1916; H. M. Collins, G. B. Hanna, September 30th, 1916; A. H. Brown, M.B., October 20th, 1916; C. H. Heppestall, November 2nd, 1916; E. Cotter, M.B., December 8th, 1916; U. J. Bourke and D. R. Thomas, May 30th, 1917; C. C. McCreedy, July 20th, 1917; C. W. W. Baxter, August 1st, 1917.

The promotion of the following Captains is antedated to September 1st, 1915: R. M. Porter, M.B., R. Sweet, D.S.O., M.B., E. Calvert, M.B., J. R. D. Webb, F. Phelan, A. C. Macrae, M.B., N. C. Kapur, A. H. C. Hill, J. F. Holmes, N. K. Bal, M.O., H. S. O. Hajj, S. S. Sokhey, M.B., A. K. Sinha, M.B. (since deceased), S. Doraisamy, A. Seddon, M.B., J. Findlay, M.B., W. C. Spackman, M.B., J. C. De, M.B., M. M. Mehta, R. M. Easton, M.B., C. H. P. Allen, R. V. Martin, G. H. Mahony, M.B., G. Covell, M.B., W. R. Stewart, M.B., K. R. Rao, J. G. O. Moses, M.B., H. Chand, M.C., V. Mahadevan, A. C. L. O. Bilderbeck, M.B., J. W. Van Reenen, M.B., B. F. Beaton, M. J. Roche, M.B., N. D. Puri, M.B., P. C. Roy, M.B., M. Das, J. B. Vaidya, J. M. R. Hennessy, A. G. Cowper, W. M. Lupton, H. H. Brown, C. H. N. Baker, M.C., J. W. Pigeon, M. L. Treston, P. Vleyn, M.B., B. M. Mitra, P. Savage, A. Chand, M.B., R. Lee, M.B., N. S. Jatar, T. S. Sastry, D.S.O., M.B., Jamal-ud-Din, M.B., F. B. Cheney, S. B. Venugopal, C. de O. Martin, M.B., J. H. Smith, M.B.

The promotion to present rank of Major W. D. Ritchie, M.B., has been antedated to December 27th, 1912.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captains (acting Majors) G. P. Kidd and E. M. Cowell to be acting Lieut.-Colonels whilst in command of a medical unit.
Captains to be acting Majors whilst specially employed: J. Gossip, H. C. O. Pedler, J. Paulley.

Captain D. Colombos and I. M. Pirrie, M.C., relinquish the acting rank of Major on reposting.

Captains to be acting Majors: W. B. Foley, E. R. Lovell, W. F. Wood, D.S.O., W. H. L. McCarthy, M.C., W. B. Cathcart, W. J. Webster, M.C., O. J. O'B. O'Ranlon, H. H. Brown.

Captain E. S. Jones from Territorial Force Reserve to be Captain. Officers relinquish their commissions: Captain J. C. Attridge (on account of ill health), Lieutenant W. Lumsden.

To be Lieutenants: Second Lieutenant R. W. O. Ball, from Unattached List, Territorial Force; E. F. Rabey, C. W. Hayward, R. Hilliard, E. S. Rose, E. B. Verney, from University of London Contingent O.T.C.; J. S. Mann, from Edinburgh University Contingent O.T.C.; O. E. Tilsley, from Bristol Contingent O.T.C.; T. A. Butcher, J. C. Morris, W. A. Jackman, J. R. Dingley, A. E. Jenkins, N. B. Thomas.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL SERVICE.

Temporary Captain E. L. Warner, C.A.M.C., relinquishes his appointment as Deputy Assistant Director of Medical Services.
Lieut.-Colonel E. J. Williams, D.S.O., C.A.M.C., to be temporary Colonel.

CANADIAN ARMY MEDICAL CORPS.

Temporary Lieut.-Colonel D. Donald to command a Canadian Stationary Hospital, vice Lieut.-Colonel G. D. Farmer.

Temporary Major T. H. Macdonald to be temporary Lieut.-Colonel.
Temporary Major W. M. Hart, M.C., to be acting Lieut.-Colonel whilst commanding a special hospital.

Temporary Captains to be temporary Majors: H. Orr, S. J. Streight, F. W. Tidmarsh, E. Pearce.

Temporary Major E. V. Hogan to be temporary Lieut.-Colonel.
Temporary Captain G. Shanks resigns his commission.

Temporary Lieutenants to be temporary Captains: J. R. Braja, A. F. McGregor, C. A. Wells, J. W. Mackenzie, N. W. Purey, A. E. Mackenzie, J. H. Howell, V. Blaney, J. W. Reddick, P. D. McLaren, C. G. Sutherland, H. A. Des Brisay.

SOUTH AFRICAN MEDICAL CORPS.

W. R. White-Cooper to be temporary Captain.
Temporary Lieutenant H. Sterne-Howett to be temporary Captain, April 28th, 1918, with seniority above G. A. Beyers (substituted for notification in the *London Gazette* of April 29th).

TERRITORIAL FORCE.

Lieut.-Colonels A. Nicol and J. Thomson are retired under para. 116 T.F. Regulations, and are granted permission to retain their rank and to wear the prescribed uniform.

Lieut.-Colonel F. Kelly is seconded whilst holding the appointment as Assistant Director of Medical Services, and to be temporary Colonel whilst so employed.

Major E. N. Cunliffe to be acting Lieut.-Colonel whilst specially employed.

Major R. C. Bailey relinquishes his commission on account of ill health, and is granted the honorary rank of Major.

Major A. C. Turner to be acting Lieut.-Colonel whilst commanding a field ambulance.

Captain (acting Lieut.-Colonel) R. E. Humphry reverts to the rank of Major on ceasing to command a general hospital, with precedence from January 4th, 1918, and remains seconded.

Captains to be acting Majors whilst specially employed: G. M. McGilivray, G. S. Williamson, R. Errington, M.C., B. L. Davis, D. O. L. Fitzwilliams, J. R. B. Russell, R. M. Wilson.

Captain H. R. Parsloe, from T.F. Reserve, to be Captain, with precedence as from May 25th, 1916.

Captain E. C. Plummer relinquishes his acting rank on ceasing to be specially employed.

Captain G. H. Hunt and Lieutenant D. H. Burleigh are seconded for duty under the Ministry of Munitions.

Captain (acting Lieut.-Colonel) G. Mackie, D.S.O., to be Major and acting Lieut.-Colonel.

Captain A. H. Newton relinquishes his commission on account of ill health, and is granted the honorary rank of Captain.

Major (acting Lieut.-Colonel) E. G. Peck, D.S.O., relinquishes his acting rank on ceasing to command a stationary hospital.

Seconded for services overseas: Captains J. A. C. Macewen, H. Gervis, J. M. Wyatt.

Captain T. Brown relinquishes his commission on account of ill health contracted on active service, and is granted the honorary rank of Captain.

Captain (Brevet Major) H. A. Lechody to be Major.

The appointment of William George Helsby to be Lieutenant which appeared in the *London Gazette* of November 23rd, 1914, is cancelled.

Lieutenants to be Captains: A. R. Muirhead, H. C. Sands, A. D. Peacock, R. K. Ellison.

TERRITORIAL FORCE RESERVE.

Colonel C. P. Oliver, C.M.G., from A.M.S., to be Colonel.
Captains T. Carnwath, D.S.O., D. L. Wall, M.C., and G. L. Bunting from R.A.M.O. to be Captains.

Captain T. W. Morcom-Harries from a field ambulance to be Captain.

Captain W. O. Stewart relinquishes his commission on account of ill health contracted on active service and is granted the honorary rank of Captain.

VOLUNTEER FORCE.

County of Aberdeen Volunteer Regiment, 11st Battalion.—R. A. Slessor to be Medical Officer and temporary Lieutenant.

Cornwall Volunteer Regiment, 2nd Battalion.—Lieut.-Colonel E. J. Jerome (late Duke of Cornwall's L.I.) to be Medical Officer and temporary Captain.

Essex Volunteer Regiment, 1st Battalion.—G. F. Wilson to be Medical Officer and temporary Lieutenant.

Essex Medical Volunteer Corps.—Captains J. White-Hopkins (late R.A.M.C.), and K. S. Storrs (R.A.M.O., T.F. Reg.) to be temporary Majors; Medical Officer and temporary Captain W. E. A. Clowes, from 2/2nd Battalion, Essex Volunteer Regiment, to be temporary Captain; E. H. Andrews to be temporary Lieutenant.

City of Glasgow Medical Volunteer Corps.—Captain D. McKail (late R.A.M.C.) to be temporary Captain.

Kent Medical Volunteer Corps.—W. F. H. Coke to be Captain; E. C. H. Eltheridge to be temporary Captain.

County of London Motor Volunteer Corps.—J. F. G. Bent to be Medical Officer and temporary Captain.

County of London Volunteer Regiment.—Medical Officers and temporary Lieutenants A. A. Angelis (1/11th Battalion) and R. M. H. Walford (7th Battalion) to be temporary Captains.

Norfolk Medical Volunteer Corps.—To be temporary Majors: J. E. Howlett (late Lieutenant R.A.M.C.), A. H. Meadows.

Northumberland Medical Volunteer Corps.—To be temporary Captains: Captain R. Younger (late R.A.M.C.) and A. A. Martin.

Surrey Medical Volunteer Corps.—H. Rosling to be temporary Lieutenant.

West Riding Volunteer Regiment, 1st Battalion: K. H. Beverley to be Medical Officer and temporary Lieutenant, 17th Battalion; O. H. Hudson to be Medical Officer and temporary Lieutenant.

EXCHANGE.

M.O. stationed Command Dépôt, Northern Command; beautiful district; wishes exchange with M.O. in Western or Southern Command.—Address No. 2350, BRITISH MEDICAL JOURNAL Office, 423, Strand, W.C.2.

APPOINTMENTS.

BEVIS, Miss C., M.B., Ch.B., House-Surgeon, Great Northern Central Hospital, Holloway.

CLARK, Francis, M.D., M.R.O.P., D.P.H., Medical Superintendent, Pinewood Sanatorium, Wokingham, Berks.

GOODRICH, Miss E. E., M.D., Assistant Medical Officer at the Townleys Military Hospital, Bolton Union.

HARGREAVES, H., M.B., Ch.B., District Medical Officer of the Wetherby Union.

MACKENZIE, Marion E., M.B., Ch.B. Edin., Medical Officer in connexion with the Leeds scheme for infant and maternity welfare.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 6s., which sum should be forwarded with the notice not later than the first post on Wednesday morning in order to ensure insertion in the current issue.

BIRTH.

ORTON.—On June 7th, at Fern Hill, Huyton, near Liverpool, the wife of D. C. Leyland Orton, L.R.C.P.(Lond.), M.R.O.S., D.P.H. (Dunelm.), L.D.S.R.C.S.(Eng.), Major R.A.M.C.(T.), 14, Rodney Street, Liverpool, of a daughter.

MARRIAGE.

FALLE-HUXLEY.—On June 12th, at St. Mary's, Bryanston Square, by the Rev. L. J. Percival, Lieutenant Harold de Carteret Falle, R.N.V.R., son of the Very Rev. the Dean of Jersey, to Frances M. Huxley, M.D., 4, Harley Street, daughter of George Huxley, York House, London, W.1.

DEATHS.

GETTINGS.—On June 15th, at Shothanger, Felden, Boxmoor, Harold Salter Gettings, L.R.C.P., L.R.C.S. Edin., L.R.F.P.S. Glasg., D.P.H. Birm., Research Worker, Medical Research Committee, aged 41 years, eldest son of John Salter Gettings, Surgeon, Chasetown, near Walsall.

HARTLEY.—On June 11th, 1918, George Thomas Hartley, L.R.C.P., L.R.O.S. Edin., of 163, Spring Bank, Hull, aged 55 years.

HEPWORTH.—On the 11th inst., at the Old Vicarage, Hyson Green, Nottingham, Wilfred Joseph Harrison Hepworth, Captain R.A.M.C., the dearly loved husband of Winifred Hepworth. R.I.P.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JUNE.	
24 Mon.	Leinster Branch, Annual Meeting, Dublin, 5 p.m.: Meetings of Dublin and East Leinster Divisions afterwards.
25 Tues.	Edinburgh Branch, Annual Meeting, Edinburgh, 4 p.m. Tea, 3.45 p.m.
26 Wed.	Worcester Division, Annual Meeting, Worcester, 3.30 p.m. London: Council Meeting, 11 a.m. Sussex Branch, Annual Meeting, Chichester, 2.15 p.m. Luncheon, 1.30 p.m.
27 Thur.	London: Insurance Acts Committee, Methods of Distribution Subcommittee, 2.30 p.m. Worcestershire and Herefordshire Branch, Annual Meeting, Hereford, 3 p.m.
28 Fri.	Metropolitan Counties Branch, Annual General Meeting, 429, Strand, W.C.2, 4 p.m.
JULY.	
25 Thur.	OPENING OF ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m.
26 Fri.	ANNUAL GENERAL MEETING, 2 p.m.

BRITISH MEDICAL JOURNAL.

LONDON: SATURDAY, JUNE 29TH, 1918.

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British Medical Association.

CURRENT NOTES.

Meeting of the Central Council.

A QUARTERLY meeting of the Central Council of the Association was held on June 26th, when the usual routine business was transacted and the Supplementary Report of Council was considered and approved.

The Order of the British Empire.

At the opening of the proceedings a resolution congratulating Dr. Cox on his appointment to be an Officer of the Order of the British Empire was unanimously adopted. The Chairman of Council, Dr. Macdonald, in moving the resolution, spoke of the devoted services of Dr. Cox to the British Medical Association in various capacities, and most recently as its Medical Secretary, and also of his labours as one of the Secretaries of the Central Medical War Committee. The honour conferred was, he said, a mark of the appreciation of his services in the latter capacity by the War Office, but it must also be taken to be a recognition of his work with other Government offices, and their appreciation of the position which the British Medical Association has attained as the representative organization of the profession. Dr. Verrall, Chairman of the Central Medical War Committee, who seconded the motion, spoke in a similar strain, praising Dr. Cox's work for the Committee and speaking of what he had done to consolidate the position of the Association in relation to Government departments. Dr. Cox, in thanking the Council, said that he had received many other evidences of the satisfaction with which the members of the Association had learnt of the honour conferred upon him, and added that it was specially gratifying to find it confirmed by the Council. Miss Lawrence, Assistant Secretary Central Medical War Committee, was also congratulated upon the honour of M.B.E. conferred upon her.

Medical Men and the Military Service Act.

The quarterly report of the Central Medical War Committee to the Council of the British Medical Association gave a summary of the medical situation under the Military Service Act, 1918. The Regulations made under this Act recognize the Committee as the sole tribunal for medical men in England and Wales, while the Committee of Reference retains its functions in respect of members of hospital and teaching staffs in the metropolis. As has been explained at some length in recent issues of the JOURNAL, the power to bring about the transference of medical men of military age from one area to another for civil work is obtained, under the Regulations, by limiting the kinds of exemption that may be granted by the medical tribunals. On what are technically known as "personal grounds" (serious hardship, ill health, or conscientious objection) the tribunal may grant absolute, temporary, or conditional exemption; but in applications on "occupational grounds"—that is, on a plea that instead of being employed on military service the applicant should be engaged on other work in which he is habitually employed, or in which he wishes to be employed—the tribunal is limited to one form of conditional exemption,

with the terms of which medical men must by now be familiar. Thus, one of the results of the hearing of applications would be to establish a pool of doctors who may be called upon whenever the Ministry of National Service, in consultation with the medical tribunals, considers they should either take a commission in the medical service of one of the Forces or engage in civil medical work elsewhere. This will enable the Committee to release for military service some of the younger men who up till now have had to be left in their practices because substitutes were not available. The Committee hopes that the statement of the Ministry of National Service and the letter addressed by the Committee to the Local Medical War Committees will have the effect of limiting the number of applications to those practitioners who, on personal grounds, feel that they have an exceptional claim for a form of exemption different from the "standard exemption" indicated above. A "certificate of protection" equivalent to the standard exemption will be offered to every practitioner when he receives notice of his right to apply formally for exemption. Acceptance of this certificate will place him at the disposal of the Minister acting on the advice of the medical tribunal, and his position will be the same as though he had applied to the tribunal and had received standard exemption. The hope is expressed that as many as possible of these liable to military service will acquiesce in this course. In this and in other matters the Central Medical War Committee will depend largely upon the help of the Local Medical War Committees. The immediate work before the Committee is summarized in two paragraphs:

1. During the last two months the usual flow of medical men into the army to supply vacancies caused by casualties, resignations, etc., has been greatly interfered with, owing to the necessity for waiting for the new Regulations. It will now be necessary to resume operations vigorously, and a call is at once being made on those areas which are relatively well supplied with men of military age to furnish men for commissions. The first step will be to call on the younger eligible men who can be spared without the provision of substitutes, but at the same time the Committee will proceed with the investigation of each area for the purpose of ascertaining how many, if any, can be made available for either military or civilian work. The next step will be to use some of the older men for the purpose of releasing men in areas from which without substitution no more could be spared with due regard to civil requirements.

2. The great increase in the number of men to be dealt with and the complexity of the problems involved in the substitution question have added greatly to the work of the Committee, and the Ministry of National Service has provided considerable assistance of an administrative and clerical nature, without which the additional work could not be done. An entirely new development is the temporary appointment by the Ministry of National Service, after consultation with the Committee, of a number of gentlemen who are to act as visitors to the local committees on behalf of the Central Committee and the Ministry, reporting to both bodies. These officers will attend the meetings of the Local Arrangements Subcommittee, the body by which the detailed work of assessment and calling up will be done, and will on behalf of that body visit local committees to advise and report as to the capacity of the areas concerned to spare more men, and the ways in which the necessary economies of medical man power can be brought about. The Central Committee believes that the services of these gentlemen will be extremely useful to it and to the local committees in this difficult and important work, and it is glad to report that it has been found possible to secure the services of Dr. B. A. Richmond of London (a member of the Central

Medical War Committee), Dr. C. H. Milburn of Hull, Dr. J. F. Walker, Secretary of the South Essex Local Medical War Committee; and Dr. James Pearse, formerly of Trowbridge, latterly a medical inspector of the National Health Insurance Commission.

Since the last report, Dr. Fulton, Chairman of the Demobilization Subcommittee, has attended a conference called by the military authorities to consider the best way of dealing with the question of the general demobilization of doctors at the end of the war. The subject is still under consideration, but it is probable that the matter will be dealt with by an interdepartmental committee, on which the Central Medical War Committee will be represented.

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

EAST YORK AND NORTH LINCOLN BRANCH: EAST YORKSHIRE DIVISION.—Mr. H. L. Evans, Honorary Secretary (101, Prince's Avenue, Hull), gives notice that the annual meeting of the East Yorkshire Division will be held in the board room of the Hull Royal Infirmary, on Tuesday, July 23rd, at 8.15 p.m.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

The following appointments have been announced by the Admiralty: Staff Surgeons F. M. V. Smith to the *Berwick*, G. F. O. Saxeby to Haslar Hospital, G. P. Adshead to the *For*, Surgeon R. A. Rankine to the *Latona*. Temporary Surgeons J. A. D. Skinner and A. Cook to Chatham Hospital, H. W. Breese to the *Orion*, W. Gover to the *Fearless*, W. A. Jolliffe to the *Topaze*, A. F. Adamson to Rosyth Dockyard, W. A. Gray to Plymouth Hospital, G. C. Scott to Portland Hospital, H. B. Lawrie and W. L. Glegg to the *Satellite*. To be temporary Surgeon: L. Gibson.

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

To be temporary Colonels whilst employed as Assistant Directors of Medical Services of Divisions: Lieut.-Colonels A. H. Safford and J. Powell, Major (temporary) Lieut.-Colonel R. N. Woodley, D.S.O.

The name of Brevet Colonel Henry Aylmer Haynes is as now described, and not as in the *London Gazette* of May 1st, 1918.

Temporary Majors to be acting Lieut.-Colonels whilst specially employed: W. de M. Hill, A. Stewart.

Major D. P. Watson to be acting Lieut.-Colonel whilst in command of a medical unit.

A. Robertson to be temporary Major whilst serving at Halifax War Hospital.

To be acting Majors whilst specially employed: Temporary Captains T. E. R. Branch, A. W. Tabuteau.

To be acting Majors: Temporary Captains F. T. Hill, M.C., J. Proctor, I. S. Wilson, M.C., E. W. Craig, M.C., B. Knowles, M.C., E. Biddle, M.O., G. B. McTavish, M.C., W. Russell, M.C., H. B. Wilson, temporary Captains D. McKelvey, M.C., J. A. Patterson, W. P. Ker, W. Haward, temporary Lieutenant R. S. Frew.

R. H. Trotter to be temporary Major whilst serving at Huddersfield War Hospital.

Captain A. G. Wells, D.S.O., relinquishes the acting rank of Lieutenant-Colonel, and reverts to the acting rank of Major, with pay and allowances of his substantive rank.

Temporary Captain R. C. Phelps relinquishes the acting rank of Lieutenant-Colonel on retiring.

Temporary Captain T. R. St. Johnston to be temporary Major (without increased emoluments).

Temporary Captains relinquish the acting rank of Major: R. V. Doherty, H. K. Graham-Hodgson, G. G. Timpson, P. T. Rees, M.C.

Officers relinquish their commissions:—Lieut.-Colonels: G. J. Johnston, R. J. Rowlette, Majors: K. E. L. G. Gunn, Sir A. C. K. Bull, Bt., L. Kidd, Captains: A. E. Boyd, R. M. Bronte, W. J. Corbett. Temporary Captains: H. Oswald-Smith and W. F. Clark and are granted the honorary rank of Captain, H. W. Harding, L. Rose, E. C. A. Reynolds, R. Friel, W. McCready, G. C. Bury, F. W. A. Ponsford, J. E. Ashby, W. Steadman, A. H. Watson (on account of ill health, and is granted the honorary rank of Captain), and J. D. O'Connor, E. E. Hobson, and H. W. S. Wright on account of ill health contracted on active service, and are granted the honorary rank of Captain. Temporary Lieutenants: J. Owen, W. H. Miller, A. Armer, H. W. J. Hawthorn, G. Arnott, E. Wragg on account of ill health, and is granted the honorary rank of Lieutenant, P. A. Mitchell.

Temporary Lieutenants to be temporary Captains: S. H. S. Taylor, H. F. Lumsden, L. L. Winterbotham, T. S. Sharpley, F. M. Longson, J. S. Soutter, J. J. Keyms, (acting Major) B. Hart, F. E. Higgins, J. B. Cooke, S. C. Wilkinson, F. Wilkinson, G. I. Cumberlege, H. E. Jones, G. Hardwicke, H. A. DeMorgan, W. R. O'Keefe, H. W. Fisher, A. T. W. Forrester, S. P. Rowlands, A. Macdonald, G. A. J. M. Longman, P. O. Moffatt, S. Carter, G. P. Young, G. W. Sudlow, R. H. Robbins, G. S. Robertson, H. F. Warner, W. S. George, T. S. D. Enderby, F. L. Brewer, L. W. Roberts, W. MacKenzie, H. G. Raschlegh, R. W. D. Hewson, W. Sanderson, F. Atthill, H. G. Drake-Brockman, T. J. George, J. P. Weston, A. Emerson, E. L. Galletley, W. A. Ellwood, E. A. Saunders, A. I. Cooke, H. P. Heapy, J. C. Mann, F. W. Rison, R. O. Smyth, L. B. Perry, E. E. M. Price, J. A. MacKenzie, J. F. Douce, E. Wight, R. Gauld, G. M. Davies, J. A. Ross, R. C. Cummins, F. Talbot, J. E. Scott, S. Slade, A. J. Rae, A. Masoo, J. D. Bridger, J. P. McGowan, C. I. Milne, A. H. John, J. Renwick, F. E. Wilson, H. A. Lyth, A. R. F. Hay, W. A. D. King, A. F. R. Conder, A. Gilchrist, G. H. Shaw, J. Donaldson, A. L. Robinson, G. A. Johnstone, A. W. F. Edmunds, L. W. Shadwell, J. Brydon, A. J. McConnell, R. S. Frew, J. L. Hawkes, J. B. Macallan, O. H. Wilson, H. Bravshaw, R. G. Burrow, H. A. Williams, J. Jeffrey, M. W. Cantor, H. N. Matthews, N. Morris, J. A. M. Clark, J. Dick, J. A. Currell, T. C. MacKenzie, J. A. Struthers, F. C. Morgan, W. P. Over, G. A. F. Heyworth, G. V. Anderson, J. Menton, O. A. A. Dighton, C. G. MacMahon, E. J. Fisher, J. H. Moore, W. H. Bush, J. A. Jamieson, A. C. Brown, R. H. Dixon,

W. N. May, H. L. Clift, H. Christal, A. Gregory, Wm. T. Wilson, M. R. Dobson, L. S. Hooper, R. M. Erskine, R. Robertson, J. D. Clay, L. H. Burner, R. D. Radcliffe, J. Tait, (acting Major) A. C. Sturrock, D. Gray, A. B. Rooke, R. Ward, R. C. Walker, W. Ballantyne, P. Moran, J. J. Tough, W. M. Menzies, G. Stewart, A. J. Ballantyne, A. McEwan, J. A. Thoun, G. F. Shepherd, A. G. McIntyre, E. M. Condy, D. T. Harris, L. O. Newton, T. C. Pocock, A. B. R. Sworn, J. E. Kesson, D. B. Davidson, P. Stewart, T. G. Caldwell, A. B. Vine, H. F. Overend, J. N. G. Nolan, J. M. Wallace, H. W. Latham, G. J. S. Dismorr, P. H. Henson, J. Sullivan, H. Matthews, G. Deery, G. H. Rodolph, H. F. Smith, O. Le F. M. Iburn. Temporary honorary Lieutenant G. W. Cottle to be temporary honorary Captain while employed with No. 22 General Hospital (Harvard Unit).

ROYAL AIR FORCE.

MEDICAL BRANCH.

H. F. Horne (Brevet Major R.A.M.C. F.F.) is granted a temporary commission as Major, and to be temporary Lieutenant-Colonel whilst employed as Advisory Sanitary Officer.

Captain T. Gibbons from Observer Officer, is granted a temporary commission as Captain.

To be temporary Captains: G. D. Kerr, C. H. S. Taylor (temporary Surgeon, R.N.C.), C. S. Glegg, F. L. Dickson, A. Moir-Gray, H. Munro, C. R. M. Patison, W. T. Williamson, S. J. Moore, W. Enraght, A. L. H. Rackham.

To be temporary Lieutenants: C. Lambriand, H. MacP. Cargin, N. P. Stalard, A. Kirkhope, G. A. S. Madawick, N. H. Medhurst, J. Stark, P. M. Carroll, P. Ashton, H. C. Cox, R. Malcolm, C. A. E. Cook, J. B. Dunlop, P. Hardy, G. A. Simmons, A. J. Swanton, B. R. H. Truman, P. E. Williams, J. W. Yorke-Davies, H. F. Squire, C. H. Vernon, W. A. Cooper, W. Cahill, E. S. Sharpe.

SPECIAL RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Captains to be acting Majors: J. Y. Moore, J. F. W. Sandison, G. G. Marshall, G. F. V. Leary. To be Captains: Captain H. P. Gabb, M.C., from T.F. Res.; Lieutenants H. W. Featherstone, W. H. White, D. J. H. Jones, W. R. Mathewson, R. N. Burton, D. Henegan, S. T. Alexander, W. J. Harvey. To be Lieutenants: N. D. Ball, E. Miller, J. Peter, P. W. Putnam, R. H. Sniderland, M. D. Vint, and J. P. J. Jenkins, from University of London Contingent O.T.C.; H. A. Hill and D. O. Rennie, from Birmingham University Contingent O.T.C.; S. P. Castell, from Manchester University Contingent O.T.C.; G. S. L. Kemp.

OVERSEAS CONTINGENTS.

CANADIAN ARMY MEDICAL CORPS.

Temporary Major W. H. K. Anderson to command a field ambulance and to be temporary Lieutenant-Colonel.

Temporary Captain (acting Major) R. Gibson relinquishes the acting rank of Major on ceasing to be specially employed.

Temporary Captain J. J. Thomson to be acting Major while specially employed.

Temporary Captain T. L. Harrison resigns his commission on appointment to a commission in the R.A.M.C.

SOUTH AFRICAN MEDICAL CORPS.

To be temporary Lieutenants: G. Blawell, T. J. Dwyer.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel G. Cran is retired under paragraph 116 T.F. Regulations, and is granted permission to retain his rank and to wear the prescribed uniform.

Lieut.-Colonel E. M. Simpson relinquishes his commission on account of ill health and is granted the honorary rank of Lieutenant-Colonel.

Captain C. A. Whyte relinquishes his commission on account of ill health contracted on active service and is granted the honorary rank of Captain, February 20th, 1916 (substituted for notification in the *London Gazette* of February 19th, 1916).

Captain J. C. Herberson relinquishes his commission on account of ill health.

Captain A. N. S. Carnichael, from Deputy Assistant Director of Medical Services, to be Captain.

Captain M. D. Wood is seconded for service overseas.

VOLUNTEER FORCE.

Hertfordshire Medical Volunteer Corps.—G. N. Wilford to be temporary Second Lieutenant.

Lancashire Volunteer Regiment, 1st Battalion.—R. C. Holt to be Medical Officer and temporary Lieutenant.

Middlesex Motor Volunteer Corps.—J. O. Simmonds to be Medical Officer and temporary Lieutenant.

Nottinghamshire Volunteer Regiment, 4th Battalion.—Temporary Captain E. Ringrose relinquishes his commission on being appointed to a commission in the R.A.M.C.

Shropshire Medical Volunteer Corps.—R. Gwynne to be temporary Lieutenant.

APPOINTMENTS.

BDD, H. H., L.M.S.S.A., District Medical Officer of the Amesbury Union.

Dixon, J., L.R.C.P. and S.Edin., Medical Officer of the Snaith District of the Goole Union.

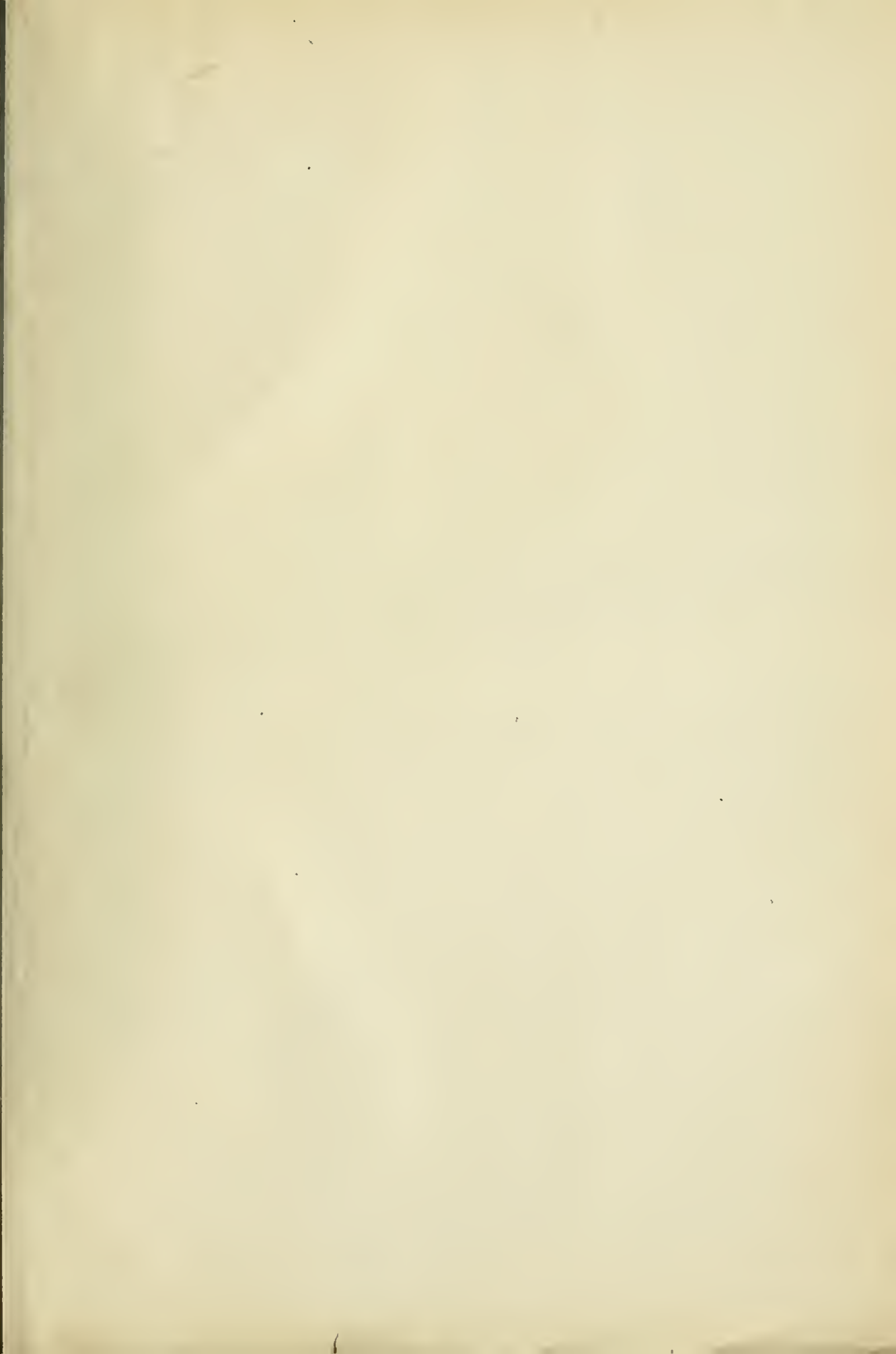
DIARY FOR THE WEEK.

WEDNESDAY.

ROYAL SOCIETY OF MEDICINE.—5.30 p.m., Annual General Meeting! Election of Officers and Council for 1918-19. Presidential address by Sir Rickman J. Godlee, Bt.

DIARY OF THE ASSOCIATION.

Date.	Meetings to be Held.
JULY.	
23 Tues.	East Yorkshire Division, Annual Meeting, Hull, 8.15 p.m.
25 Thurs.	OPENING OF ANNUAL REPRESENTATIVE MEETING, Connaught Rooms, Great Queen Street, London, W.C., 10 a.m.
26 Fri.	ANNUAL GENERAL MEETING, 2 p.m.





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